

Solana Provider

[@web3auth/solana-provider](#)

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The Solana Blockchain Provider is basically a wrapper around the [Solana JSON RPC API](#) making it easier to interact with the Solana Blockchain.

In this section we'll explore more about how you can use this provider with our SDKs.

Installationâ

[@web3auth/solana-provider](#)

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- npm
- Yarn
- pnpm

npm install --save @web3auth/solana-provider yarn add @web3auth/solana-provider pnpm add @web3auth/solana-provider

Initialisationâ

Import the `SolanaPrivateKeyProvider` class from `@web3auth/solana-provider` .

```
import
```

```
{
```

```
  SolanaPrivateKeyProvider
```

```
}
```

```
from
```

```
"@web3auth/solana-provider" ;
```

Assign the `SolanaPrivateKeyProvider`

class to a variableâ

After creating your Web3Auth instance, you need to initialize the Torus Wallet UI Plugin and add it to a class for further usage.

```
const privateKeyProvider =
```

```
new
```

```
SolanaPrivateKeyProvider ( {
```

```
  config :
```

```
  SolanaPrivKeyProviderConfig
```

```
}) ; This constructor takes an object with a config of SolanaPrivKeyProviderConfig as input.
```

Argumentsâ

```
SolanaPrivKeyProviderConfig
```

```
export
```

```
interface
```

```
SolanaPrivKeyProviderConfig
```

extends

BaseProviderConfig

{ chainConfig :

Omit < CustomChainConfig ,

"chainNamespace"

; } export

type

CustomChainConfig

=

{ chainNamespace :

ChainNamespaceType ; /* * The chain id of the chain/ chainId :

string ; /* * RPC target Url for the chain/ rpcTarget :

string ; /* * web socket target Url for the chain/ wsTarget ? :

string ; /* * Display Name for the chain/ displayName :

string ; /* * Url of the block explorer/ blockExplorer :

string ; /* * Default currency ticker of the network (e.g: ETH) ticker :

string ; /* * Name for currency ticker (e.g:Ethereum) / tickerName :

string ; /* * Number of decimals for the currency ticker (e.g: 18) decimals ? :

number ; } ; export

interface

BaseProviderConfig

extends

BaseConfig

{ chainConfig :

Partial < CustomChainConfig

; networks ? :

Record < string ,

CustomChainConfig

; skipLookupNetwork ? :

boolean ; } export

interface

BaseConfig

{ /* * Determines if this controller is enabled / disabled ? :

boolean ; }

Chain Config^â

While connecting your preferred chain, you need to pass the chainConfig as a parameter. For solana you can use one of the following chain configs according to your use case.

- Solana Mainnet
- Solana Testnet
- Solana Devnet

```
const chainConfig =
{ chainNamespace :
CHAIN_NAMESPACES . SOLANA , chainId :
"0x1" ,
// Please use 0x1 for Mainnet rpcTarget :
""
// Please use some Production RPC Target for Solana Mainnet displayName :
"Solana Mainnet" , blockExplorer :
"https://explorer.solana.com" , ticker :
"SOL" , tickerName :
"Solana" , } ; const chainConfig =
{ chainNamespace :
CHAIN_NAMESPACES . SOLANA , chainId :
"0x2" ,
// Please use 0x2 for Testnet rpcTarget :
""
// Please use some Testing/ Public RPC Target for Solana Tesnet displayName :
"Solana Testnet" , blockExplorer :
"https://explorer.solana.com" , ticker :
"SOL" , tickerName :
"Solana" , } ; const chainConfig =
{ chainNamespace :
CHAIN_NAMESPACES . SOLANA , chainId :
"0x3" ,
// Please use 0x3 for Devnet rpcTarget :
""
// Please use some Testing/ Public RPC Target for Solana Devnet displayName :
"Solana Devnet" , blockExplorer :
"https://explorer.solana.com" , ticker :
"SOL" , tickerName :
"Solana" , } ;
```

