

How to run a Lightning Network node on Windows

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This article will go through the steps needed to set up a Lightning Network (LN) node on Bitcoin mainnet using a Windows computer. We will be using ACINQ'S eclair implementation.

Requirements:

- A computer capable of running a Bitcoin full node
- A small amount of bitcoin that could potentially be lost (ideally at least \$5 worth)

I will also assume you have a general idea of what the LN is.

This guide is based on the one found on <u>eclair's GitHub</u> and <u>wiki</u> and has been modified to be more beginner-friendly.

Why should you run an LN node?

- 1. Harness the full power of the LN
- 2. Support the development of both the Bitcoin network and LN
- 3. Learn about a new technology
- 4. Be part of a digital network that may change the world

WARNING: eclair and other LN implementations are still in beta and any funds committed to your LN node could be **permanently** lost. Use only amounts you are comfortable with losing.

Ok, let's get started!

What is eclair?

Eclair is simply one implementation of the LN; in other words, it is one of many available programs that allow users to interact with the LN, other popular examples being c-lightning and lnd. This is similar to how Bitcoin Core is only one way of running a Bitcoin full node. Bitcoin Core itself is not Bitcoin, just like eclair itself is not the LN.

Step 1. Download eclair at https://github.com/ACINQ/eclair/releases. The first link contains the executable installer. Install eclair on your Windows computer.

Step 2. Ensure your Bitcoin full node meets the following specifications.

a. It must be version 0.16 or higher. Download the latest version if needed.

b. It must be non-pruning; that is, it must contain a **complete** copy of the Bitcoin blockchain. Download the blockchain if needed.

c. It must be a transaction indexing node. This is done by modifying your bitcoin.conf file, which you will have to create if you don't have one yet:

📙 Bitcoin						—	
← → • •	×	> AppData > Roaming >	Bitcoin >	√ Č	Search I	Bitcoin	م
Organize 🔻 🛛	Include se	elected folder in library 🔻	Give access to 🔻	New folder		•==	
Quick access Downloads	s s *	Name		Date modified 2018-06-23 11: 2018-06-23 9:2	32 4 PM	Type File folder File folder	Size
Document: Pictures	s x* x*	database		2018-06-23 4:5 2017-10-05 2:5	2 PM 5 PM	File folder LOCK File	0
OneDrive		walletlock		2018-02-26 8:0 2018-06-23 7:5 2018-06-18 4:5	7 AM 4 PM 7 PM	WALLETLOCK File	07
 Preventer Metwork		dbulog dbulog debug.log fee_estimates.dat mempool.dat peers.dat wallet.dat	Type: CONF File Size: 173 bytes Date modified: 2	2018-06-18 4:57 2018-06-23 4:3 2018-06-23 9:2 2018-06-23 8:5	PM 8 PM 4 PM 8 PM	Text Document DAT File DAT File DAT File DAT File	0 9,769 243 247 4,586 1,344
13 items		<					>

Go to C:\ > Users > your_username > AppData > Roaming > Bitcoin

If you cannot find the AppData folder, do the following:

Search your computer for "File Explorer Options". Go to the "View" tab. Select "Show hidden files, folders, and drives".

In your Bitcoin folder, create a new text document called "bitcoin.txt". Edit the properties of the file and rename the ".txt" extension to ".conf" (or if your file explorer is set up to view extensions, simply change the extension by renaming the file). Now open up bitcoin.conf with a text editor and add the following:

```
testnet=0
server=1
rpcuser=your-rpc-user-here
rpcpassword=your-rpc-password-here
txindex=1
zmqpubrawblock=tcp://127.0.0.1:29000
zmqpubrawtx=tcp://127.0.0.1:29000
addresstype=p2sh-segwit
```

If your version of Bitcoin Core is 0.17 or higher, add the following to bitcoin.conf:

```
deprecatedrpc=signrawtransaction
```

Your rpcuser and rpcpassword can be set to anything. Leave everything else as it is. Your bitcoin.conf should look something like this:

<i>1</i>	bitcoin	.conf - No	tepad		—	×
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test	tnet=	0				\sim
ser	/er=1					
rpci	iser=	youruse	ernam	e		
rpcp	bassw	ord=you	urpas:	sword		
txir	ndex=	1				
zmqp	oubra	wblock=	<pre>=tcp:</pre>	//127.0.0.1:2	9000	
zmqp	oubra	wtx=tcp	://1	27.0.0.1:2900	0	
addr	resst	ype=p2s	sh-se	gwit		



Save your updated bitcoin.conf file.

