BIT-ECC: Check transactions using Bitcoin-core wallet

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Purpose: The aim of this document is to instruct the readers how to install bitcoin core wallet in the local machine, how to do transaction using core wallet and how to check that transaction details from Seoul node.

Contents:

1. Run the bitcoin-qt wallet
2. Make a sending transaction
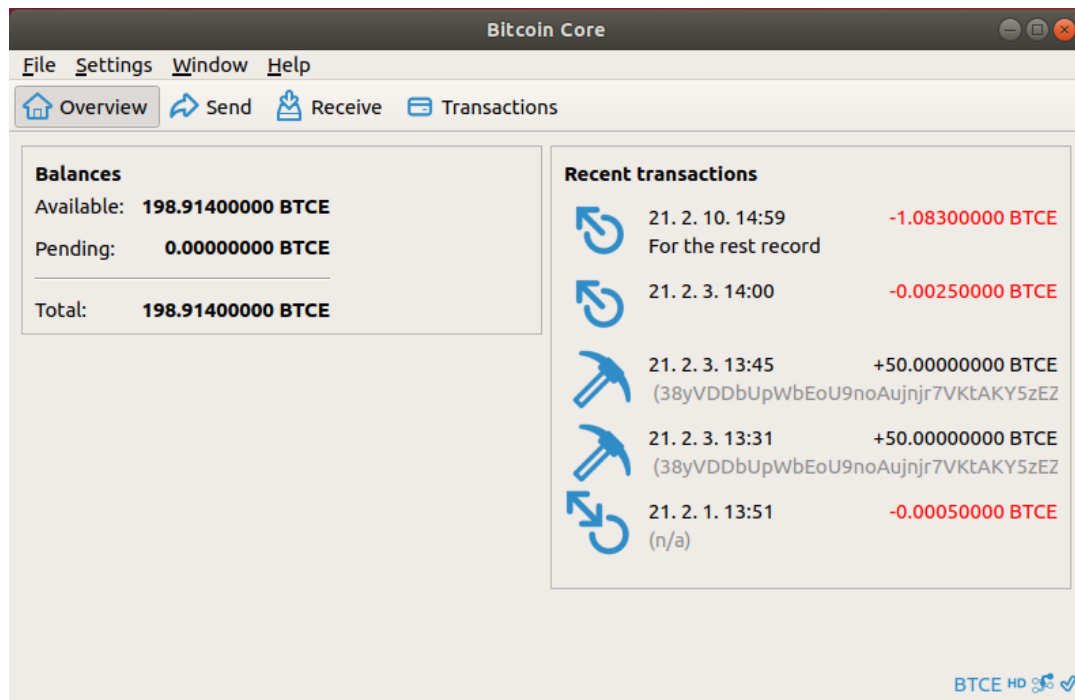3. Check result from Seoul node

1. Run the bitcoin-qt wallet

As we have already installed the bitcoin qt-wallet during BIT-ECC installation process. So, you can skip the first command. Please check the 'BIT-ECC Environment Setup, Installation and Testing' document for more detail.
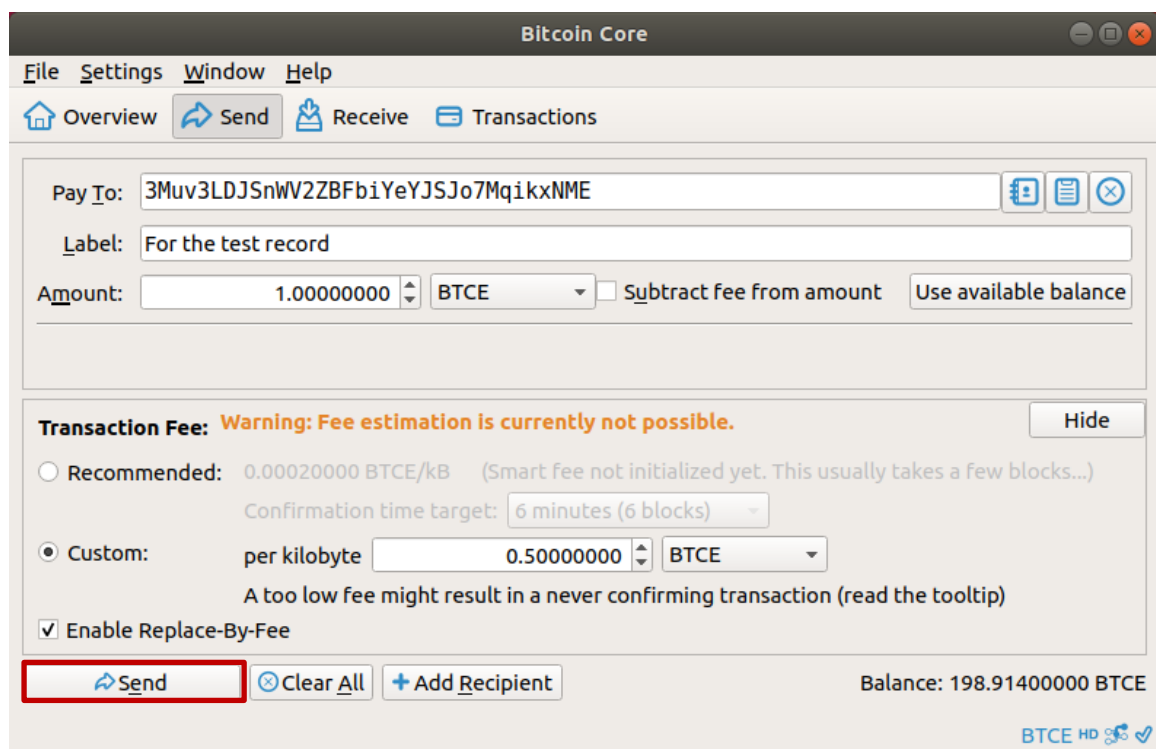
1.1 Installation of qt-wallet:

1. $ sudo apt-get install libqt5gui5 libqt5core5a libqt5dbus5 qttools5-dev qttools5-dev-tools libprotobuf-dev protobuf-compiler libqrencode-dev
2. $ bitcoin-qt

```
hayoung@hayoung-MS-7B46:~/bitcoin_ECC$ bitcoin-qt
nActualTimespan = 1144165        nPoWTargetTimespan = 3600
cur_diff = 4762267601341.054688  ret_diff = 1190566900335.263672
curt_level = 130         curt_expected_num = 4762267601341.054688
 new_level = 119          new_expected_num = 1987202416438.138672
```
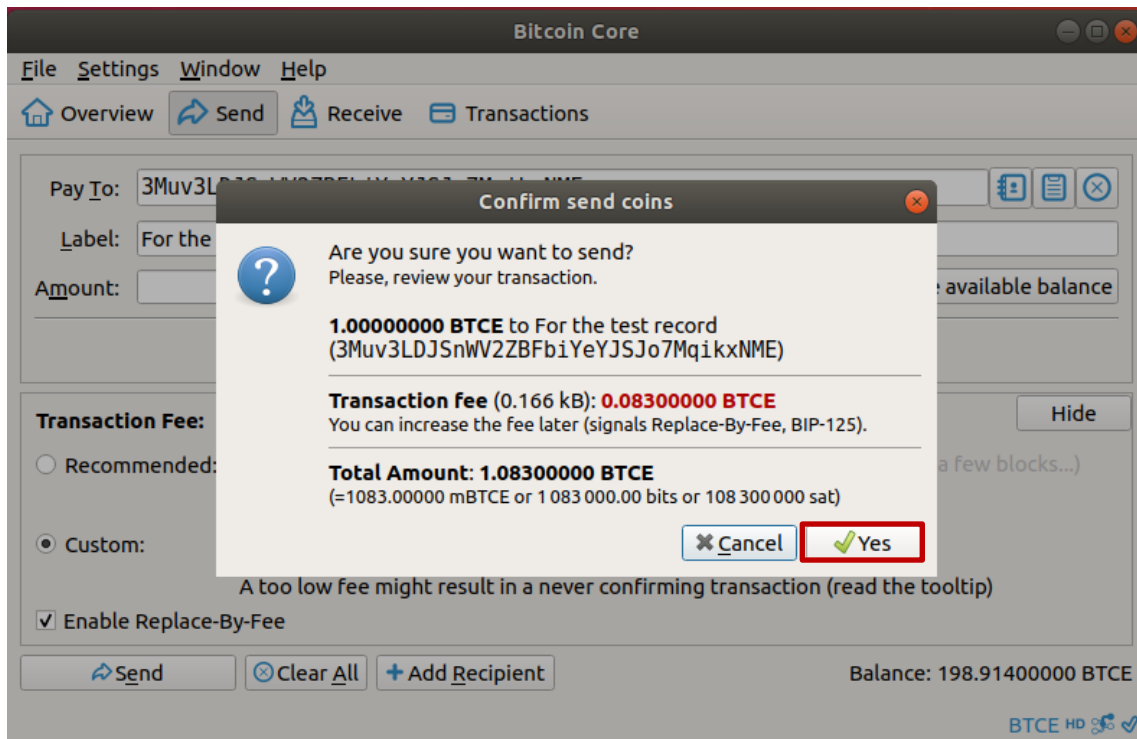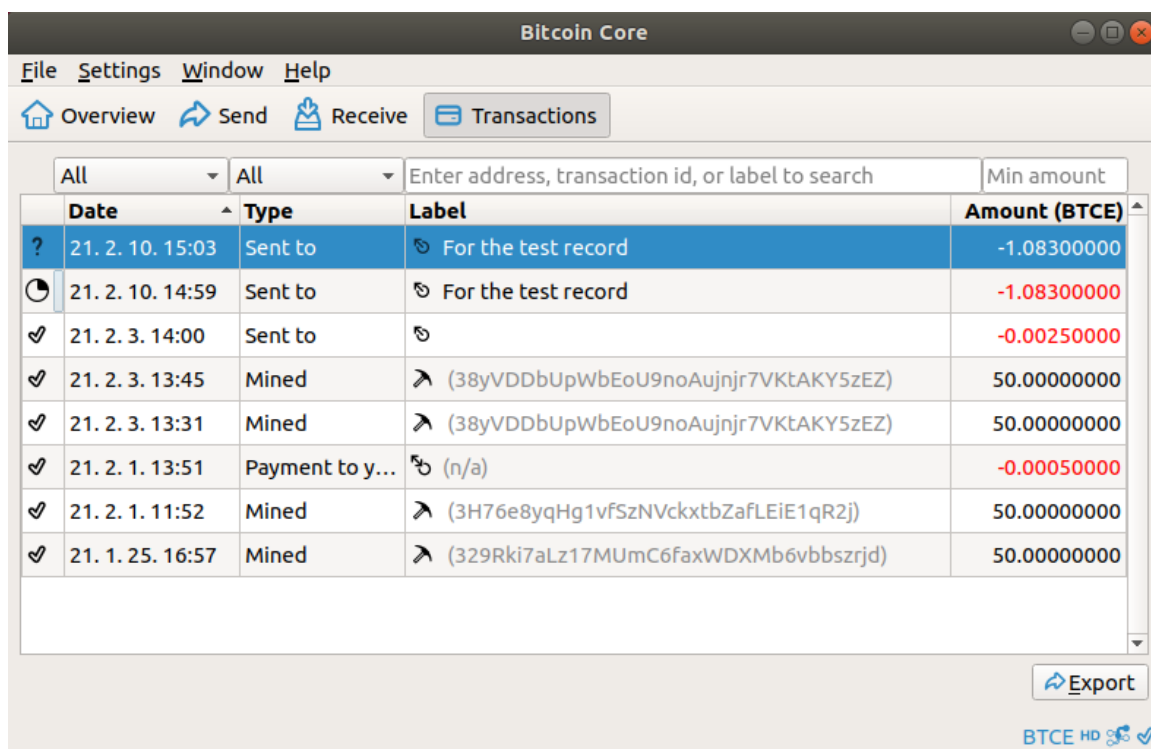
2. Make a sending transaction