Example [a](#)

```
const chainConfig =
{ chainNamespace :
CHAIN_NAMESPACES . SOLANA , chainId :
```

```

"0x3" ,

// Please use 0x1 for Mainnet, 0x2 for Testnet, 0x3 for Devnet rpcTarget :

"https://api.devnet.solana.com" , displayName :

"Solana Devnet" , blockExplorer :

"https://explorer.solana.com" , ticker :

"SOL" , tickerName :

"Solana" , } ;

const privateKeyProvider =

new

SolanaPrivateKeyProvider ( { config :

{ chainConfig } , } ) ;

```

Setting up the provider[^](#)

For Web3Auth PnP Web SDKs[^](#)

If you are using chainNamespace: "solana" while initializing Web3Auth or Web3AuthNoModal with the OpenloginAdapter , you need to add the privateKeyProvider to the OpenLogin instance.

```

const chainConfig =

{ chainNamespace :

CHAIN_NAMESPACES . SOLANA , chainId :

"0x3" ,

// Please use 0x1 for Mainnet, 0x2 for Testnet, 0x3 for Devnet rpcTarget :

"https://api.devnet.solana.com" , displayName :

"Solana Devnet" , blockExplorer :

"https://explorer.solana.com" , ticker :

"SOL" , tickerName :

"Solana" , } ;

const web3auth =

new

Web3AuthNoModal ( { clientId , chainConfig , web3AuthNetwork :

"sapphire_mainnet" , } ) ;

const privateKeyProvider =

new

SolanaPrivateKeyProvider ( { config :

{ chainConfig } , } ) ;

const openloginAdapter =

new

OpenloginAdapter ( { privateKeyProvider , adapterSettings :

{ ... } , mfaSettings :

```

```
{ ... } , loginSettings :
{ ... } , } ) ; web3auth . configureAdapter ( openloginAdapter ) ;

const web3authProvider =

await web3auth . connectTo ( WALLET_ADAPTERS . OPENLOGIN , { loginProvider :
"google" , } ) ;

// use this provider to interact with the blockchain
```

For Single Factor Auth Web SDK

While using the SFA Web SDK, you need to pass the provider during the initialisation of SDK, while calling the init() function.

```
const chainConfig =
{ chainNamespace :
CHAIN_NAMESPACES . SOLANA , chainId :
"0x3" ,

// Please use 0x1 for Mainnet, 0x2 for Testnet, 0x3 for Devnet rpcTarget :
"https://api.devnet.solana.com" , displayName :
"Solana Devnet" , blockExplorer :
"https://explorer.solana.com" , ticker :
"SOL" , tickerName :
"Solana" , } ;

const web3authSfa =
new
Web3Auth ( { clientId ,

// Get your Client ID from the Web3Auth Dashboard chainConfig , web3AuthNetwork :
"sapphire_mainnet" , usePnPKey :
false ,

// Setting this to true returns the same key as PnP Web SDK, By default, this SDK returns CoreKitKey. } ) ;

const privateKeyProvider =
new
SolanaPrivateKeyProvider ( { config :
{ chainConfig } , } ) ;

web3authSfa . init ( privateKeyProvider ) ;

const web3authProvider =

await web3authSFAuth . connect ( { verifier , verifierId : sub , idToken , } ) ;

// use this provider to interact with the blockchain
```

For tKey JS SDK

In tKey JS SDK, there is not internal method of passing the provider directly. Hence, you need to setup the provider using the private key generated from tKey, using the setupProvider function of the SolanaPrivateKeyProvider.

```
setupProvider ( privKey :
```

string) :

Promise < void

; import

{ getED25519Key }

from

"@toruslabs/openlogin-ed25519" ;

// please complete the tKey setup and login before this. const chainConfig =

{ chainNamespace :

CHAIN_NAMESPACES . SOLANA , chainId :

"0x3" ,

// Please use 0x1 for Mainnet, 0x2 for Testnet, 0x3 for Devnet rpcTarget :

