



How to deploy a voting smart contract Dapp

This tutorial will guide you through the process of deploying a voting smart contract Dapp on the Calimero network.

Calimero Shard Voting Dapp Tutorial: From Setup to Deployme



Prerequisite

Before you begin, ensure that you have the following prerequisites in place:

- Set up your [Calimero private shard](#)
- A code editor like [VSCode](#)
- Install the [NEAR CLI](#) tool
- Install [Node.js](#) and [npm](#) on your machine.
- Install the [Rust](#) and [WASM](#) toolchain

Step 1: Build the smart contract

- Clone the [Calimero examples repository](#) by running the following command in your terminal:

```
git clone https://github.com/calimero-is-near/calimero-examples
```

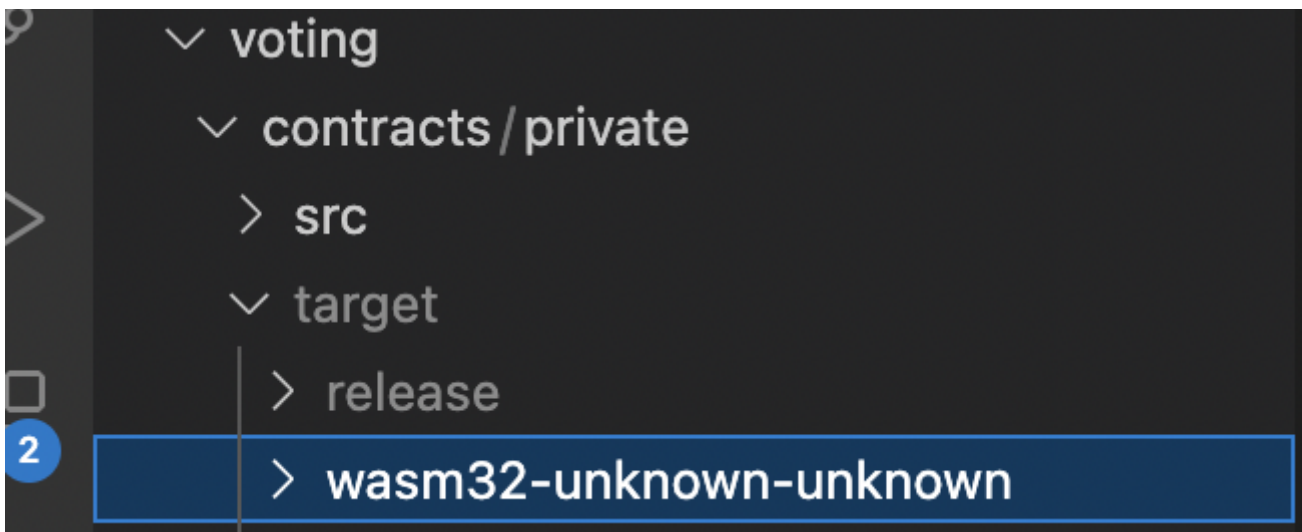
- Navigate to the `private` directory inside the `voting` folder.

```
cd calimero-examples/voting/contracts/private
```

- Compile the Rust smart contract to WASM by running the following command:

```
./build.sh
```

Once the compilation is complete, the compiled `.wasm` file of the contract will be located at:
`target/wasm32-unknown-unknown/release/poll.wasm`



Step 2: Generate an auth token

Before deploying the voting smart Dapp, you need to generate a Calimero auth token. This token will authenticate and authorize external applications to communicate with your shard.

Follow the steps provided [here](#) to generate an auth token for your Calimero shard.

Step 3: Set up the NEAR CLI

To interact with your Calimero shard using NEAR CLI, set the token value using the command `near set-api-key`.

Follow the steps provided [here](#) to set up the NEAR CLI.

Step 4: Create a keypair

A keypair for a shard account consists of a public key and a corresponding private key. To generate a new keypair for the shard account:

- Set the `SHARD_ID` environment variable in your command-line interface

```
export SHARD_ID="your_shard_name"
```

Make sure to replace "**your_shard_name**" with the name of your shard.

- Run the `near generate-key` command to generate a key for your shard

```
near generate-key $SHARD_ID.calimero.testnet --networkId $SHARD_ID-calimero-testnet
```

- Navigate to the `~/.near-credentials/` folder to locate the generated keypair file which is in a `.json` format. Alternatively, you can locate it by running the following command in your terminal:

```
cd ~/.near-credentials/network-id/account-id.json
```

! INFO

Take note of the **account_id**, **private_key**, and **public_key** values from the **.json** file.

Step 5: Create sub account

Create a sub account that will be used to deploy the previously built contract. This sub account should be created from the [Custodial account](#) in the Calimero Console, and the public key gotten from the generated keypair should be added to the subaccount.