Take one of the public address from the Seoul node where you want to send the bitcoin. One of the addresses of Seoul node is `3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME`. Now type that public address inside the 'Pay To' tab. Write any comments under the 'Label' tab and specify the transaction amount under the 'Amount' tab. For transaction fee please check mark the 'Custom' tab and specify the transaction fee. After specifying all the parameters now click on the send button.
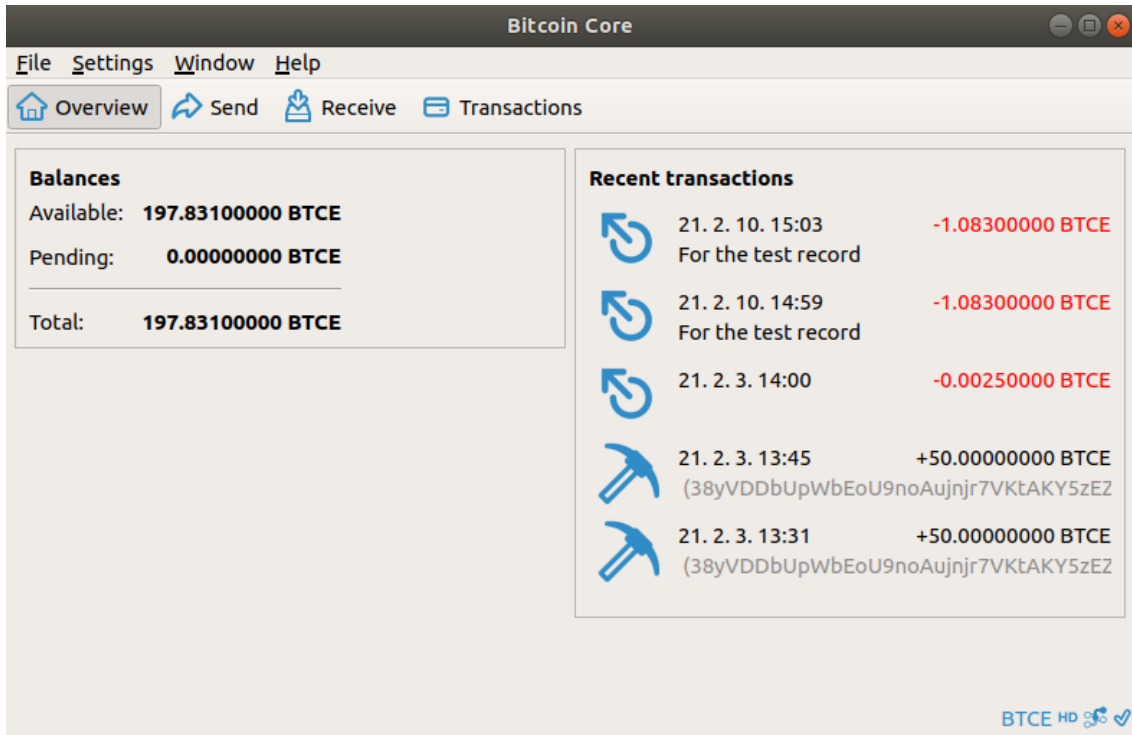
Click 'Yes' to continue the transaction process.

