

# BITCOIN & DIGITAL ASSET ESTATE PLANNING

## RUNNING YOUR OWN NODE & MINING BITCOIN

*Full sovereignty through verification and participation:  
running infrastructure, mining bitcoin, and planning for both*

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No attorney-client relationship is created by your use of this document.

Consult a licensed attorney in your jurisdiction for advice specific to your situation.

This guide covers Bitcoin node operation and mining from both a technical and estate planning perspective. Hardware specifications, software versions, and mining economics change frequently. Verify current specifications before making purchasing decisions. The author assumes no liability for actions taken based on information contained herein.

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## PART ONE: RUNNING YOUR OWN NODE

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### DON'T TRUST, VERIFY

You have probably heard the phrase “don’t trust, verify.” It is the closest thing Bitcoin has to a motto. But most people who repeat it do not understand what it means in practice, because most people do not run their own node.

Here is what it means: when you use someone else’s node — your wallet’s default server, an exchange’s infrastructure, a block explorer website — you are trusting that third party to give you accurate information. You are trusting that the balance they show you is real, that the transaction they confirmed actually exists in a valid block, and that the version of the blockchain they are serving you has not been tampered with. You are trusting, not verifying.

When you run your own node, you verify everything yourself. Your node downloads every block ever produced since January 3, 2009, checks every transaction against the consensus rules, and builds its own independent copy of the blockchain. No one can lie to you about your balance, fabricate a confirmation, or serve you a modified version of history. You are verifying.

Running a node is not about altruism or “helping the network,” although your node does contribute to the network’s resilience. It is about sovereignty. It is the difference between checking your bank balance on the bank’s website and auditing the bank’s ledger yourself. If you hold meaningful value in Bitcoin, running your own node is how you ensure that the numbers on your screen correspond to reality.

### WHAT A NODE ACTUALLY DOES

A Bitcoin node is a computer running Bitcoin software that performs three essential functions:

**Validates transactions and blocks.** When your node receives a new block from the network, it checks every transaction in that block against the consensus rules. Are the signatures valid? Is the sender spending coins they actually own? Does the block exceed the size limit? Does the coinbase reward match the current subsidy? If any rule is violated, your node rejects the block entirely. It does not matter if every other node on Earth accepts it — your node enforces its own rules.

Maintains a complete copy of the blockchain. Your node stores the entire transaction history of Bitcoin, from the genesis block to the present. As of 2026, this requires roughly 750 GB of disk space (and growing by approximately 70–80 GB per year). This is your independent, locally verified copy of the truth. No one can alter it without you knowing.

**Relays transactions and blocks to other nodes.** Your node connects to other nodes on the network and shares valid transactions and blocks. This is how the network propagates information without any central server.

## What a Node Does NOT Do

A node does not mine bitcoin. Mining is a separate function that requires specialized hardware (covered in Part Two of this document). A node does not earn you any bitcoin. Unlike mining or staking in other protocols, running a Bitcoin node provides no direct financial return. Its value is informational and structural — it ensures that the data you rely on to make decisions about your holdings is accurate and independently verified.

A node also does not require you to be online 24/7. If your node goes offline, it simply catches up when it comes back. It downloads the blocks it missed, validates them, and resumes normal operation. There is no penalty for downtime.

## HARDWARE OPTIONS

You do not need exotic hardware to run a Bitcoin node. The requirements are modest:

A computer with at least 2 GB of RAM (4 GB recommended). Any modern desktop, laptop, or single-board computer will work. At least 2 TB of storage — a solid-state drive (SSD) is strongly recommended over a traditional hard drive for performance. The blockchain is currently around 750 GB and grows by roughly 70–80 GB per year, so plan for headroom. A reliable internet connection. Initial synchronization downloads the entire blockchain, which can take anywhere from several hours to a few days depending on your connection speed and hardware. After initial sync, bandwidth usage is modest — typically 10–20 GB per month.

### Dedicated Hardware: Raspberry Pi, Mini PCs, and Old Laptops

Many node operators use a dedicated device so the node runs independently of their daily-use computer. Common choices include:

Raspberry Pi 4 or 5 with an external SSD. This is the classic “node in a box” setup — inexpensive, quiet, and energy-efficient (about 5–10 watts). The Pi 4 with 4 GB or 8 GB of RAM is sufficient, though the Pi 5 offers better performance. Pair it with a 2 TB USB SSD and you have a complete node for around \$200 in hardware.

