Examples

Single token-to-ETH price usage

```
const Web3 = require("web3");
const { BigNumber } = require("ethers");

const yourInfuraKey = "add your key here";
const web3 = new Web3(`https://mainnet.infura.io/v3/${yourInfuraKey}`);

// eslint-disable-next-line max-len
const OffChainOracleAbi =
  '[{"inputs":[{"internalType":"contract MultiWrapper","name":"_multiWrapper","type":"address"},{"internalType":"contract IOracle[]","name":"existingOracles","type":"address[]"},{"internalType":"enum OffchainOracle.OracleType[]","name":"oracleTypes","type":"uint8[]"},{"internalType":"contract IERC20[]","name":"existingConnectors","type":"address[]"},{"internalType":"contract IERC20","name":"wBase","type":"address"}],"stateMutability":"nonpayable","type":"constructor"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract IERC20","name":"connector","type":"address"}],"name":"ConnectorAdded","type":"event"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract IERC20","name":"connector","type":"address"}],"name":"ConnectorRemoved","type":"event"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract MultiWrapper","name":"multiWrapper","type":"address"}],"name":"MultiWrapperUpdated","type":"event"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract IOracle","name":"oracle","type":"address"},{"indexed":false,"internalType":"enum OffchainOracle.OracleType","name":"oracleType","type":"uint8"}],"name":"OracleAdded","type":"event"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract IOracle","name":"oracle","type":"address"},{"indexed":false,"internalType":"enum OffchainOracle.OracleType","name":"oracleType","type":"uint8"}],"name":"OracleRemoved","type":"event"},{"anonymous":false,"inputs":[{"indexed":true,"internalType":"address","name":"previousOwner","type":"address"},{"indexed":true,"internalType":"address","name":"newOwner","type":"address"}],"name":"OwnershipTransferred","type":"event"},{"inputs":[{"internalType":"contract IERC20","name":"connector","type":"address"}],"name":"addConnector","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"contract IOracle","name":"oracle","type":"address"},{"internalType":"enum OffchainOracle.OracleType","name":"oracleKind","type":"uint8"}],"name":"addOracle","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[],"name":"connectors","outputs":[{"internalType":"contract IERC20[]","name":"allConnectors","type":"address[]"}],"stateMutability":"view","type":"function"},{"inputs":[{"internalType":"contract IERC20","name":"srcToken","type":"address"},{"internalType":"contract IERC20","name":"dstToken","type":"address"},{"internalType":"bool","name":"useWrappers","type":"bool"}],"name":"getRate","outputs":[{"internalType":"uint256","name":"weightedRate","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[{"internalType":"contract IERC20","name":"srcToken","type":"address"},{"internalType":"bool","name":"useSrcWrappers","type":"bool"}],"name":"getRateToEth","outputs":[{"internalType":"uint256","name":"weightedRate","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"multiWrapper","outputs":[{"internalType":"contract MultiWrapper","name":"","type":"address"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"oracles","outputs":[{"internalType":"contract IOracle[]","name":"allOracles","type":"address[]"},{"internalType":"enum OffchainOracle.OracleType[]","name":"oracleTypes","type":"uint8[]"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"owner","outputs":[{"internalType":"address","name":"","type":"address"}],"stateMutability":"view","type":"function"},{"inputs":[{"internalType":"contract IERC20","name":"connector","type":"address"}],"name":"removeConnector","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"contract IOracle","name":"oracle","type":"address"},{"internalType":"enum Offch
ainOracle.OracleType","name":"oracleKind","type":"uint8"}],"name":"removeOracle","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[],"name":"renounceOwnership","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"contract MultiWrapper","name":"_multiWrapper","type":"address"}],"name":"setMultiWrapper","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"address","name":"newOwner","type":"address"}],"name":"transferOwnership","outputs":[],"stateMutability":"nonpayable","type":"function"}]';
const offChainOracleAddress = "0x07D91f5fb9Bf7798734C3f606dB065549F6893bb";
const offChainOracleContract = new web3.eth.Contract(
  JSON.parse(OffChainOracleAbi),
  offChainOracleAddress,
);

const token = {
  address: "0xdac17f958d2ee523a2206206994597c13d831ec7", // USDT
  decimals: 6,
};

offChainOracleContract.methods
  .getRateToEth(
    token.address, // source token
    true, // use source wrappers
  )
  .call()
  .then((rate) => {
    const numerator = BigNumber.from(10).pow(token.decimals);
    const denominator = BigNumber.from(10).pow(18); // eth decimals
    const price = BigNumber.from(rate).mul(numerator).div(denominator);
    console.log(price.toString()); // 472685293218315
  })
  .catch(console.log);
```