Click the 'Transactions' tab to check the transaction status.

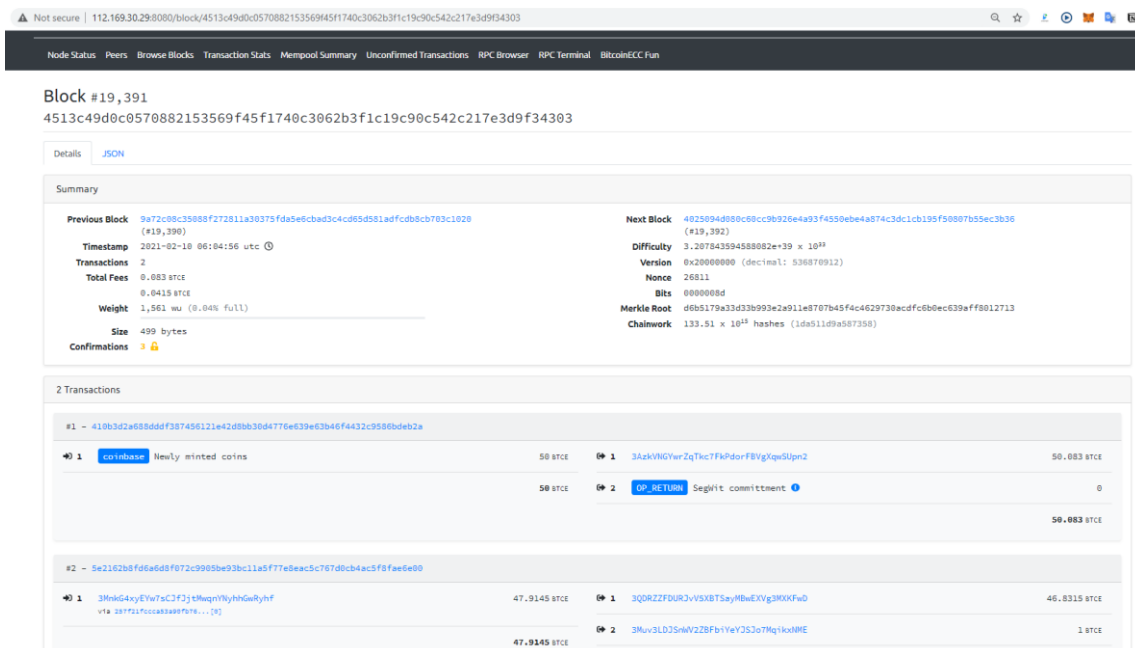Click on the 'Overview' tab to check the overall balance.

