**Moralis**

* Moralis provides the **full-stack workflow** for building high performance dapps. Fully compatible with your favourite web3 tools and services.
* Automatically syncing the balances of your users into the database, allowing you to set up on-chain alerts, watch smart contract events, build indexes, and so much more.
* All features are accessed through **an easy-to-use SDK.**
* Moralis is the **fastest way to build and deploy dApps** on Ethereum, BSC, Polygon, Solana, and Elrond and so on..
* All Moralis dApps are **cross-chain by default** - A cross-chain is the **capacity of two relatively independent blockchains to communicate with one another.**
* At the core of every dApp built with Moralis is a **Moralis Server.**
* The different components of a Moralis Server - **Database, Cloud code, Moralis SDK.**
* Each Dapp is usually divided into 2 parts:

1. **On-chain:** Smart Contracts, On-Chain Assets like tokens and NFTs, On-Chain transactions etc.
2. **Off-chain:** Backend infrastructure that collects data from the blockchain, offers an API to clients like web apps and mobile apps, indexes the blockchain, provides real-time alerts, coordinates events that are happening on different chains, handles the user life-cycle and so much more.

* Moralis Dapp is used in order to speed up the implementation of the **off-chain infrastructure**.

# **Sync and Index Smart Contract Events**

Syncing and indexing smart contract events enables blockchain developers to use **public on-chain data.**

Smart contracts are **a specific set of coded rules** that execute predefined actions once the predetermined conditions are met.

Smart contract events are **essentially signals to dApps** or other smart contracts that the contract is emitting to the signal wanting to communicate with them.

**Steps to sync and index SC events**

1. Create a Moralis server and login.
2. Select the “Servers” tab, Then, click on “+ Create a new Server” in the top-right corner.
3. Another pop-up window will appear where you need to enter your server’s name (this can be anything you want), select region, network, and chain(s). Finally, spin up your server by clicking on the “Add Instance” button.
4. To sync and index smart contract events with Moralis, click on the “View Details” button.
5. Once you click on the “View Details” button, a pop-up window will appear. By default, the “Server Details” tab is selected.
6. To add your new sync service, click on “Add New Sync”.
7. Now, once you click on the “Add New Sync” button, two options will appear. Make sure to select the top one – just click on the “Sync and Watch Contract Events” option.
8. First need to select the proper chain.
9. When it comes to the description, you can write whatever you want.
10. You need to click/check the “Sync\_historical” option.
11. You must go to Etherscan,in the search bar and type for eg: CryptoPunks (it can be contract address in most cases).
12. Then, click on any of the transaction hashes on any of the “Transfer Punk” methods on the “Transfers” tab.
13. Once on the “Transaction Details” page, make sure to select the “Logs” tab.
14. To get the topic, we use “PunkTransfer” and the details inside the parentheses.
15. To locate the ABI, you need to click on the contract address of CryptoPunks.
16. On the next page, scroll down a bit and click on the “Contract” tab.
17. Once on the “Contract” tab’s page, make sure you are in the “Code” section and then scroll down again.
18. To find it, use the search option and type in “PunkTransfer”.
19. Copy the entire object containing the highlighted “PunkTransfer”.
20. Finally, paste the copied object (highlighted above) into the “Abi” section in your “Sync” tab.
21. Now you need to obtain the proper contract address.
22. The table name is the final detail required to complete the adding of your new sync. Here, you can again use whatever you wish; however, we went with “PunkTransfers”.
23. To finally sync and index smart contract events for our CryptoPunks example, click on the “Confirm” button. After doing so, your new sync and watch contract event will be listed in the “Sync” tab.
24. Moreover, to access your dashboard, click on the arrow icon next to the “View Details” button, followed by “Dashboard”.
25. Inside your dashboard, you will now see the “PunkTransfers” class, which was automatically added as you created the sync.
26. Inside this class, you can see all details related to the transfers of CryptoPunks.

<https://moralis.io/sync-and-index-smart-contract-events-full-guide/>

<https://medium.com/coinmonks/how-to-sync-and-store-smart-contract-events-for-analytics-d7c25b8a4cbf>