**Mini PCs** like the Intel NUC, Beelink, or similar compact desktops. These offer more processing power than a Raspberry Pi, often include an internal SSD slot, and are still compact and quiet. A good option if you want to run Lightning Network channels alongside your node.

**An old laptop or desktop** that you are not using for anything else. If it was manufactured in the last decade and has an SSD (or you can add one), it will almost certainly work. This is the zero-cost option if you have spare hardware sitting in a closet.

### Packaged Node Software vs. Bitcoin Core

You have two broad approaches to setting up your node:

**Packaged node platforms** like Start9, Umbrel, RoninDojo, RaspiBlitz, and MyNode provide a user-friendly interface that bundles Bitcoin Core with additional services. These platforms give you a web-based dashboard, one-click installation of applications (block explorer, Lightning, Electrum server, etc.), and handle most of the configuration automatically. If you are not comfortable with the command line, a packaged platform is the way to go.

**Start9** deserves particular mention. It runs StartOS, a Linux-based operating system designed specifically for self-hosted services. It manages updates, backups, and service dependencies through a clean web interface. It is open-source and runs on Raspberry Pi, its own server hardware, or most x86 machines. Start9 has built a reputation for taking sovereignty seriously — they do not phone home, they do not collect data, and their software is designed to be entirely self-contained.

**Umbrel** is another popular option with an attractive interface and a large app store. It runs on Raspberry Pi or any Linux machine. Umbrel is simpler to set up than Start9 but trades some configurability for ease of use. Note that Umbrel's app store includes non-Bitcoin applications; stick to the Bitcoin and Lightning apps if your goal is node operation.

**Running Bitcoin Core directly** is the purist approach. Bitcoin Core is the reference implementation of the Bitcoin protocol — the software that defines the consensus rules. You download it from [bitcoincore.org](https://bitcoincore.org), verify the release signatures, install it, and let it sync. It provides a command-line interface and a basic GUI (bitcoin-qt). This approach gives you maximum control and minimum abstraction, but requires comfort with the command line and manual configuration.

For most holders reading this kit, a packaged platform like Start9 or Umbrel is the right choice. The additional services — particularly an Electrum server that lets your Sparrow Wallet connect to your own node — add meaningful privacy and verification benefits without requiring deep technical knowledge.

## PRIVACY AND SECURITY BENEFITS

Running your own node provides two categories of benefits that are often underappreciated:

### Privacy

When your wallet connects to someone else's server, that server learns your IP address and can associate it with your Bitcoin addresses and transaction history. This is a significant privacy leak. Your wallet is telling a third party exactly which addresses belong to you, what your balance is, and when you transact.

When your wallet connects to your own node, that information stays on your own hardware. No third party learns which addresses you are watching. Your transaction history remains private. This is particularly important if you run an Electrum server (like Electrs or Fulcrum) on your node and point Sparrow Wallet to it. The combination of your own node, your own Electrum server, and Sparrow gives you a high degree of financial privacy without any exotic configuration.

### Security

Your node independently validates every transaction it sees. If a miner produces an invalid block — one that violates the consensus rules, creates bitcoin out of thin air, or attempts a double spend — your node rejects it automatically. You do not need to trust that someone else caught the violation. You caught it yourself.

For holders with significant value in self-custody, this independent validation is a meaningful security layer. It means your view of the blockchain is provably accurate, verified by software you chose to run, on hardware you control.

## PART TWO: MINING BITCOIN

### THE STATE OF MINING IN 2026

Bitcoin mining is the process by which new bitcoin are created and transactions are confirmed. Miners compete to solve a computational puzzle; the first miner to find a valid solution gets to propose the next block and collect the block reward (currently 3.125 BTC after the April 2024 halving) plus all transaction fees included in that block.

Mining has evolved dramatically since Bitcoin's early days. In 2009, anyone with a laptop could mine bitcoin. By 2011, GPU mining dominated. By 2013, specialized hardware called ASICs (Application-Specific Integrated Circuits) made everything else obsolete. In 2026, Bitcoin mining is an industrial-scale operation for those seeking profit — but home mining remains accessible, meaningful, and worthwhile for reasons that go beyond raw economics.

### ASIC MINING

An ASIC miner is a device built for a single purpose: computing SHA-256 hashes as fast as possible. It does nothing else. It cannot browse the web, run a spreadsheet, or play a video. It is a purpose-built machine optimized for one calculation, and it does that calculation trillions of times per second.

