

# BitShares BlockChain – Block and Elements Structure

\*\*This document shows BitShares Each Block elements and repeating items.

get\_block 28472079

```
{
  "previous": "01b2730e2d568e8d5a747bc.....",
  "timestamp": "2018-07-05T22:57:18",
  "witness": "1.6.101",
  "transaction_merkle_root": "8e93f065d1807ad.....",
  "extensions": [],
  "witness_signature": "203e8f1386e340b0f14a4d60e62.....",
  "transactions": [
    { -- transaction 1 --- },
    { -- transaction 2 --- },
    { -- transaction xxx --- }
  ],
  "block_id": "01b206665040c1078896dbc2f1b88ce15a700639",
  "signing_key": "BTS8WqgFkupvXx7haanZDF.....",
  "transaction_ids": [
    "ba262946b6ef8e6170dd09c7b398f4bd7c28f2b6",
    "fd317c77e772c86940fc4547408448f32968d39e",
    "....."
  ]
}
```

## Each Block has

- "previous" (previous block id)
- "timestamp"
- "witness" (witness id)
- "transaction\_merkle\_root"
- "extensions"
- "witness\_signature"
- "transactions" → includes more than one transaction
- "block\_id"
- "signing\_key"
- "transaction\_ids" → includes each transaction's ID

```
"transactions": [
  { -- transaction 1 ---
    "ref_block_num": 29452,
    "ref_block_prefix": 1869261257,
    "expiration": "2018-07-05T22:57:40",
    "operations": [
      [ -- operation 1 --
        2,{... }
      ],
      [ -- operation 2 --
        1,{... }
      ],
      [ -- operation xxx --
        1,{... }
      ]
    ],
    "extensions": [],
    "signatures": [ "1f00c96e648db1c....." ],
    "operation_results": [
      [ -- operation result 1 ---
        2,{... }
      ],
      [ -- operation result 2 ---
        1, "1.7.9....."
      ],
      [ -- operation result xxx ---
        1, "1.7.9....."
      ]
    ]
  },
  { -- transaction 2 ---
    .....
  },
  { -- transaction xxx ---
    .....
  }
],
```

## Each Transaction has

- "ref\_block\_num"
- "ref\_block\_prefix"
- "extension"
- "operations" → includes more than one operation
- "extensions"
- "signatures"
- "operation\_results" → includes each operation's result

```
"operations": [
  [ -- operation 1 --
    2,{
      "fee": {
        "amount": 57,
        "asset_id": "1.3.0"
      },
      .....
      .....
      .....
      "extensions": []
    }
  ],
  [ -- operation 2 --
    1,{.....
    }
  ],
  [ -- operation xxx --
    1,{.....
    }
  ]
],
```

## Each Operation has

- operation ID and
- an element

The **element** includes

- "fee"
- "extensions"
- (Each Operation has Unique items)