**Lambda Blockchain Overview**

**1. Total Supply and Symbol**

* **Total Coins:** 21 million LMC
* **Symbol:** LMC

**2. Circulation**

* **Coins in Circulation:** 1000 LMC

**3. Core Technology**

* **Algorithm:** SHA-256D
  + Lambda Blockchain utilizes the SHA-256D hashing algorithm, which is known for its security and reliability. This algorithm involves double hashing with SHA-256 to ensure the integrity and security of transactions and blocks.
* **Smart Contract Language:** CashScript
  + CashScript is used for creating and deploying smart contracts on Lambda Blockchain. It provides a scripting language that allows for the development of complex financial transactions and decentralized applications (dApps).

**Key Features**

* **Fixed Supply:** With a total supply capped at 21 million LMC, Lambda Blockchain follows a model similar to Bitcoin, creating scarcity and potential value appreciation over time.
* **Secure Hashing:** The use of SHA-256D ensures a high level of security for the blockchain, protecting against various forms of cyber threats and attacks.
* **Flexible Smart Contracts:** CashScript enables the development of customizable smart contracts, enhancing the blockchain’s capability to support a wide range of decentralized applications and financial operations.

This detailed overview provides a clear picture of Lambda Blockchain’s core features and technological foundation, highlighting its focus on security, fixed supply, and smart contract functionality.

1-INTRODUCTION

**Project name and logo**



Lambda Blockchain

**Lambda Blockchain** is a next-generation cryptocurrency and blockchain platform, forked from Bitcoin Cash, designed to overcome the scalability and transaction speed limitations seen in existing blockchain networks. Leveraging the stability of the Bitcoin Cash codebase while incorporating cutting-edge optimizations, Lambda Blockchain aims to offer a faster, more secure, and cost-efficient solution for decentralized applications, payments, and financial transactions.

This blockchain will serve as a powerful foundation for a wide range of use cases, from decentralized finance (DeFi) to secure cross-border payments, providing users and developers with the tools they need to innovate and grow in a decentralized world.

**Tagline:**  
"Lambda Blockchain – Fast, Scalable, and Secure Solutions for the Next Generation of Decentralized Applications and Payments."

2-**Problem Statement:**

### Scalability in Blockchain

Traditional blockchain networks like Bitcoin and even some newer platforms face significant challenges in **scalability**. As the number of users and transactions increases, these networks struggle to maintain fast transaction times and low fees.

* **Transaction Bottlenecks:** Most blockchains can only process a limited number of transactions per second (TPS). For example, Bitcoin processes around 7 TPS, leading to congestion during periods of high demand, which in turn increases transaction confirmation times and fees.
* **High Fees:** As networks become congested, users must pay higher fees to prioritize their transactions, making microtransactions and everyday use cases impractical.
* **Limited Adoption for Real-World Applications:** Due to these scalability issues, many blockchain networks are unable to support widespread adoption for decentralized applications (dApps), global payment systems, or high-frequency trading.

This scalability bottleneck prevents blockchain technology from achieving its full potential in terms of **mass adoption** and **real-world usability**. Lambda Blockchain is designed to address these critical issues by enhancing transaction throughput and lowering costs while maintaining decentralization and security.

### Transaction Speed in Blockchain

One of the major limitations of many existing blockchain networks is **slow transaction speed**. Popular blockchains like Bitcoin and Ethereum often experience delays in processing transactions due to network congestion and block confirmation times.

* **Slow Confirmation Times:** On networks like Bitcoin, it can take up to 10 minutes or more to confirm a single transaction. In periods of high network activity, this delay can increase, making the system impractical for time-sensitive applications such as payments or real-time financial transfers.
* **User Frustration:** Slow transaction speeds lead to poor user experiences, particularly in use cases like online purchases, where fast confirmations are critical for seamless transactions.
* **Barrier to Adoption:** The delay in processing transactions prevents blockchain from being used for everyday activities, such as point-of-sale payments, where instant settlement is expected.

These issues limit blockchain technology's applicability for **real-time financial transactions** and high-performance decentralized applications. Lambda Blockchain is designed to overcome these challenges by significantly improving transaction speed, ensuring that users can experience **faster confirmations** and a **smoother transaction process**.

**High Fees in Blockchain**

One of the critical barriers to widespread adoption of blockchain technology is the issue of **high transaction fees**. On many popular blockchain networks, users are often required to pay substantial fees to have their transactions processed in a reasonable amount of time.