#### Current Hardware

The major ASIC manufacturers as of 2026 include Bitmain (Antminer series), MicroBT (Whatsminer series), and Canaan (Avalon series). Machines are measured by their **hashrate** (how many hashes per second they compute) and their **efficiency** (how many joules of energy they consume per terahash). Higher hashrate and lower energy consumption per terahash mean a more competitive miner.

Current-generation machines include the Antminer S21 and T21, the Whatsminer M60 series, and the Avalon A15 series. At the upper end, machines like the Antminer S21 Pro produce around 234 TH/s (terahashes per second). The Avalon Q — which I run — is a quieter, home-friendly ASIC designed by Canaan specifically for residential use. It trades some hashrate for significantly lower noise output, making it viable in a home environment without dedicated soundproofing.

#### A NOTE ON GPU MINING

GPU mining is dead for Bitcoin and has been for years. Graphics cards cannot compete with ASICs on SHA-256 hashing — the efficiency gap is orders of magnitude. GPUs are still used to mine other cryptocurrencies that use different algorithms, but if your goal is to mine bitcoin, you need an ASIC. Do not let anyone sell you a GPU mining rig for Bitcoin in 2026.

### SOLO MINING VS. POOL MINING

This is one of the most important decisions a home miner makes, and the economics are unforgiving.

#### Pool Mining

When you join a mining pool, you contribute your hashrate to a collective effort. When the pool finds a block, the reward is distributed among all participants based on their contributed work. Pool mining provides **predictable, steady income** proportional to your hashrate. If you contribute 0.0001% of the pool's total hashrate, you receive approximately 0.0001% of each block reward the pool finds.

The tradeoff is that you are trusting the pool operator to distribute rewards fairly, and you are paying pool fees (typically 1–2% of earnings). You are also sharing your hash data with the pool, which has some privacy implications. Major pools include Foundry USA, Antpool, F2Pool, ViaBTC, and OCEAN. OCEAN is worth noting for its commitment to transparency and its “non-custodial” payout model, where miners receive payouts directly in each block template rather than accumulating a balance with the pool operator.

## Solo Mining

Solo mining means your machine works independently. If it finds a valid block, you receive the entire block reward — currently 3.125 BTC plus fees. But the probability of finding a block with a single home ASIC is vanishingly small. With a 200 TH/s machine against a global network hashrate of around 1 ZH/s (one zettahash, or 1,000 exahashes per second — a level the network first crossed in 2025), the expected time between blocks is measured in decades, not days. Solo mining with a single machine is, in practice, a lottery ticket — one that runs 24 hours a day and costs you electricity.

Some home miners solo mine anyway, either as a philosophical choice (contributing directly to the network without intermediaries) or because they are comfortable with the variance and view the electricity cost as acceptable for the small probability of a life-changing payout. Solo-mining services such as Solo CKPool let a solo miner use shared infrastructure for block submission while keeping the entire block reward if they find a block. OCEAN's DATUM protocol is different: it lets miners construct their own block templates, but the payouts are still pooled (under OCEAN's TIDES method), so DATUM in pool mode is not full-reward solo mining.

For most home miners, pool mining is the practical choice. The economics are more predictable, the payouts are regular, and the total return over time converges to the same expected value as solo mining, minus pool fees.

## HOME MINING PRACTICALITIES

I mine bitcoin at home. I run an Avalon Q ASIC on solar power. Here is what that actually involves, without sugarcoating.

### Electricity Costs

Electricity is the single largest factor in mining profitability. A current-generation industrial ASIC draws between 2,500 and 3,500 watts continuously — equivalent to running two or three space heaters 24 hours a day (home-friendly models like the Avalon Q draw far less, around 1.7 kW). At the U.S. average residential electricity rate of roughly \$0.16–\$0.19 per kWh (about 18 cents per kWh on the 2026 U.S. average), a 3,000-watt miner costs approximately \$12–\$14 per day, or \$360–\$410 per month, in electricity alone.

Whether that cost is profitable depends on the current bitcoin price, the network difficulty, and your specific electricity rate. Mining profitability calculators (like the ones on [whattomine.com](https://whattomine.com) or [braiins.com](https://braiins.com)) can estimate your expected returns based on your hashrate, power consumption, and electricity cost. Be conservative with these estimates — network difficulty adjusts upward as more hashrate comes online, which reduces per-machine returns over time.