"https://api.devnet.solana.com" , displayName :

"Solana Devnet" , blockExplorer :

"https://explorer.solana.com" , ticker :

"SOL" , tickerName :

"Solana" , } ;

const reconstructedKey =

await tKey . reconstructKey () ; secp256k1privateKey = reconstructedKey ?. privKey . toString ("hex") ;

const privateKey =

getED25519Key (secp256k1privateKey) . sk . toString ("hex") ; const privateKeyProvider =

new

SolanaPrivateKeyProvider ({ config :

{ chainConfig } , }) ;

await privateKeyProvider . setupProvider (privateKey) ; provider = privateKeyProvider . provider ;

// use this provider to interact with the blockchain

Using the provider

On connection, you can use `web3auth.provider` as a solana provider with `@web3auth/solana-provider` along with `@solana/web3.js` library.

import

{

SolanaWallet

}

from

"@web3auth/solana-provider" ;

const solanaWallet =

new

SolanaWallet (provider) ; Once you have setup the provider, you can use the standard functions in the `@solana/web3.js` library to get user's account, perform transaction, sign a message etc. Here we have listed a few examples to help you get

started there:

info All the RPC methods which are available by default on Solana Blockchain are also available on the Solana Provider. Although, for the case of phantom adapter they are not available.

You can refer to standard RPC calls for Solana [here](#)

Get User Account and Balance [^](#)

solana_requestAccounts

[^](#)

This method is used to fetch the address of connected account.

Example [^](#)

```
import
{
  Connection ,
  LAMPORTS_PER_SOL ,
  PublicKey ,
  SystemProgram ,
  Transaction
}
from
"@solana/web3.js" ; import
{
  SolanaWallet
}
from
"@web3auth/solana-provider" ;
const solanaWallet =
new
SolanaWallet ( provider ) ;
// Get user's Solana public address const accounts =
await solanaWallet . requestAccounts ( ) ;
const connectionConfig =
await solanaWallet . request ( { method :
"solana_provider_config" , params :
[ ] , } ) ;
const connection =
new
Connection ( connectionConfig . rpcTarget ) ;
// Fetch the balance for the specified public key const balance =
```

```
await connection . getBalance ( new  
PublicKey ( accounts [ 0 ] ) ) ;
```

Sign a Transaction^â

signTransaction

^â

This method is used to sign a single serialized transaction and it returns a signedTransaction object.

Example^â

```
import  
{  
  Connection ,  
  LAMPORTS_PER_SOL ,  
  PublicKey ,  
  SystemProgram ,  
  Transaction  
}  
from  
"@solana/web3.js" ; import  
{  
  SolanaWallet  
}  
from  
"@web3auth/solana-provider" ;  
const solanaWallet =  
new  
SolanaWallet ( provider ) ;  
const connectionConfig =  
await solanaWallet . request ( { method :  
  "solana_provider_config" , params :  
    [ ] , } ) ;  
const connection =  
new  
Connection ( connectionConfig . rpcTarget ) ;  
const accounts =  
await solanaWallet . requestAccounts ( ) ; const blockhash =  
( await connection . getRecentBlockhash ( "finalized" ) ) . blockhash ; const  
TransactionInstruction  
=  

```



```

SystemProgram . transfer ( { fromPubkey :
new
PublicKey ( accounts [ 0 ] ) , toPubkey :
new
PublicKey ( accounts [ 0 ] ) , lamports :
0.01
*
LAMPORTS_PER_SOL , } ) ; const transaction =
new
Transaction ( { recentBlockhash : blockhash , feePayer :
new
PublicKey ( pubKey [ 0 ] ) , } ) . add ( TransactionInstruction ) ;
const signedTx =
await solanaWallet . signTransaction ( transaction ) ; console . log ( signedTx . signature ) ;

```

Sign all Transactions[â](#)

signAllTransactions

[â](#)

This method is used to sign a list of serialized transactions and it returns back list of signed ofTransaction objects.