* **Fee Increases During Network Congestion:** When networks become congested, transaction fees can spike dramatically, as users must pay more to prioritize their transactions. This makes the network inefficient and costly, particularly for low-value or microtransactions.
* **Inaccessible for Everyday Use:** High fees make blockchain impractical for day-to-day activities such as small purchases, cross-border remittances, or micro-payments, where the fee can sometimes exceed the transaction amount itself.
* **Deters Developer Adoption:** Developers building decentralized applications (dApps) on such networks often face challenges in attracting users due to high fees, reducing the potential for innovation and growth.

These **prohibitive fees** restrict blockchain’s potential as a widely-used payment system and financial tool, particularly for users in developing countries or for use cases involving frequent small transactions. Lambda Blockchain aims to tackle this problem by offering **low, predictable transaction fees**, making the network more accessible and cost-effective for a broad range of applications.

**Security Vulnerabilities in Existing Blockchain Solutions**

While blockchain technology is known for its security features, many existing blockchain networks still face **significant security vulnerabilities** that can lead to attacks, loss of funds, or network instability.

* **51% Attacks:** In smaller or under-secured networks, attackers with more than 51% of the hashing power can manipulate the blockchain, double-spending coins or reversing transactions.
* **Smart Contract Exploits:** Vulnerabilities in poorly coded smart contracts have led to significant financial losses in decentralized finance (DeFi) platforms, with hackers exploiting bugs or flaws to siphon funds from users and platforms.
* **Centralization Risks:** Many blockchain networks claim to be decentralized, but in practice, a small number of mining pools or validators control a disproportionate amount of the network's power, increasing the risk of collusion or manipulation.
* **Private Key Management:** Many users are vulnerable to losing funds due to poor private key management, phishing attacks, or other forms of cybercrime that exploit weak links in wallet security.

These vulnerabilities undermine user trust and inhibit the broader adoption of blockchain technology for secure transactions and decentralized applications. Lambda Blockchain aims to enhance security by implementing **robust consensus mechanisms, secure smart contract standards, and improved decentralization**, ensuring a more secure and reliable blockchain network.

**3. Solution :**

### Lambda Blockchain's Enhanced Scalability

Lambda Blockchain addresses the **scalability challenges** faced by existing networks by implementing key optimizations that significantly improve transaction throughput and network performance.

* **Higher Transaction Capacity:** By increasing block size and optimizing block processing, Lambda Blockchain can handle a much higher number of transactions per second (TPS), reducing bottlenecks and ensuring that the network remains efficient even during periods of high demand.
* **Efficient Block Propagation:** Lambda Blockchain utilizes advanced block propagation techniques, ensuring that blocks are distributed across the network faster, reducing latency and minimizing delays in confirming transactions.
* **Layer 2 Scaling Solutions:** Lambda Blockchain is designed to integrate with Layer 2 scaling solutions, such as payment channels or sidechains, to offload some of the transaction load from the main chain, enabling **scalable and cost-efficient microtransactions**.
* **Adaptive Block Size Management:** The network dynamically adjusts block sizes based on transaction volume, ensuring flexibility and efficiency without sacrificing performance.

These enhancements make Lambda Blockchain capable of handling **large-scale applications** and **high-frequency transactions**, paving the way for mass adoption across a variety of use cases, from decentralized finance (DeFi) to global payment systems.

### Faster Transaction Speeds in Lambda Blockchain

Lambda Blockchain significantly improves **transaction speed**, making it more suitable for real-time applications and user-friendly experiences. This is achieved through several optimizations:

* **Reduced Block Time:** By lowering the time it takes to produce new blocks, Lambda Blockchain allows transactions to be confirmed much faster compared to traditional networks like Bitcoin. This reduces waiting times and enables near-instant transaction confirmation.
* **Optimized Consensus Mechanism:** The enhanced consensus algorithm streamlines the block validation process, minimizing the delay between transaction submission and confirmation. This results in **faster processing** without compromising network security.
* **Transaction Prioritization:** Lambda Blockchain uses advanced techniques to prioritize transactions more efficiently, ensuring that time-sensitive transactions can be processed quickly without requiring users to pay exorbitant fees.
* **Parallel Processing:** The blockchain's architecture supports parallel transaction processing, enabling multiple transactions to be verified simultaneously, further boosting transaction speeds.

These improvements ensure that Lambda Blockchain provides a **fast, seamless user experience**, making it suitable for applications that require **quick confirmations**, such as payments, financial services, and decentralized applications (dApps).

### Lower Fees and Enhanced Security in Lambda Blockchain

**1. Lower Fees:**

* **Efficient Fee Structure:** Lambda Blockchain implements a cost-effective fee model that minimizes transaction costs. By optimizing transaction processing and reducing overhead, users benefit from lower fees compared to networks with high transaction costs.
* **Scalable Fee Model:** The blockchain’s architecture allows it to handle high transaction volumes without increasing fees. This is achieved through scalable transaction processing and efficient use of network resources, ensuring fees remain low even during periods of high demand.
* **Incentive Alignment:** Lambda Blockchain uses a balanced incentive structure for miners or validators, aligning their interests with network efficiency. This reduces the need for high transaction fees as a means of prioritization.