The breakeven electricity rate shifts with the bitcoin price. At higher bitcoin prices, mining remains profitable at higher electricity costs. At lower prices, miners with expensive electricity are squeezed out first. If you are paying more than \$0.10/kWh and mining is your primary goal, investigate time-of-use plans, commercial power rates, or renewable energy sources.

## Solar Integration

Running a miner on solar power changes the economics fundamentally. Solar panels, once the upfront capital cost is recovered, produce electricity at an effective cost near zero. If your solar system generates excess power during the day — power that would otherwise be exported to the grid at a fraction of retail rate — routing that excess to a miner turns low-value exported energy into bitcoin.

This is the setup I run. My solar array produces more power than my household consumes during peak sunlight hours. Instead of selling that excess back to the utility at wholesale rates, I direct it to an Avalon Q. The miner runs during peak solar production and can be curtailed during cloudy periods or at night if grid electricity costs make continuous operation unprofitable. Smart plugs, home automation, or simple timers can manage this automatically.

If you are in a region with strong solar resources and already have or are considering a solar installation, home mining is one of the most effective ways to monetize excess production. The bitcoin you mine is immediately self-custodied — it goes from the pool directly to your wallet — and the effective cost of production is the marginal cost of the electricity used, which with solar can be near zero.

## Heat Management

ASIC miners generate significant heat. A 3,000-watt machine produces approximately 10,000 BTU per hour — comparable to a large space heater. In colder climates, this is a feature: your miner heats your home or garage in winter, offsetting heating costs and improving mining economics. In warmer climates, it is a problem that requires ventilation, exhaust ducting, or placement in an outbuilding.

Common solutions include placing the miner in a garage or workshop with adequate ventilation, using inline duct fans to exhaust hot air outside, building a simple enclosure with intake and exhaust ducting, or using immersion cooling (submerging the miner in dielectric fluid) for more advanced setups. The Avalon Q and similar home-friendly models are designed with lower noise and thermal profiles specifically to address residential placement challenges.

## Noise

Industrial ASICs are loud. A standard Antminer S19 or S21 runs at 70–80 dB — comparable to a vacuum cleaner running continuously. This is not viable inside a living space. Solutions include placing the miner in a detached garage, shed, or outbuilding, building or purchasing a sound-attenuated enclosure, using home-specific models like the Avalon Q (which runs significantly quieter at the expense of some hashrate), or immersion cooling, which eliminates fan noise entirely.

Noise is the most common reason home miners give up. Plan for it before you buy hardware. If you live in an apartment, a townhouse, or a home with an HOA that has noise restrictions, an industrial ASIC without mitigation is not going to work. The Avalon Q and similar residential-designed units exist specifically for this use case.

## Where Mined Bitcoin Goes



When you mine in a pool, your earnings accumulate in the pool's system until they reach a payout threshold, at which point the pool sends the bitcoin to the wallet address you configured. This is a critical detail for estate planning: your mining pool account may have unpaid bitcoin sitting in it. If you use OCEAN's non-custodial model, payouts go directly into each block, but most traditional pools hold a balance on your behalf.

Where that bitcoin goes depends on the wallet address you provided to the pool. If you gave the pool a self-custody wallet address, the bitcoin is sent directly to your hardware wallet. If you gave the pool an exchange deposit address, it goes to the exchange. For self-custody miners, the received bitcoin is controlled by the same seed phrase that controls the rest of the wallet. It does not require any additional access credentials beyond the seed phrase and passphrase.

## PART THREE: ESTATE PLANNING FOR YOUR INFRASTRUCTURE

### THE PROBLEM NO ONE TALKS ABOUT

Standard estate plans do not account for any of this. Your attorney drafted a will or trust that distributes your assets. Maybe they even mentioned “digital assets” or “cryptocurrency.” But they almost certainly did not ask whether you run a Lightning node with open channels, whether your mining pool has unpaid satoshis sitting in a custodial account, whether your node’s wallet has a separate seed phrase, or whether your miner’s pool login credentials are stored somewhere your executor can find them.

These are real assets, and they will be lost if they are not documented.

#### **⚠ INFRASTRUCTURE YOUR EXECUTOR NEEDS TO KNOW ABOUT**

**Your node may have Lightning channels with real balances.** If you run a Lightning node, your channels contain bitcoin that is not visible on the main blockchain. Closing those channels recovers the funds to your on-chain wallet, but only if your executor knows the channels exist, has access to the node, and understands the process. If the node goes offline permanently without closing channels, the counterparty may eventually force-close them — but your executor needs the node’s seed phrase to claim the returned funds.