Example:[â](#)

```

import
{
Connection ,
LAMPORTS_PER_SOL ,
PublicKey ,
SystemProgram ,
Transaction
}
from
"@solana/web3.js" ; import
{
SolanaWallet
}
from
"@web3auth/solana-provider" ;
const solanaWallet =
new
SolanaWallet ( provider ) ;

```

```

const connectionConfig =
await solanaWallet . request ( { method :
"solana_provider_config" , params :
[ ] , } ) ;
const connection =
new
Connection ( connectionConfig . rpcTarget ) ;
const accounts =
await solanaWallet . requestAccounts ( ) ; const blockhash =
( await connection . getRecentBlockhash ( "finalized" ) ) . blockhash ; const
TransactionInstruction
=
SystemProgram . transfer ( { fromPubkey :
new
PublicKey ( accounts [ 0 ] ) , toPubkey :
new
PublicKey ( accounts [ 0 ] ) , lamports :
0.01
*
LAMPORTS_PER_SOL , } ) ; const transaction =
new
Transaction ( { recentBlockhash : blockhash , feePayer :
new
PublicKey ( pubKey [ 0 ] ) , } ) . add ( TransactionInstruction ) ;
const signedTx =
await solanaWallet . signAllTransactions ( transaction ) ; console . log ( signedTx . signature ) ;

```

Sign and Send a Transaction^â

signAndSendTransaction

^â

This function is used to sign and broadcast the transaction on chain. It returns the signature of broadcasted transaction.

Example:^â

```

import
{
Connection ,
LAMPORTS_PER_SOL ,
PublicKey ,
SystemProgram ,

```

```

Transaction
}

from
"@solana/web3.js" ; import
{
  SolanaWallet
}

from
"@web3auth/solana-provider" ;

const solanaWallet =
  new
  SolanaWallet ( provider ) ;

const connectionConfig =
  await solanaWallet . request ( { method :
    "solana_provider_config" , params :
    [ ] , } ) ;

const connection =
  new
  Connection ( connectionConfig . rpcTarget ) ;

const accounts =
  await solanaWallet . requestAccounts ( ) ; const blockhash =
  ( await connection . getRecentBlockhash ( "finalized" ) ) . blockhash ; const

TransactionInstruction
=
SystemProgram . transfer ( { fromPubkey :
  new
  PublicKey ( accounts [ 0 ] ) , toPubkey :
  new
  PublicKey ( accounts [ 0 ] ) , lamports :
  0.01
  *
  LAMPORTS_PER_SOL , } ) ; const transaction =
  new
  Transaction ( { recentBlockhash : blockhash , feePayer :
    new
    PublicKey ( pubKey [ 0 ] ) , } ) . add ( TransactionInstruction ) ; const
  { signature }

```

=

```
await solanaWallet . signAndSendTransaction ( transaction ) ;
```

Sign a Message[â](#)

signMessage

[â](#)

This method is used sign any message from connected wallet.

Example[â](#)

```
import
{
  Connection ,
  LAMPORTS_PER_SOL ,
  PublicKey ,
  SystemProgram ,
  Transaction
}
from
"@solana/web3.js" ; import
{
  SolanaWallet
}
from
"@web3auth/solana-provider" ;
const solanaWallet =
new
SolanaWallet ( provider ) ;
const msg =
Buffer . from ( "Test Signing Message " ,
"utf8" ) ; const result =
await solanaWallet . signMessage ( msg ) ; console . log ( result . toString ( ) ) ;
```

Fetch User's Private Key[â](#)

solanaPrivateKey

[â](#)

This method is used to fetch the private key of logged in user. It is only available for in-app adapters like openlogin .

Example[â](#)

```
//Assuming user is already logged in. async
getPrivateKey ( )
```

```
{ const privateKey =
```

```
await web3auth . provider . request ( { method :
```

```
"solanaPrivateKey" } ) ; //Do something with privateKey }Edit this page Previous EIP1193 \(EVM\) Provider Next XRPL Provider
```