**2. Enhanced Security:**

* **Robust Consensus Mechanism:** Lambda Blockchain incorporates a secure and resilient consensus mechanism designed to protect against common attacks, such as 51% attacks. This ensures the integrity of the blockchain and prevents malicious actors from compromising the network.
* **Secure Smart Contracts:** The blockchain employs rigorous standards for smart contract development, including formal verification and testing procedures, to minimize vulnerabilities and prevent exploits. This helps protect users and funds from being lost due to smart contract bugs or weaknesses.
* **Decentralization:** By promoting a high degree of decentralization, Lambda Blockchain reduces the risk of centralization-related vulnerabilities. A diverse network of nodes and validators enhances the security and reliability of the blockchain, preventing collusion and ensuring a fair validation process.
* **Advanced Encryption:** The blockchain utilizes state-of-the-art encryption techniques to safeguard user data and transactions. This includes secure key management practices and protection against common cyber threats.

These solutions ensure that Lambda Blockchain not only offers **lower transaction fees** but also maintains a high level of **security**, addressing key issues faced by existing blockchain networks and fostering trust and reliability in its ecosystem.

**4. Market Opportunity :**

**1. Blockchain and Cryptocurrency Market Size and Growth**

* **Market Size:** As of 2024, the global blockchain technology market is valued at approximately $8.2 billion and is expected to grow at a compound annual growth rate (CAGR) of around 60% through 2028. This growth is driven by increasing adoption across various industries, including finance, supply chain, and healthcare.
* **Cryptocurrency Market:** The cryptocurrency market capitalization recently surpassed $1.5 trillion. Bitcoin, Ethereum, and other major cryptocurrencies continue to see significant growth in value and adoption, indicating a robust and expanding market.

**2. Decentralized Finance (DeFi) Sector**

* **DeFi Growth:** The DeFi sector has experienced explosive growth, with the total value locked (TVL) in DeFi platforms reaching over $100 billion in 2024. This represents a dramatic increase from previous years, highlighting the growing adoption and potential of decentralized financial services.
* **Key Trends:** The DeFi ecosystem is expanding rapidly, with applications spanning lending, borrowing, decentralized exchanges (DEXs), yield farming, and stablecoins. This growth underscores the demand for scalable, secure blockchain solutions that can support high transaction volumes and complex financial operations.

**3. Blockchain Usage and Adoption**

* **Enterprise Adoption:** Major corporations, including IBM, Microsoft, and Amazon, are investing heavily in blockchain technology for supply chain management, data security, and financial transactions. The enterprise blockchain market is projected to reach $20 billion by 2025, reflecting its increasing integration into business operations.
* **Retail and Consumer Applications:** The adoption of blockchain technology in retail, consumer goods, and digital identity verification is growing. Blockchain solutions are being used for tracking product provenance, enhancing transparency, and securing personal data.

**4. Specific Sectors Targeted by Lambda Blockchain**

* **Payments and Transactions:** Lambda Blockchain targets the payments sector by offering faster and more cost-effective transaction processing. This is crucial for both microtransactions and larger financial transfers, where speed and cost are critical factors.
* **Decentralized Finance (DeFi):** With its enhanced scalability and lower fees, Lambda Blockchain is well-positioned to support a wide range of DeFi applications, including lending platforms, decentralized exchanges, and financial derivatives.
* **Cross-Border Payments:** The blockchain’s low transaction fees and fast processing times make it ideal for cross-border payments, which often suffer from high costs and delays with traditional financial systems.
* **Supply Chain Management:** By providing transparent and secure transaction records, Lambda Blockchain can be used to improve supply chain efficiency and traceability, addressing challenges related to counterfeiting and fraud.

In summary, Lambda Blockchain is entering a rapidly growing market with significant opportunities in various sectors. Its solutions are tailored to meet the demands of an expanding blockchain ecosystem, positioning it for success in a competitive and evolving landscape.

### Target Market and Potential Users or Industries

**1. Target Market**

* **Cryptocurrency Users:** Individuals who actively trade, invest, or use cryptocurrencies for transactions. This includes both retail investors and high-net-worth individuals looking for efficient and cost-effective solutions for their digital assets.
* **DeFi Enthusiasts:** Users and developers involved in decentralized finance applications. This includes individuals and institutions seeking alternatives to traditional financial systems for lending, borrowing, trading, and earning yields.
* **Businesses and Enterprises:** Companies seeking to integrate blockchain solutions for payments, supply chain management, and data security. This includes both large enterprises and small-to-medium-sized businesses (SMBs) looking to leverage blockchain technology for operational efficiency.
* **Developers and Startups:** Developers building decentralized applications (dApps) and startups creating innovative blockchain-based solutions. This group is focused on leveraging blockchain’s capabilities to create new products and services.

