

区块链实验四实验报告

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1 实验目的及要求

1.1 实验目的

- 了解 fabric 上的链码部署和配置
- 开发 fabric 上的链码
- 实现一个 fabric 上的链码和功能

1.2 实验目标档次及要求

- 目标档次：B
- 要求：实现一个能够体现增删改查功能的链码，参考官方的例子即可，应用的业务场景不是考察的重点。部署并正确调用链码，截图。提交源码和实验报告。

2 实验平台

- OpenStack 平台
- Ubuntu 22.04 LTS (GNU/Linux 5.15.0-30-generic x86_64)

3 实验实现

实现应用场景为帐户管理。帐户信息包括：ID、姓名和余额（灵感来自于同一学期数据库实验，但处理的信息简单一些）。

```
func (s *SmartContract) DeleteAccount(ctx contractapi.  
TransactionContextInterface, accountNumber string) error {  
    _, err := s.QueryAccount(ctx, accountNumber)  
    if err != nil {  
        return err  
    }  
    return ctx.GetStub().DelState(accountNumber)  
}
```

4 实验结果

```
bash-5.0# peer lifecycle chaincode package fabric-bank.tar.gz --path go/ --lang golang --label fabric-bank
2022-06-26 15:27:39.921 UTC [hscpp] GetDefault -> DEBU 001 Before using BCCSP, please call InitFactories(). Falling back
to bootBCCSP.
2022-06-26 15:27:40.057 UTC [hscpp] GetDefault -> DEBU 002 Before using BCCSP, please call InitFactories(). Falling back
to bootBCCSP.
2022-06-26 15:27:40.070 UTC [main] InitCmd -> DEBU 003 peer lifecycle chaincode package does not need to init crypto
2022-06-26 15:27:53.916 UTC [chaincode.platform.util] WriteFileToPackage -> DEBU 004 Writing file to tarball: src/fabric
bank.go
2022-06-26 15:27:53.978 UTC [chaincode.platform.util] WriteFileToPackage -> DEBU 005 Writing file to tarball: src/go.mod
2022-06-26 15:27:53.971 UTC [chaincode.platform.util] WriteFileToPackage -> DEBU 006 Writing file to tarball: src/go.sum
bash-5.0#
```

[illegible]

(b) 最后命令的结果截图

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```
haoyuanwang — ubuntu@blockchain-instance: ~/fabric/org1/peer2/assets/chaincode/go — ssh vlab — 120x36
2022-06-26 15:33:22.686 UTC [grpc] Info -> DEBU 02f Subchannel Connectivity change to READY
2022-06-26 15:33:22.687 UTC [grpc] UpdateSubConnState -> DEBU 030 pickfirstBalancer: HandleSubConnStateChange: 0xc0002ea
fb0, {READY <nil>}
2022-06-26 15:33:22.688 UTC [grpc] Info -> DEBU 031 Channel Connectivity change to READY
2022-06-26 15:33:22.693 UTC [grpc] WithKeepaliveParams -> DEBU 032 Adjusting keepalive ping interval to minimum period o
f 10s
2022-06-26 15:33:22.752 UTC [grpc] Info -> DEBU 033 parsed scheme: ""
2022-06-26 15:33:22.753 UTC [grpc] Info -> DEBU 034 scheme "" not registered, fallback to default scheme
2022-06-26 15:33:22.755 UTC [grpc] Info -> DEBU 035 ccResolverWrapper: sending update to cc: {[{orderer1-org0:7050 <ni
l> 0 <nil>}] <nil> <nil>}
2022-06-26 15:33:22.755 UTC [grpc] Info -> DEBU 036 ClientConn switching balancer to "pick_first"
2022-06-26 15:33:22.756 UTC [grpc] Info -> DEBU 037 Channel switches to new LB policy "pick_first"
2022-06-26 15:33:22.758 UTC [grpc] Info -> DEBU 038 Subchannel Connectivity change to CONNECTING
2022-06-26 15:33:22.759 UTC [grpc] Info -> DEBU 039 Subchannel picks a new address "orderer1-org0:7050" to connect
2022-06-26 15:33:22.762 UTC [grpc] UpdateSubConnState -> DEBU 03a pickfirstBalancer: HandleSubConnStateChange: 0xc000414
550, {CONNECTING <nil>}
2022-06-26 15:33:22.763 UTC [grpc] Info -> DEBU 03b Channel Connectivity change to CONNECTING
2022-06-26 15:33:22.795 UTC [grpc] Info -> DEBU 03c Subchannel Connectivity change to READY
2022-06-26 15:33:22.796 UTC [grpc] UpdateSubConnState -> DEBU 03d pickfirstBalancer: HandleSubConnStateChange: 0xc000414
550, {READY <nil>}
2022-06-26 15:33:22.797 UTC [grpc] Info -> DEBU 03e Channel Connectivity change to READY
2022-06-26 15:33:22.799 UTC [msp.identity] Sign -> DEBU 03f Sign: plaintext: 0AE4080A6D08031A0C08C2F8E1950610...3433383B
663364313766633237653038
2022-06-26 15:33:22.800 UTC [msp.identity] Sign -> DEBU 040 Sign: digest: 6A83A18B48617766061A827A8939F9660E658428B91F68
F7764C32A0A4C5BEE6
2022-06-26 15:33:23.142 UTC [msp.identity] Sign -> DEBU 041 Sign: plaintext: 0AE4080A6D08031A0C08C2F8E1950610...3F15A2F7
F87F540E0092C02AFDE3F4
2022-06-26 15:33:23.143 UTC [msp.identity] Sign -> DEBU 042 Sign: digest: 16D2A99253883526A8FDBB72CA5A862FC8427080608468
ED31D21702F71ECF6C
2022-06-26 15:33:23.217 UTC [msp.identity] Sign -> DEBU 043 Sign: plaintext: 0A8C080A1508051A0608C3F8E1950622...00120D1A
0B08FFFFFFFFFFFFFFFFF01
2022-06-26 15:33:23.218 UTC [msp.identity] Sign -> DEBU 044 Sign: digest: 111702CE0EAF8CBA3BE52B1BCAFESDFD74E16DCA703BC
795E0AA2A70E9701F
2022-06-26 15:33:26.408 UTC [chaincodeCmd] ClientWait -> INFO 045 txid [465b0e36ae33cd6b8f1f4043b70bac224d6c3773a8bc353b
ac3bde79a5fed282] committed with status (VALID) at
bash-5.0#
```

图 3: 链码准入的结果截图