Please check the block information from http://112.169.30.29:8080/ for more detail.

3. Check result from Seoul node

3.1 Check Listunspent: This command will return the unspent transaction outputs.

```
1. $ bitcoin-cli listunspent 0 99999
   '["3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME"]'
```

```
(base) gist@gist:~$ bitcoin-cli listunspent 0 99999 '["3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME"]'

{
  "txid": "ba534ad087e4feb40981ffc4136b5ad97512eb0d79a8ca58f19e5930182cfb63",
  "vout": 0,
  "address": "3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME",
  "label": "",
  "redeemScript": "00140d3b0b766b4cfc09de97ddd057e75abed38bff1d",
  "scriptPubKey": "a914ddd303281e4ab07f1cc698118090e4bb7214b44f87",
  "amount": 1.00000000,
  "confirmations": 0,
  "spendable": true,
  "solvable": true,
  "desc": "sh(wpkh([8473db72/0'/0'/5']031f7b2b65f4cbd0f544e3e726c888f9bb818d62e973f9b7b92ca7d1dc2896a11d))#5q809p3a",
  "safe": false
},
```

3.2 Get transaction information: Transaction id is ba534ad087e4feb40981ffc4136b5ad97512eb0d79a8ca58f19e5930182cfb63

```
1. $ bitcoin-cli gettransaction
   ba534ad087e4feb40981ffc4136b5ad97512eb0d79a8ca58f19e5
   930182cfb63
```

```
(base) gist@gist:~$ bitcoin-cli gettransaction ba534ad087e4feb40981ffc4136b5ad97512eb0d79a8ca58f19e5930182cfb63
{
  "amount": 1.00000000,
  "confirmations": 2,
  "blockhash": "0fba77f95ff1fcaf93749c8b01bd7ed0456c47e06c18fb95499ec0126076ec99",
  "blockindex": 1,
  "blocktime": 1609824376,
  "txid": "ba534ad087e4feb40981ffc4136b5ad97512eb0d79a8ca58f19e5930182cfb63",
  "walletconflicts": [
  ],
  "time": 1609821809,
  "timereceived": 1609821809,
  "bip125-replaceable": "no",
  "details": [
    {
      "address": "3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME",
      "category": "receive",
      "amount": 1.00000000,
      "label": "",
      "vout": 0
    }
  ],
  "hex": "0200000000010199bbcebc33f85a439f252350f51d0b72bed384c584d39bbe1dd2f5bc69654d8501000000171600014c30de86b845e6d635
38a7860ac1ece93ad4860befdffffff0200e1f5050000000017a914ddd303281e4ab07f1cc698118090e4bb7214b44f8750fbf51c0100000017a914ea
18e09fc3ebc263814db82d533d7c7c40d0585187024730440220109be65a3cbaa94d325ab3b4effdaa0c21fda5c90770cdb66206a629142c877702206
582141827d8d29902fce356b798327925e1ba373b6bf45adc1d58fb7a303c860121032232a0105e785ab93f7240e51d879ae2f9cd94784e12c35179cd
e474f04d862b6f210000"
}
```

3.3 Check the balance: Check the balance of 3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME

```
1. $ bitcoin-cli getbalance
```

```
(base) gist@gist:~/bitcoin_ECC$ bitcoin-cli getbalance
501.10800332
```

3.4 Generate 3 new blocks:

Generate 3 new blocks for the public address
3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME

```
1. $ bitcoin-cli generatetoaddress 3
   3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME
```

```
(base) gist@gist:~$ bitcoin-cli generatetoaddress 3 3Muv3LDJSnWV2ZBFbiYeYJSJo7MqikxNME
[
  "b99e4fa7e2f6ecfd94d230ca6a86c2bb63e5d257c84d36e6f5a43235e067eb86",
  "48eccca063bcec4a0f41b5449b24a2e7e153fc8ca88851294d4614798a62b429",
  "9a58fd6a12d6fecf7d77736b711d11c7dc7876b9f7f8730b084d11ee8318308d"
]
```

3.5 Check the balance:

Available balance before the transaction.
```
1. $ bitcoin-cli getbalance
```

```
(base) gist@gist:~/bitcoin_ECC$ bitcoin-cli getbalance
501.10800332
```

Available balance after the transaction. 150 BTC is the reward point for generating 3 new blocks and 1 BTC is from the transaction using bitcoin core wallet.
```
1. $ bitcoin-cli getbalance
```

```
(base) gist@gist:~$ bitcoin-cli getbalance
652.10800332
```