**2. Potential Users or Industries**

* **Financial Services:** Banks, financial institutions, and fintech companies looking for secure, fast, and low-cost solutions for transactions, cross-border payments, and financial contracts. Lambda Blockchain can support traditional financial operations and innovative financial products.
* **Retail and E-commerce:** Online retailers and e-commerce platforms that need efficient payment solutions and fraud prevention mechanisms. Lambda Blockchain offers faster payment processing and lower transaction fees, enhancing the overall customer experience.
* **Supply Chain and Logistics:** Companies involved in supply chain management seeking transparency and traceability for their products. Blockchain can improve supply chain efficiency, reduce fraud, and enhance accountability.
* **Healthcare:** Healthcare providers and organizations using blockchain for secure data management, patient records, and drug traceability. Lambda Blockchain’s security features can help protect sensitive healthcare data and improve record-keeping.
* **Gaming and Entertainment:** Developers and companies in the gaming industry looking to integrate blockchain for in-game assets, digital collectibles, and secure transactions. Lambda Blockchain can provide the infrastructure for a seamless gaming experience with secure and fast transactions.
* **Education and Identity Verification:** Institutions and organizations using blockchain for educational credentials, certification verification, and identity management. Blockchain can enhance the security and reliability of these processes.
* **Government and Public Sector:** Government agencies exploring blockchain for secure voting systems, public records management, and transparency in public expenditures. Lambda Blockchain can provide robust solutions for enhancing transparency and reducing bureaucracy.

In summary, Lambda Blockchain targets a diverse range of markets and industries, each with its own specific needs and opportunities. By addressing the scalability, speed, and cost challenges faced by these sectors, Lambda Blockchain is well-positioned to attract a broad user base and drive significant adoption across various applications.

**5. Product Overview :**

**Key Features of Lambda Blockchain**

**1. Enhanced Scalability**

* **High Transaction Throughput:** Lambda Blockchain is engineered to handle a significantly higher number of transactions per second (TPS) compared to traditional blockchain networks. This is achieved through optimized block sizes and efficient transaction processing algorithms, allowing the network to support large-scale applications and high user activity.
* **Adaptive Block Size:** The blockchain dynamically adjusts block sizes based on network demand, ensuring efficient use of resources and maintaining optimal performance without compromising scalability.

**2. Faster Transaction Speeds**

* **Reduced Block Time:** Lambda Blockchain features a shorter block time, enabling quicker transaction confirmations. This reduction in block time leads to near-instant transaction processing, making the network suitable for real-time applications and financial services.
* **Optimized Consensus Algorithm:** The blockchain utilizes an advanced consensus mechanism designed to streamline the validation process. This optimization accelerates the confirmation of transactions and improves overall network speed.

**3. Lower Transaction Fees**

* **Cost-Effective Fee Model:** Lambda Blockchain implements a low-cost fee structure that minimizes transaction expenses. By optimizing network efficiency and reducing overhead, users benefit from affordable transaction fees, even during periods of high activity.
* **Scalable Fee System:** The fee model adjusts to network conditions, ensuring that fees remain low and predictable regardless of transaction volume or network congestion.

**4. Robust Security Features**

* **Secure Consensus Mechanism:** Lambda Blockchain incorporates a secure consensus algorithm that protects against common attacks, such as 51% attacks and double-spending. This ensures the integrity and reliability of the blockchain.
* **Secure Smart Contracts:** The blockchain supports smart contracts with rigorous security standards. These contracts undergo thorough testing and formal verification to prevent vulnerabilities and protect against exploits.
* **Advanced Encryption:** Lambda Blockchain employs state-of-the-art encryption techniques to secure user data and transactions. This includes robust key management practices and protection against cyber threats.

**5. Decentralized and Trustless Environment**

* **High Decentralization:** The blockchain promotes a decentralized network architecture, reducing the risk of centralization and ensuring a fair and transparent validation process. This enhances the overall security and reliability of the network.
* **Trustless Transactions:** Lambda Blockchain facilitates trustless transactions, meaning that users do not need to rely on intermediaries or third parties. This enhances security and reduces the potential for fraud or manipulation.

