



**IBM Software Services**



## **Workshop Blockchain: Hyperledger Fabric 1.4**

### **Laboratório 05**

*Versão: 1.0*

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Data	Versão	Autor	Descrição
10/10/2019	1.0	Richard Marques	Criação do documento

## 1. Introdução

Este documento tem o objetivo de guiar o participante do workshop nas tarefas propostas no laboratório de número 05 do workshop de blockchain: Hyperledger Fabric 1.4.

Este e os demais laboratórios foram testados em um servidor Ubuntu 18.04 c/ 4 Cores de CPU e 8 GB de memória RAM.

Este laboratório tem como pré-requisito que o laboratório anterior (número 04) tenha sido concluído com sucesso.

## 2. Proposta do laboratório

A proposta deste laboratório será:

- Empacotar o chaincode
- Assinar o chaincode
- Instalar o pacote assinado do chaincode
- Executar transações no chaincode

## 3. Execução

Siga atentamente todos os passos para concluir o laboratório:

### 3.1. Criar recursos

Para esta atividade navegue até a pasta “lab05” e execute o script “./criarRecursos.sh”

```
blockchain@ubuntu:~/workshop/lab05$ ./criarRecursos.sh
Empacotando e Assinando o Chaincode
2019-10-15 17:52:12.241 -03 [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2019-10-15 17:52:12.241 -03 [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
Wrote signed package to /opt/gopath/src/github.com/hyperledger/fabric/peer/contrato_ibm_1.0.signed successfully
Instalando chaincode em todos os peers
2019-10-15 17:52:12.820 -03 [chaincodeCmd] install -> INFO 001 Installed remotely response:<status:200 payload:"OK" >
2019-10-15 17:52:13.238 -03 [chaincodeCmd] install -> INFO 001 Installed remotely response:<status:200 payload:"OK" >
2019-10-15 17:52:13.712 -03 [chaincodeCmd] install -> INFO 001 Installed remotely response:<status:200 payload:"OK" >
Instanciando o Chaincode no canal
2019-10-15 17:52:21.012 -03 [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2019-10-15 17:52:21.012 -03 [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
```