Follow the steps [here](#) to set up the sub account and add public key.

Step 6: Deploy your NEAR contract

To deploy your contract to the private shard, follow these steps:

- In your cloned repository's directory, open the `deploy_calimero.sh` file.
- Set the following variables in your command-line interface:

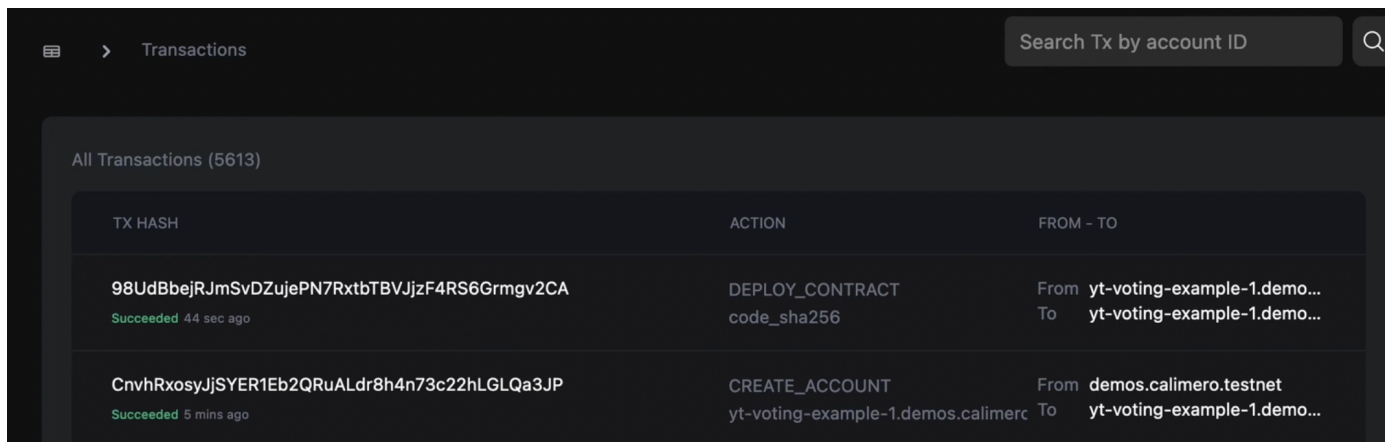
```
export SUB_ACCOUNT="your_sub_account"
export CALIMERO_RPC_NODE_URL="your_calimero_rpc_node_url"
export SHARD_ID="your_shard_name"
```

Make sure to replace **"your_sub_account"** with the name of your sub account, **"your_calimero_rpc_node_url"** with the NEAR RPC endpoint obtained from the Calimero Console dashboard, and **"your_shard_name"** with the name of your shard.

- Run the `near deploy` command to deploy the application:

```
near deploy \
  --accountId "$SUB_ACCOUNT" \
  --initFunction new --initArgs '{"question": "Which blockchain is best?",
"options": ["NEAR", "Bitcoin"]}' \
  --wasmFile target/wasm32-unknown-unknown/release/poll.wasm \
  --nodeUrl "$CALIMERO_RPC_NODE_URL" \
  --networkId "$SHARD_ID-calimero-testnet"
```

The command will deploy the application to the NEAR contract using the provided parameters. You can check the deployed contract on the [Explorer > Transactions](#) page.



The screenshot shows the NEAR Explorer Transactions page. At the top, there is a search bar labeled "Search Tx by account ID". Below it, the page displays "All Transactions (5613)". A table lists transactions with columns for TX HASH, ACTION, and FROM - TO. Two transactions are visible:

TX HASH	ACTION	FROM - TO
98UdBbeJRJmSvDZUjePN7RxtbTBVJjzF4RS6Grmgv2CA <small>Succeeded 44 sec ago</small>	DEPLOY_CONTRACT code_sha256	From yt-voting-example-1.demo... To yt-voting-example-1.demo...
CnvhRxosyJJSYER1Eb2QRuALdr8h4n73c22hLGLQa3JP <small>Succeeded 5 mins ago</small>	CREATE_ACCOUNT yt-voting-example-1.demos.calimerc	From demos.calimero.testnet To yt-voting-example-1.demo...

Step 7: Update the config file and start the Dapp frontend

To set up the frontend of your Dapp, follow these steps:

- Locate the `calimeroSdk.ts` file in the frontend code.
- Configure your connection settings in the `calimeroSdk.ts` file.

```
voting > ui > utils > TS calimeroSdk.ts > ...
1  export const config = {
2    calimeroUrl: process.env.NEXT_PUBLIC_CALIMERO_URL || "https://api.calimero.network",
3    calimeroToken: process.env.NEXT_PUBLIC_CALIMERO_TOKEN || ""
4  };
5  |
```

! INFO

It is recommended to use environment variables (.env) to store these settings.