**6. Developer-Friendly Ecosystem**

* **Smart Contract Support:** Lambda Blockchain supports the creation and deployment of smart contracts, enabling developers to build decentralized applications (dApps) with complex functionality.
* **Developer Tools and APIs:** The blockchain provides a range of tools and APIs to assist developers in building and integrating their applications. This includes comprehensive documentation and support for development.

**7. Integration with Layer 2 Solutions**

* **Layer 2 Scaling:** Lambda Blockchain is designed to work with Layer 2 scaling solutions, such as payment channels and sidechains. This integration enhances scalability and reduces transaction costs for microtransactions and high-frequency operations.

**8. Community and Ecosystem Development**

* **Active Community Engagement:** Lambda Blockchain fosters an active and engaged community of developers, users, and supporters. The project encourages participation through grants, hackathons, and incentives.
* **Partnerships and Integrations:** The blockchain seeks strategic partnerships and integrations with other blockchain networks, platforms, and services to expand its ecosystem and enhance its functionality.

In summary, Lambda Blockchain offers a comprehensive suite of features designed to address the key challenges of scalability, speed, cost, and security. These features make it a powerful platform for a wide range of applications, from decentralized finance to global payment systems.

### Detailed Explanation of Lambda Blockchain

**Lambda Blockchain** is designed to address the key challenges faced by traditional blockchain networks, such as scalability, speed, and security. Here’s an in-depth look at its core technology and consensus mechanism:

**1. Core Technology**

* **Fork of Bitcoin Cash:** Lambda Blockchain is built on the Bitcoin Cash codebase, incorporating the foundational elements of Bitcoin’s protocol with enhancements for scalability and performance. This fork provides a robust starting point while allowing for significant improvements tailored to modern blockchain needs.
* **Optimized Block Size and Structure:** The blockchain features an adaptive block size mechanism that adjusts based on network demand. This optimization ensures that the network can handle high transaction volumes without compromising performance or stability.
* **Advanced Encryption and Privacy:** Lambda Blockchain utilizes cutting-edge encryption techniques to secure transactions and user data. This includes secure hashing algorithms and advanced cryptographic protocols to protect against potential vulnerabilities and cyber threats.

**2. Consensus Mechanism**

* **Hybrid Consensus Algorithm:** Lambda Blockchain employs a hybrid consensus mechanism that combines Proof of Work (PoW) with elements of Proof of Stake (PoS). This approach leverages the strengths of both consensus models:
  + **Proof of Work (PoW):** PoW is used to ensure network security and integrity. Miners solve complex cryptographic puzzles to validate transactions and create new blocks, contributing to the overall security and decentralization of the network.
  + **Proof of Stake (PoS) Elements:** By integrating PoS features, Lambda Blockchain enhances its scalability and efficiency. Validators are selected based on the amount of cryptocurrency they hold and are willing to "stake" as collateral. This reduces the computational intensity of PoW and improves the speed and efficiency of block validation.
* **Dynamic Difficulty Adjustment:** The consensus algorithm includes a dynamic difficulty adjustment feature that automatically adjusts the difficulty of mining tasks based on network conditions. This ensures a stable block creation rate and prevents sudden fluctuations in transaction processing times.
* **Secure and Fair Validation:** The hybrid consensus mechanism is designed to balance security with efficiency. PoW provides robust security by making it costly to attack the network, while PoS elements improve transaction processing speed and reduce energy consumption.

**3. Additional Technological Features**

* **Layer 2 Solutions:** Lambda Blockchain supports Layer 2 scaling solutions such as payment channels and sidechains. These solutions enable high-speed, low-cost transactions off the main chain, further enhancing scalability and efficiency.
* **Interoperability:** The blockchain is designed to be interoperable with other blockchain networks and platforms. This allows for seamless integration with existing systems and facilitates cross-chain transactions and interactions.
* **Developer Ecosystem:** Lambda Blockchain provides a comprehensive suite of developer tools, APIs, and documentation to support the creation and deployment of decentralized applications (dApps) and smart contracts. This fosters innovation and encourages the growth of a vibrant ecosystem.

In summary, Lambda Blockchain leverages a combination of advanced technologies and a hybrid consensus mechanism to deliver a scalable, fast, and secure blockchain platform. Its core technology, including the optimized block size, encryption methods, and consensus algorithm, positions it as a cutting-edge solution for a wide range of applications.

**4. lambdad**

**Overview:** lambdad is the core daemon (background process) for Lambda Blockchain. It manages the operation of the Lambda Blockchain node, including block validation, transaction processing, and network communication. Running lambdad is essential for maintaining a full node on the Lambda Blockchain network.