### 3.2. Executar transações

Ainda na pasta “lab05” execute o script “./submeterTransacoes.sh”. Este comando deve demorar um pouco pois vai executar 12 transações em cada um dos 3 peers, em um total de 36 transações. Você pode acompanhar o progresso do comando pelos logs que serão impressos no terminal.

```
blockchain@ubuntu:~/workshop/lab85$ ./submeteTransacoes.sh
2019-10-15 17:55:29.448 -03 [chaincodeCmd] ClientWait -> INFO 001 txid [a0946a40d94f87156c46d6ed0b5e07706f48abc76708a1384b05ef9af4880ae] committed with status (VALID) at peer1:71
1
2019-10-15 17:55:29.449 -03 [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 002 Chaincode invoke successful. result: status:200 payload:"{\\\"mensagem\\\":\\\"Error: Motivo n\\303\\243o enc
ntrado\\\",\\\"codigo\\\":\\\"-99\\\",\\\"dado\\\":{}}\""
2019-10-15 17:55:31.577 -03 [chaincodeCmd] ClientWait -> INFO 001 txid [e3854294cf5b734d76bc40aac7b93e71f44f3054ce672279f3f1b979885daea7] committed with status (VALID) at peer1:71
1
2019-10-15 17:55:31.578 -03 [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 002 Chaincode invoke successful. result: status:200 payload:"{\\\"mensagem\\\":\\\"Error: Motivo n\\303\\243o enc
ntrado\\\",\\\"codigo\\\":\\\"-99\\\",\\\"dado\\\":{}}\""
2019-10-15 17:55:33.684 -03 [chaincodeCmd] ClientWait -> INFO 001 txid [94d879e735a52efe335fcb015b0dd91dc72595283cead176cee7aa3ea0bdcad] committed with status (VALID) at peer1:71
1
2019-10-15 17:55:33.685 -03 [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 002 Chaincode invoke successful. result: status:200 payload:"{\\\"mensagem\\\":\\\"SUCESSO\\\",\\\"codigo\\\":\\\"0\\\",\\
dado\\\":{\\\"idDispositivo\\\":\\\"b027feeb6b70f0d34ce10aad660113cf06488da4c6477c7b2606839475de494f8607915dff25f013e45fc0642fb9830b0fb25ab0ab46d477eaf1061def37994f8607915dff25f013e45f
0642fb9830b0fb25ab0ab46d477eaf1061def379\\\",\\\"motivo\\\":\\\"3\\\",\\\"descricao\\\":\\\"descricao do motivo\\\",\\\"numeroReferenciaIF\\\":\\\"ref100\\\",\\\"ispb\\\":\\\"\\\",\\\"imei\\\":\\\"b027feeb6b70f0d34ce1
0642fb9830b0fb25ab0ab46d477eaf1061def379\\\",\\\"iccid\\\":\\\"94f8607915dff25f013e45fc0642fb9830b0fb25ab0ab46d477eaf1061def379\\\",\\\"msisd\\\":\\\"94f8607915dff25f013e45fc0642fb9830b0fb25ab0
ab46d477eaf1061def379\\\",\\\"dataCriacao\\\":\\\"2019-10-15T17:55:31.633Z\\\",\\\"dataAtualizacao\\\":\\\"2019-10-15T17:55:31.633Z\\\",\\\"assinatura\\\":\\\"\\\",\\\"idCertificado\\\":\\\"\\\",\\\"chavePublica\\\":\\\"
\\\"}}\""
2019-10-15 17:55:35.806 -03 [chaincodeCmd] ClientWait -> INFO 001 txid [0bd5cefe35b101f23bf9aca6dba7c7e3a257898ecfe3145d1372d01c90f20fee] committed with status (VALID) at peer1:71
1
2019-10-15 17:55:35.807 -03 [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 002 Chaincode invoke successful. result: status:200 payload:"{\\\"mensagem\\\":\\\"SUCESSO\\\",\\\"codigo\\\":\\\"0\\\",\\
dado\\\":{\\\"idDispositivo\\\":\\\"d4b9aead1dd10a596542d1d0211a5021b9c3e894751d019ac64b15a55b9b69ba94f8607915dff25f013e45fc0642fb9830b0fb25ab0ab46d477eaf1061def37994f8607915dff25f013e45f
0642fb9830b0fb25ab0ab46d477eaf1061def379\\\",\\\"motivo\\\":\\\"4\\\",\\\"descricao\\\":\\\"descricao do motivo\\\",\\\"numeroReferenciaIF\\\":\\\"ref100\\\",\\\"ispb\\\":\\\"\\\",\\\"imei\\\":\\\"d4b9aead1dd10a596542d1
0211a5021b9c3e894751d019ac64b15a55b9b69ba9\\\",\\\"iccid\\\":\\\"94f8607915dff25f013e45fc0642fb9830b0fb25ab0ab46d477eaf1061def379\\\",\\\"msisd\\\":\\\"94f8607915dff25f013e45fc0642fb9830b0fb25ab0
ab46d477eaf1061def379\\\",\\\"dataCriacao\\\":\\\"2019-10-15T17:55:33.751Z\\\",\\\"dataAtualizacao\\\":\\\"2019-10-15T17:55:33.751Z\\\",\\\"assinatura\\\":\\\"\\\",\\\"idCertificado\\\":\\\"\\\",\\\"chavePublica\\\":\\\"
\\\"}}\""
2019-10-15 17:55:37.926 -03 [chaincodeCmd] ClientWait -> INFO 001 txid [dda8c9427df337cddb3c352e412fdc02bbdfcc67db21b8aa08107ac80f1150507] committed with status (VALID) at peer1:71
1
2019-10-15 17:55:37.926 -03 [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 002 Chaincode invoke successful. result: status:200 payload:"{\\\"mensagem\\\":\\\"SUCESSO\\\",\\\"codigo\\\":\\\"0\\\",\\
dado\\\":{\\\"idDispositivo\\\":\\\"4771bef2c04a34b548b77ea7581cf821152d9dea9c2c85151a07856fe363931494f8607915dff25f013e45fc0642fb9830b0fb25ab0ab46d477eaf1061def37994f8607915dff25f013e45f
0642fb9830b0fb25ab0ab46d477eaf1061def379\\\",\\\"motivo\\\":\\\"5\\\",\\\"descricao\\\":\\\"descricao do motivo\\\",\\\"numeroReferenciaIF\\\":\\\"ref100\\\",\\\"ispb\\\":\\\"\\\",\\\"imei\\\":\\\"4771bef2c04a34b548b77e
7581cf821152d9dea9c2c85151a07856fe3639314\\\",\\\"iccid\\\":\\\"94f8607915dff25f013e45fc0642fb9830b0fb25ab0ab46d477eaf1061def379\\\",\\\"msisd\\\":\\\"94f8607915dff25f013e45fc0642fb9830b0fb25ab0
ab46d477eaf1061def379\\\",\\\"dataCriacao\\\":\\\"2019-10-15T17:55:35.862Z\\\",\\\"dataAtualizacao\\\":\\\"2019-10-15T17:55:35.862Z\\\",\\\"assinatura\\\":\\\"\\\",\\\"idCertificado\\\":\\\"\\\",\\\"chavePublica\\\":\\\"
\\\"}}\""
1111
```