```
haoyuanwang — ubuntu@blockchain-instance: ~/fabric/org1/peer2/assets/chaincode/go — ssh vlab — 120x36
2022-06-26 15:35:37.228 UTC [grpc] Info -> DEBU 02f Subchannel Connectivity change to READY
2022-06-26 15:35:37.230 UTC [grpc] UpdateSubConnState -> DEBU 030 pickfirstBalancer: HandleSubConnStateChange: 0xc0002dc
dc0, {READY <nil>}
2022-06-26 15:35:37.231 UTC [grpc] Info -> DEBU 031 Channel Connectivity change to READY
2022-06-26 15:35:37.235 UTC [grpc] WithKeepaliveParams -> DEBU 032 Adjusting keepalive ping interval to minimum period o
f 10s
2022-06-26 15:35:37.238 UTC [grpc] Info -> DEBU 033 parsed scheme: ""
2022-06-26 15:35:37.239 UTC [grpc] Info -> DEBU 034 scheme "" not registered, fallback to default scheme
2022-06-26 15:35:37.240 UTC [grpc] Info -> DEBU 035 ccResolverWrapper: sending update to cc: {[{orderer1-org0:7050 <ni
l> 0 <nil>}] <nil> <nil>}
2022-06-26 15:35:37.241 UTC [grpc] Info -> DEBU 036 ClientConn switching balancer to "pick_first"
2022-06-26 15:35:37.242 UTC [grpc] Info -> DEBU 037 Channel switches to new LB policy "pick_first"
2022-06-26 15:35:37.243 UTC [grpc] Info -> DEBU 038 Subchannel Connectivity change to CONNECTING
2022-06-26 15:35:37.244 UTC [grpc] Info -> DEBU 039 Subchannel picks a new address "orderer1-org0:7050" to connect
2022-06-26 15:35:37.245 UTC [grpc] UpdateSubConnState -> DEBU 03a pickfirstBalancer: HandleSubConnStateChange: 0xc000414
550, {CONNECTING <nil>}
2022-06-26 15:35:37.246 UTC [grpc] Info -> DEBU 03b Channel Connectivity change to CONNECTING
2022-06-26 15:35:37.268 UTC [grpc] Info -> DEBU 03c Subchannel Connectivity change to READY
2022-06-26 15:35:37.269 UTC [grpc] UpdateSubConnState -> DEBU 03d pickfirstBalancer: HandleSubConnStateChange: 0xc000414
550, {READY <nil>}
2022-06-26 15:35:37.270 UTC [grpc] Info -> DEBU 03e Channel Connectivity change to READY
2022-06-26 15:35:37.272 UTC [msp.identity] Sign -> DEBU 03f Sign: plaintext: 0AE4080A6D08031A0C08C9F9E1950610...120B6661
627269635F62616E681A0131
2022-06-26 15:35:37.273 UTC [msp.identity] Sign -> DEBU 040 Sign: digest: 8F816D5EA40D73AB709D9D186FEB6C23C5EF8FE1AEC3A
808BF5F70B23D0D35C
2022-06-26 15:35:37.286 UTC [msp.identity] Sign -> DEBU 041 Sign: plaintext: 0AE4080A6D08031A0C08C9F9E1950610...A4F870B4
481F80C839A4E1215A3FDD10
2022-06-26 15:35:37.287 UTC [msp.identity] Sign -> DEBU 042 Sign: digest: B2C2A5B55E62C6B8BDC4B2607A3220BAEBD006E831F219
13A41E6B00A5D12350
2022-06-26 15:35:37.288 UTC [msp.identity] Sign -> DEBU 043 Sign: plaintext: 0A8C080A1508051A0608C9F9E1950622...00120D1A
0B08FFFFFFFFFFFFFFFFF01
2022-06-26 15:35:37.290 UTC [msp.identity] Sign -> DEBU 044 Sign: digest: 0C6949E8D576C8FB23D335E89D2C1586B1D3C14812F65
4FEE153A5782C01D06
2022-06-26 15:35:43.065 UTC [chaincodeCmd] ClientWait -> INFO 045 txid [83ca13c91641addb198deaf440610b63a7b40da9b269fcb
8bcafd5fc1c783] committed with status (VALID) at PB19071405:7051
bash-5.0#
```

图 4: 链码上链的结果截图

始其实想涉及更多的信息管理)，但我学到了很多，也更加熟悉 Fabric 链码的相关操作。