**Key Commands:**

* **Start Node:**

**./lambdad –daemon**

* **Lambdad commands full node :**

./lambdad -help

Lambda Node Daemon

-?, -h, -help

-??, -hh, -help-debug

-alertnotify=<cmd>

-blocknotify=<cmd>

-blockreconstructionextratxn=<n>

-blocksdir=<dir>

-blocksonly

-conf=<file>

-daemon

-datadir=<dir>

-dbcache=<n>

-debuglogfile=<file>

-excessiveblocksize=<n>

-expire

-finalizationdelay=<n>

-finalizeheaders

-finalizeheaderspenalty=<n>

-includeconf=<file>

-indexdir=<dir>

-loadblock=<file>

-maxmempool=<n>

-maxorphantx=<n>

-maxreorgdepth=<n>

-mempoolexpiry=<n>

-mempoolexpirytaskperiod=<n>

-par=<n>

-parkdeepreorg

-persistmempool

-pid=<file>

-prune=<n>

-reindex

-reindex-chainstate

-sysperms

-txindex

-version

Connection options:

-addnode=<ip>

-asmap=<file>

-banscore=<n>

-bantime=<n>

-bind=<addr>[:<port>][=onion]

-connect=<ip>

-discover

-dns

-dnsseed

-enablebip61

-externalip=<ip>

-forcednsseed

-listen

-listenonion

-maxconnections=<n>

-maxreceivebuffer=<n>

-maxsendbuffer=<n>

-maxtimeadjustment

-maxuploadtarget=<n>

-onion=<ip:port>

-onlynet=<net>

-peerbloomfilters

-port=<port>

-proxy=<ip:port>

-proxyrandomize

-seednode=<ip>

-timeout=<n>

-torcontrol=<ip>:<port>

-torpassword=<pass>

-upnp

-useextversion

-whitebind=<addr>

-whitelist=<IP address or network>

Wallet options:

-avoidpartialspends

-disablewallet

-fallbackfee=<amt>

-keypool=<n>

-mintxfee=<amt>

-paytxfee=<amt>

-rescan

-salvagewallet

-spendzeroconfchange

-upgradewallet

-usebip69

-wallet=<path>

-walletbroadcast

-walletdir=<dir>

-walletnotify=<cmd>

-zapwallettxes=<mode>

Chain selection options:

-regtest

-scalenet

-testnet

-testnet4

Node relay options:

-doublespendproof

-whitelistforcerelay

-whitelistrelay

Block creation options:

-blockmaxsize=<n>

-blockmintxfee=<amt>

-gbtcheckvalidity

-maxgbttime=<n>

-maxinitialgbttime=<n>

RPC server options:

-gbtcachesize=<n>

-gbtstoredir=<dir>

-gbtstoretime=<secs>

-rest

-rpcallowip=<ip>

-rpcauth=<userpw>

-rpcbind=<addr>[:port]

-rpccookiefile=<loc>

-rpccorsdomain=value

-rpcpassword=<pw>

-rpcport=<port>

-rpcthreads=<n>

-rpcuser=<user>

-server

**5. Lambda-cli**

**Overview:** lambda-cli is the core daemon (background process) for Lambda Blockchain. It manages the operation of the Lambda Blockchain node, including block validation, transaction processing, and network communication. Running lambdad is essential for maintaining a full node on the Lambda Blockchain network.

./lambda-cli help

== Blockchain ==

finalizeblock "blockhash"

getbestblockhash

getblock "blockhash" ( verbosity )

getblockchaininfo

getblockcount

getblockhash height

getblockheader "hash\_or\_height" ( verbose )

getblockstats hash\_or\_height ( stats )

getchaintips

getchaintxstats ( nblocks "blockhash" )

getdifficulty

getdsproof "dspid\_or\_txid\_or\_outpoint" ( verbosity recursive )

getdsprooflist ( verbosity include\_orphans )

getdsproofscore "txid"

getfinalizedblockhash

getmempoolancestors "txid" ( verbose )

getmempooldescendants "txid" ( verbose )

getmempoolentry "txid"

getmempoolinfo

getrawmempool ( verbose )

gettxout "txid" n ( include\_mempool )

gettxoutproof ["txid",...] ( "blockhash" )

gettxoutsetinfo

invalidateblock "blockhash"

parkblock "blockhash"

preciousblock "blockhash"

pruneblockchain height

reconsiderblock "blockhash"

savemempool

scantxoutset "action" [scanobjects,...]

unparkblock "blockhash"

verifychain ( checklevel nblocks )

verifytxoutproof "proof"

== Control ==

getmemoryinfo ( "mode" )

getrpcinfo

help ( "command" )

logging ( ["include\_category",...] ["exclude\_category",...] )

stop

uptime

== Generating ==

generate nblocks ( maxtries )

generatetoaddress nblocks "address" ( maxtries )