**Your miner has pool accounts with unpaid payouts.** Most mining pools hold earned bitcoin until a minimum payout threshold is reached. If you die with a balance below that threshold, the bitcoin sits in the pool indefinitely. Your executor needs the pool name, the login credentials (email and password), and any 2FA recovery codes to access the account and either request a manual payout or update the payout address.

**Your mining wallet has a seed phrase.** The wallet address you gave your mining pool points to a wallet controlled by a seed phrase. If that seed phrase is the same one that controls your primary holdings, your executor already has it (from the Custody Audit Checklist). If it is a separate wallet, you need to document it separately. Missing a mining wallet’s seed phrase means losing every future payout and any unmoved balance.

**Your node hardware has value.** ASIC miners, node hardware, and associated equipment (power supplies, networking gear, solar integration components) have resale value. Your executor should know what the equipment is, where it is located, and whether to continue operating it, sell it, or power it down. Include model numbers and approximate current values in your Custody Audit Checklist.

### WHAT TO DOCUMENT

The Custody Audit Checklist (Document 1 of this kit) includes sections for Other Digital Assets and exchange accounts. If you run a node and/or mine bitcoin, you should supplement that checklist with the following information:

#### **For Your Node**

**Hardware:** What device runs your node (Raspberry Pi, mini PC, dedicated server), where it is physically located, and what operating system or platform it runs (Start9, Umbrel, Bitcoin Core, etc.).

**Access:** How to log into the node's dashboard or command line. Include the local IP address, any passwords, and whether SSH access is configured.

**Lightning channels:** If you run a Lightning node, document the number of active channels, approximate total capacity, and the node's public key. Crucially, the on-chain seed phrase alone does NOT recover Lightning channel funds — your executor also needs the current Static Channel Backup (the `channel.backup` file), and recovery then depends on the channel peers cooperating to force-close; an out-of-date SCB can forfeit channel funds entirely. Record where the latest `channel.backup` is kept and how it is kept current. Because channel recovery is fragile, the safest estate-planning default is to cooperatively close all Lightning channels and move the funds to cold storage rather than leaving channels open for your heirs to unwind.

**Electrum server:** If you run an Electrum server (Electrs, Fulcrum), note that Sparrow Wallet or other wallets may be configured to connect to it. If the node goes offline, wallets will need to be reconfigured to use a different server.

## For Your Mining Operation

**Hardware:** Model, manufacturer, hashrate, power consumption, and physical location of each miner. Include the power supply specifications and any ventilation or cooling equipment.

**Pool:** Which mining pool you use, the login credentials (email, password, 2FA method and recovery), and your configured payout address. Note the minimum payout threshold and any current unpaid balance.

**Wallet:** The wallet address that receives mining payouts, and which seed phrase controls it. If it is the same wallet documented elsewhere in the Custody Audit Checklist, note that explicitly to avoid confusion.

**Electricity:** Whether the miner runs on grid power, solar, or a combination. If solar, note whether the system is grid-tied or off-grid, and whether the miner is configured to run only during peak production hours.

**Operational instructions:** Should the miner continue running after your death? Your executor may be able to continue operations if the electricity costs are favorable, or they may need to power it down and sell the hardware. Provide guidance based on your preferences and your executor's technical capabilities.

## CONNECTING IT ALL TOGETHER

This document is the final technical chapter of the Bitcoin Inheritance Kit. Everything described here — your node, your miner, your pool accounts, your Lightning channels — connects back to the same fundamental principle that runs through every other document in the kit: if it is not documented, it is lost.

Your node does not survive you by default. Your miner does not automatically transfer to your heirs. Your pool balance does not self-report to your estate. These are assets and infrastructure that exist entirely outside the traditional financial system, and they require deliberate, thorough documentation to survive your death.

Start with the Custody Audit Checklist. Document everything. Include your infrastructure alongside your wallets and exchange accounts. Then store that documentation with the same security you apply to your seed phrases — because in many cases, the information is just as valuable.

### NEXT STEPS

If you have not completed the Custody Audit Checklist (Document 1), start there. If you have completed it, review it now to ensure your node and mining infrastructure are included. Then review the Heir Letter (Document 2) and Digital Asset Memorandum (Document 3) to ensure your executor is aware of this infrastructure and has instructions for managing it.

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### **Need Help With Your Node or Mining Estate Plan?**

Asaf Fulks Law offers one-on-one consultations for Bitcoin holders who run their own infrastructure and need an estate plan that accounts for it.

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