You will now have to restart Bitcoin Core for the changes to take effect. When it starts up again, it will begin indexing the entire blockchain. This can take up to a few days depending on how fast your computer is. Be patient; after this, there's not much more to

go before your LN node is up and running!

Bitcoin Core - Wallet					×
File Settings Help					
Overview 🔊 Send 🖄 Receive	Transactions				
Available Recent transactions ma	R ay not yet be visible, and	ecent transactions	might be		
Pending: Total: Pending: Incorrect. This informat bitcoin network, as det Attempting to spen- will not be accepted	ion will be correct once y ailed below. d bitcoins that are af by the network.	our wallet has finished synchror fected by not-yet-displayed	nizing with the	15	
Number of blocks left	122479				
Last block time	Mon Apr 4 14:46:16 2	2016			
Progress	35.46%				
Progress increase per hour	2.71%				
Estimated time left until synce	d 23 hours				
			Hide		
Synchronizing with network 2 years and	10 weeks behind			BTC HD	5 0

The estimated time is not accurate

You can continue to step 3 while waiting for your full node to index.

Step 3. We will now edit eclair's configuration in a similar manner. Create an "eclair.conf" file in C:\Users\your_username\.eclair:



Add the following to eclair.conf:

```
eclair.chain=mainnet
eclair.bitcoind.rpcport=8332
eclair.bitcoind.rpcuser=yourusername
eclair.bitcoind.rpcpassword=yourpassword
eclair.node-alias="your alias here (must be in double quotes)"
eclair.node-color=ff9900
```

Set "yourusername" and "yourpassword" to the username and password you specified in bitcoin.conf.

You can give your LN node any name by setting eclair.node-alias.

Eclair.node-color is the color your node will have on LN explorers such as <u>https://lnmainnet.gaben.win/</u>. The color is specified in hexadecimal format.

Your eclair.conf should look something like this:



Contents of eclair.conf

Save your changes to eclair.conf.

Step 4. Once your Bitcoin full node is indexed and synced, start up eclair with your Bitcoin node running in the background. If you get an error message from eclair saying that a Bitcoin full node could not be found, your full node is not properly configured. Go through step 2 again.

Step 5. To establish your first LN payment channel, you will need to fund your Bitcoin Core wallet. Eclair will use any funds it finds in your Bitcoin Core wallet. Any returned bitcoin from closing a channel is also sent back to your wallet.

Send some bitcoin to your Bitcoin Core wallet. Again, since eclair is still in beta, any funds used to open a LN payment channel can be **permanently** lost. Use amounts you don't mind losing. Some nodes will require payment channels to be above a certain value to connect to them, so I recommend at least 60,000 satoshis (0.0006 BTC, about \$5 worth at the time of writing).

Step 6. Once your wallet is funded, open a channel in eclair:

A Eclair	-		×
Channels Tools Help			
Open channel Ctrl+O 1412) All Channels (6010) Activity			
Send Payment Ctrl+P	Close	Force of	lose
Receive Payment Ctrl+N			_
Close Ctrl+Q BTC Funder Yes			
Capacity 0.0006 BTC State NORMAL			
	Bitcoin-cr	ore MAI	

You will need to find a target node URI. If you don't already have one in mind, you can find one at <u>https://lnmainnet.gaben.win/</u> or <u>https://lml.com/</u>. Click on a node and look for the URI of the node.

🔷 Open a new channel		—		×
Target Node URI Address of the node				
	Simple connection (no chan	nel)		
Capacity Funding capacity of the channel	0.0006	Bitcoin		•
Optional Parameters				
Fee rate Funding tx fee rate, in sat/byte	1			
Push Amount (msat) Sent when opening channel				
	✓ Public Channel			
	Connect		Car	ncel

Choose how much bitcoin you want to fund your channel with. Do not send all of your bitcoin or you may get an error. The fee rate is the fee with which your bitcoin transaction will be sent. The push amount is optional. Double check everything and then click connect. Your channel's status will be updated:

🔷 Eclair								-		×
Channels Tool	s Help									
Local Channels (2)	All Nodes (1851)	All Channels (7822)	Activity							
									Force of	lose
Funding tx id Remote node id										
Your balance	0.0006 BTC			Fu	inder	Vec				
Capacity	0.0006 BTC			Sta	ate	WAIT_FOR_FUNDING_CON	IFIRMED			
								Bitcoin-	core MAII	NNET

Once your transaction confirms on the Bitcoin network, your LN payment channel has been established:



That's it! You now have an operational Bitcoin full node and Lightning Network node.

You can check for your node at <u>https://lnmainnet.gaben.win/</u>. It usually takes no more than 30 mins for a node to appear.