== Mining ==

getblocktemplate ( "template\_request" )

getblocktemplatelight ( "template\_request" "additional\_txs" )

getmininginfo

getnetworkhashps ( nblocks height )

prioritisetransaction "txid" ( dummy ) fee\_delta

submitblock "hexdata" ( "dummy" )

submitblocklight "hexdata" "job\_id"

submitheader "hexdata"

validateblocktemplate "hexdata"

== Network ==

addnode "node" "command"

clearbanned ( manual automatic )

disconnectnode ( "address" nodeid )

getaddednodeinfo ( "node" )

getconnectioncount

getexcessiveblock

getnettotals

getnetworkinfo

getnodeaddresses ( count )

getpeerinfo

listbanned

ping

setban "subnet" "command" ( bantime absolute )

setexcessiveblock maxBlockSize

setnetworkactive state

== Rawtransactions ==

combinepsbt ["psbt",...]

combinerawtransaction ["hexstring",...]

converttopsbt "hexstring" ( permitsigdata )

createpsbt [{"txid":"hex","vout":n,"sequence":n},...] [{"address":amount},{"data":"hex"},...] ( locktime )

createrawtransaction [{"txid":"hex","vout":n,"sequence":n},...] [{"address":amount},{"data":"hex"},...] ( locktime )

decodepsbt "psbt"

decoderawtransaction "hexstring"

decodescript "hexstring"

finalizepsbt "psbt" ( extract )

fundrawtransaction "hexstring" ( options )

getrawtransaction "txid" ( verbose "blockhash" )

sendrawtransaction "hexstring" ( allowhighfees )

signrawtransactionwithkey "hexstring" ["privatekey",...] ( [{"txid":"hex","vout":n,"scriptPubKey":"hex","redeemScript":"hex","amount":amount},...] "sighashtype" )

testmempoolaccept ["rawtx",...] ( allowhighfees )

== Util ==

createmultisig nrequired ["key",...]

estimatefee

signmessagewithprivkey "privkey" "message"

validateaddress "address"

verifymessage "address" "signature" "message"

== Wallet ==

abandontransaction "txid"

abortrescan

addmultisigaddress nrequired ["key",...] ( "label" )

backupwallet "destination"

createwallet "wallet\_name" ( disable\_private\_keys blank )

dumpprivkey "address"

dumpwallet "filename"

encryptwallet "passphrase"

getaddressesbylabel "label"

getaddressinfo "address"

getbalance ( "dummy" minconf include\_watchonly )

getnewaddress ( "label" )

getrawchangeaddress

getreceivedbyaddress "address" ( minconf )

getreceivedbylabel "label" ( minconf )

gettransaction "txid" ( include\_watchonly )

getunconfirmedbalance

getwalletinfo

importaddress "address" ( "label" rescan p2sh )

importmulti "requests" ( "options" )

importprivkey "privkey" ( "label" rescan )

importprunedfunds "rawtransaction" "txoutproof"

importpubkey "pubkey" ( "label" rescan )

importwallet "filename"

keypoolrefill ( newsize )

listaddressgroupings

listlabels ( "purpose" )

listlockunspent

listreceivedbyaddress ( minconf include\_empty include\_watchonly "address\_filter" )

listreceivedbylabel ( minconf include\_empty include\_watchonly )

listsinceblock ( "blockhash" target\_confirmations include\_watchonly include\_removed )

listtransactions ( "label" count skip include\_watchonly )

listunspent ( minconf maxconf ["address",...] include\_unsafe query\_options )

listwalletdir

listwallets

loadwallet "filename"

lockunspent unlock ( [{"txid":"hex","vout":n},...] )

removeprunedfunds "txid"

rescanblockchain ( start\_height stop\_height )

sendmany "" {"address":amount} ( minconf "comment" ["address",...] coinsel include\_unsafe )

sendtoaddress "address" amount ( "comment" "comment\_to" subtractfeefromamount coinsel include\_unsafe )

sethdseed ( newkeypool "seed" )

setlabel "address" "label"

settxfee amount

signmessage "address" "message"

signrawtransactionwithwallet "hexstring" ( [{"txid":"hex","vout":n,"scriptPubKey":"hex","redeemScript":"hex","amount":amount},...] "sighashtype" )

unloadwallet ( "wallet\_name" )

walletcreatefundedpsbt [{"txid":"hex","vout":n,"sequence":n},...] [{"address":amount},{"data":"hex"},...] ( locktime options bip32derivs )

walletlock

walletpassphrase "passphrase" timeout

walletpassphrasechange "oldpassphrase" "newpassphrase"

walletprocesspsbt "psbt" ( sign "sighashtype" bip32derivs )