The required configuration properties are:

- **NEXT_PUBLIC_CALIMERO_URL:** This is the RPC endpoint used for syncing accounts and querying shard data. You can find it on your Calimero Console dashboard under the endpoints table
- **NEXT_PUBLIC_CALIMERO_TOKEN:** This is the auth token you generated earlier from the console.

Run the following command to start your localhost server:

```
$ yarn install && yarn dev
```

- Access your Dapp frontend through <http://localhost:3000> and click **Login with NEAR**.

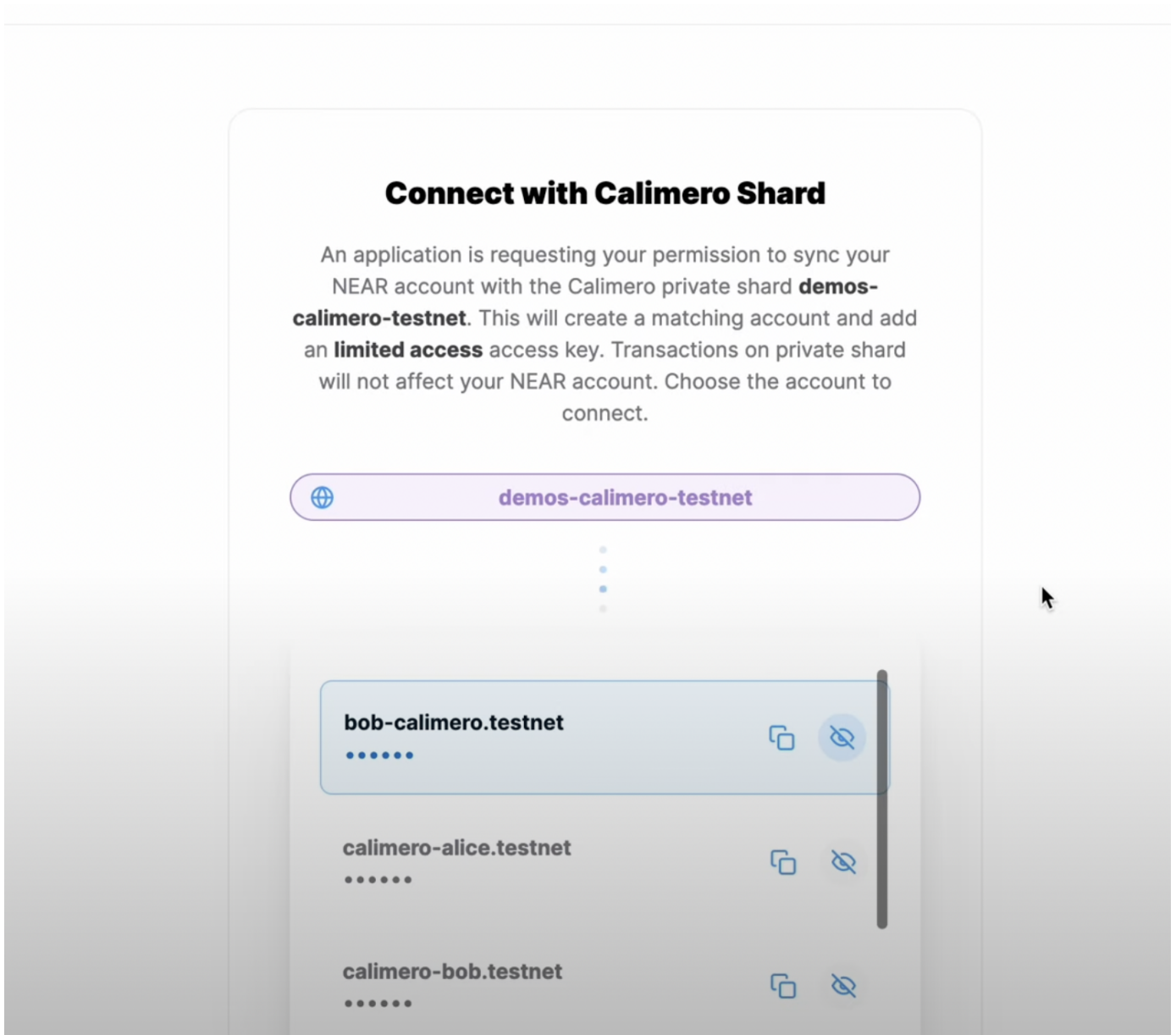


Login with NEAR

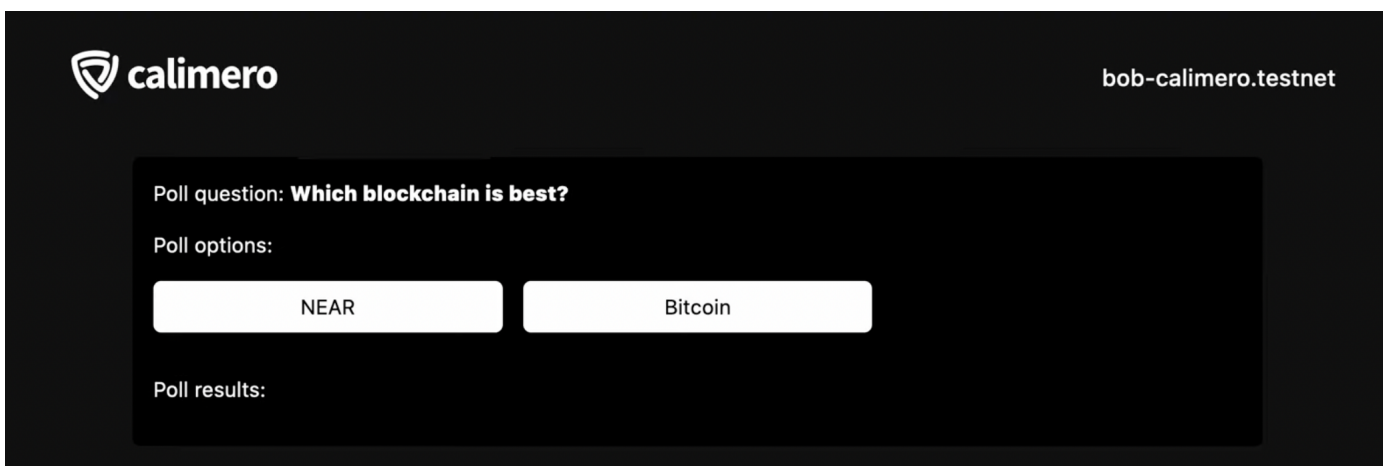
Connecting NEAR wallet will connect to
Calimero Private Shard and sync Account