Multiple token-to-ETH prices usage

```
const Web3 = require("web3");
const { BigNumber } = require("ethers");

const yourInfuraKey = "add your key here";
const web3 = new Web3(`https://mainnet.infura.io/v3/${yourInfuraKey}`);

// eslint-disable-next-line max-len
const MultiCallAbi =
  '[{"inputs":[{"components":[{"internalType":"address","name":"to","type":"address"},{"internalType":"bytes","name":"data","type":"bytes"}],"internalType":"struct MultiCall.Call[]","name":"calls","type":"tuple[]"}],"name":"multicall","outputs":[{"internalType":"bytes[]","name":"results","type":"bytes[]"},{"internalType":"bool[]","name":"success","type":"bool[]"}],"stateMutability":"view","type":"function"}]';
// eslint-disable-next-line max-len
const OffChainOracleAbi =
  '[{"inputs":[{"internalType":"contract MultiWrapper","name":"_multiWrapper","type":"address"},{"internalType":"contract IOracle[]","name":"existingOracles","type":"address[]"},{"internalType":"enum OffchainOracle.OracleType[]","name":"oracleTypes","type":"uint8[]"},{"internalType":"contract IERC20[]","name":"existingConnectors","type":"address[]"},{"internalType":"contract IERC20","name":"wBase","type":"address"}],"stateMutability":"nonpayable","type":"constructor"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract IERC20","name":"connector","type":"address"}],"name":"ConnectorAdded","type":"event"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract IERC20","name":"connector","type":"address"}],"name":"ConnectorRemoved","type":"event"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract MultiWrapper","name":"multiWrapper","type":"address"}],"name":"MultiWrapperUpdated","type":"event"},
{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract IOracle","name":"oracle","type":"address"},{"indexed":false,"internalType":"enum OffchainOracle.OracleType","name":"oracleType","type":"uint8"}],"name":"OracleAdded","type":"event"},{"anonymous":false,"inputs":[{"indexed":false,"internalType":"contract IOracle","name":"oracle","type":"address"},{"indexed":false,"internalType":"enum OffchainOracle.OracleType","name":"oracleType","type":"uint8"}],"name":"OracleRemoved","type":"event"},{"anonymous":false,"inputs":[{"indexed":true,"internalType":"address","name":"previousOwner","type":"address"},{"indexed":true,"internalType":"address","name":"newOwner","type":"address"}],"name":"OwnershipTransferred","type":"event"},{"inputs":[{"internalType":"contract IERC20","name":"connector","type":"address"}],"name":"addConnector","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"contract IOracle","name":"oracle","type":"address"},{"internalType":"enum OffchainOracle.OracleType","name":"oracleKind","type":"uint8"}],"name":"addOracle","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[],"name":"connectors","outputs":[{"internalType":"contract IERC20[]","name":"allConnectors","type":"address[]"}],"stateMutability":"view","type":"function"},{"inputs":[{"internalType":"contract IERC20","name":"srcToken","type":"address"},{"internalType":"contract IERC20","name":"dstToken","type":"address"},{"internalType":"bool","name":"useWrappers","type":"bool"}],"name":"getRate","outputs":[{"internalType":"uint256","name":"weightedRate","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[{"internalType":"contract IERC20","name":"srcToken","type":"address"},{"internalType":"bool","name":"useSrcWrappers","type":"bool"}],"name":"getRateToEth","outputs":[{"internalType":"uint256","name":"weightedRate","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"multiWrapper","outputs":[{"internalType":"contract MultiWrapper","name":"","type":"address"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"oracles","outputs":[{"internalType":"contract IOracle[]","name":"allOracles","type":"address[]"},{"internalType":"enum OffchainOracle.OracleType[]","name":"oracleTypes","type":"uint8[]"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"owner","outputs":[{"internalType":"address","name":"","type":"address"}],"stateMutability":"view","type":"function"},{"inputs":[{"internalType":"contract IERC20","name":"connector","type":"address"}],"name":"removeConnector","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"contract IOracle","name":"oracle","type":"address"},{"internalType":"enum OffchainOracle.OracleType","name":"oracleKind","type":"uint8"}],"name":"removeOracle","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[],"name":"renounceOwnership","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"contract MultiWrapper","name":"_multiWrapper","type":"address"}],"name":"setMultiWrapper","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"address","name":"newOwner","type":"address"}],"name":"transferOwnership","outputs":[],"stateMutability":"nonpayable","type":"function"}]';

const offChainOracleAddress = "0x07D91f5fb9Bf7798734C3f606dB065549F6893bb";

const multiCallContract = new web3.eth.Contract(
  JSON.parse(MultiCallAbi),
  "0xda3c19c6fe954576707fa24695efb830d9cca1ca",
);
const offChainOracleContract = new web3.eth.Contract(
  JSON.parse(OffChainOracleAbi),
);

const tokens = [
  {
    address: "0x6b175474e89094c44da98b954eedeac495271d0f", // DAI
    decimals: 18,
  },
  {
    address: "0xa0b86991c6218b36c1d19d4a2e9eb0ce3606eb48", // USDC
    decimals: 6,
  },
  {
    address: "0xdac17f958d2ee523a2206206994597c13d831ec7", // USDT
    decimals: 6,
  },
  {
    address: "0x111111111117dc0aa78b770fa6a738034120c302", // 1INCH
    decimals: 18,
  },
];
```

```
const callData = tokens.map((token) => ({
  to: offChainOracleAddress,
  data: offChainOracleContract.methods
    .getRateToEth(
      token.address,
      true, // use wrapper
    )
    .encodeABI(),
}));

multiCallContract.methods
  .multicall(callData)
  .call()
  .then(({ results, success }) => {
    const prices = {};
    for (let i = 0; i < results.length; i++) {
      if (!success[i]) {
        continue;
      }

      const decodedRate = web3.eth.abi
        .decodeParameter("uint256", results[i])
        .toString();
      const numerator = BigNumber.from(10).pow(tokens[i].decimals);
      const denominator = BigNumber.from(10).pow(18); // eth decimals
      const price = BigNumber.from(decodedRate).mul(numerator).div(denominator);
      prices[tokens[i].address] = price.toString();
    }
    console.log(prices);
    /*
      {
        '0x6b175474e89094c44da98b954eedeac495271d0f': '527560209915550',
        '0xa0b86991c6218b36c1d19d4a2e9eb0ce3606eb48': '507746821617073',
        '0xdac17f958d2ee523a2206206994597c13d831ec7': '529527134930000',
        '0x111111111117dc0aa78b770fa6a738034120c302': '1048752594621361'
      }
     */
  })
  .catch(console.log);
```

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