== Zmq ==

Getzmqnotifications

**6.first blocks mined**

[

{

"address": "1LG499wcNNnbXxgXpYJmrQ4gC2b4QZk3hm",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 10,

"generated": true,

"blockhash": "00000000e800f0af25329c9372e41c1e842a2f36ec0dfd1dea4767663aa3e403",

"blockindex": 0,

"blocktime": 1725560908,

"txid": "9bf82a10a9e5d7e1ea4231fe1a8618cb9a8e17ce60f40e0767962dc4e19e1201",

"walletconflicts": [

],

"time": 1725560908,

"timereceived": 1725560909

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"address": "1B171yyrAzwCZccLGwsaqZDfzRxfVQzHtk",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 9,

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"blockhash": "0000000074f054ca251f5d4ed385d69b6430b878e89e179e9f450476c9de9b7a",

"blockindex": 0,

"blocktime": 1725564988,

"txid": "340965cd8b283477dcec2410db98d3a981dfe729260b8ba35c8517782e216086",

"walletconflicts": [

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"time": 1725564988,

"timereceived": 1725564989

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"address": "1Eb4YQekGdo98efMNwRGxy6bX5GhGoWchb",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 8,

"generated": true,

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"blockindex": 0,

"blocktime": 1725567184,

"txid": "2a88c42dc901e1b0030967743aaeea53a40fdd299156107504a783618536d6ce",

"walletconflicts": [

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"time": 1725567184,

"timereceived": 1725567184

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"address": "1UMS6qsJwf3d1LaofcxBzmefh1ky1b9WZ",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 7,

"generated": true,

"blockhash": "0000000063f06fe9cc86b5b208e7a08253d7a0001d46a9e8bd1292090a63a1ff",

"blockindex": 0,

"blocktime": 1725573444,

"txid": "99f9759597ca67e8613a7a474ab3628133313da2ccef53f52b0c15fe388586e4",

"walletconflicts": [

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"time": 1725573444,

"timereceived": 1725573444

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"address": "19WBAZG99c76PqPDG4osz3bMKoQ8c6Fnq8",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 6,

"generated": true,

"blockhash": "0000000083a21c99b2bbb1e19872f1028d6b731b27fbbe0985aeedb1d888a9e8",

"blockindex": 0,

"blocktime": 1725575119,

"txid": "70c9aac4dca962ef0dc0b8d05ad86f749825274a1fe10fe1cfc6c1d458d1dfd8",

"walletconflicts": [

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"time": 1725575119,

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"category": "immature",

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"vout": 0,

"confirmations": 5,

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"blockindex": 0,

"blocktime": 1725620129,

"txid": "3ab8f94b05c7b27fd335e14269432dfc5dd830b0f3ef76856445bce07c3dd416",

"walletconflicts": [

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"time": 1725620129,

"timereceived": 1725620129

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"address": "1Jcx3B5NmZs7bGEPGcpHNBXEV93ebtm7RJ",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 4,

"generated": true,

"blockhash": "00000000b9225fb45bb67307f0ff3415f9ef6dc43c34d33a119a390328383a32",

"blockindex": 0,

"blocktime": 1725622555,

"txid": "f49b4695fcb6ab035e3df352bc194b595cdf379c4669e5b415a58527fa9b6656",

"walletconflicts": [

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"time": 1725622555,

"timereceived": 1725622555

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"address": "1NzsRSWXZC5QdEdNLbGf4jk6pJKai7nA4f",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 3,

"generated": true,

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"blockindex": 0,

"blocktime": 1725624323,

"txid": "3c6463fe89bafbc2d424d94dea8a7af3cd99097cb4c19168a589a0a514ff07c2",

"walletconflicts": [

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"time": 1725624323,

"timereceived": 1725624323

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"address": "1P9CbkSXFXTAB1hfDm2pFJWc6aNWogL6bR",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 2,

"generated": true,

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"blockindex": 0,

"blocktime": 1725634779,

"txid": "87ad478998017e5745b90a068f11575511cc0626a8005c1848c56f18651615f7",

"walletconflicts": [

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"time": 1725634779,

"timereceived": 1725634779

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"address": "12D1EDeuxn8K4f3GpRcJ3UjAPm9BW5YuCu",

"category": "immature",

"amount": 50.00000000,

"vout": 0,

"confirmations": 1,

"generated": true,

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"blockindex": 0,

"blocktime": 1725637840,

"txid": "963d9af3220c961a0c8df4c0572c6e744b10abc3f3c9702e72014fa54258283e",

"walletconflicts": [

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"time": 1725637840,

"timereceived": 1725637841

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