 Login With NEAR

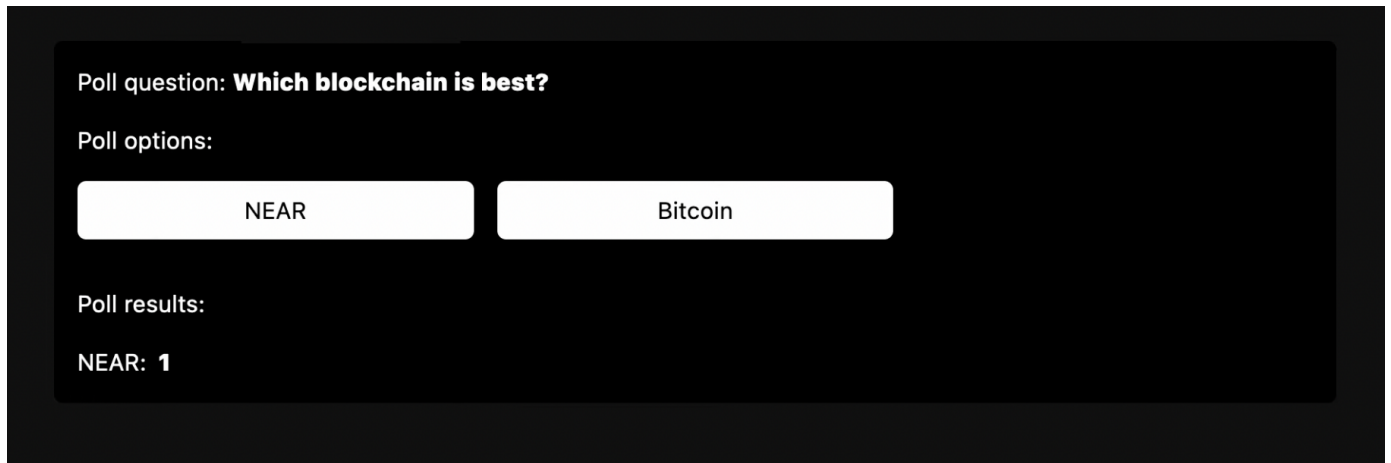
- Connect your shard by clicking on **Connect**, and select the desired account to participate in the poll.



- Click on any of the options and observe the immediate display of the results.



You can click on any of the options and also switch accounts to to click on the poll. Your result would be displayed immediately.



Poll question: **Which blockchain is best?**

Poll options:

NEAR Bitcoin

Poll results:

NEAR: **1**

Congratulations! You have successfully deployed a voting application that can access shard contracts on the Calimero Network.

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