

- WRC Direct?????InterSystems???Software Distribution??????
- ?????????????Containers??????
- InterSystems IRIS?InterSystems Cloud Manager????????????????
- IRIS?ICM????????????????
- ?????????????????????????????
- ??????????x64?ARM????????????????

3. Docker???????

?????icm?????Docker??

?????????Docker Hub???????????

3.1 Docker Hub?????

???Docker Hub???????????????

- ?????????????????????????????hsato0719/icm:2020.1.0.215.0?
- docker hub?????????????Docker????????ID????????
- ?????????????????????
- WRC Direct????????????????????????????????????

```
$ docker load -i icm-2020.1.0.215.0-docker.tar.gz
$ docker load -i iris-2020.1.0.215.0-docker.tar.gz
```

```
$ docker tag intersystems/icm:2020.1.0.215.0 hsato0719/icm:2020.1.0.215.0
$ docker tag intersystems/iris:2020.1.0.215.0 hsato0719/iris:2020.1.0.215.0
```

```
$ docker login
```

Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to <https://hub.docker.com> to create one.

Username: satohiroshi0719

Password:

Login Succeeded

```
$ docker push hsato0719/icm:2020.1.0.215.0
$ docker push hsato0719/iris:2020.1.0.215.0
```

4. ?????????????????????????????

4.1 icm docker???

5.1 defaults.json

?????????AWS????????

/Samples # cat AWS/defaults.json

```
{
  "Provider": "AWS",
  "Label": "Sato",
  "Tag": "TEST",
  "DataVolumeSize": "10",
  "SSHUser": "ubuntu",
  "SSHPublicKey": "/Samples/ssh/insecure-ssh2.pub",
  "SSHPrivateKey": "/Samples/ssh/insecure",
  "DockerImage": "hsato0719/iris:2020.1.0.215.0",
  "DockerUsername": "",
  "DockerPassword": "",
  "TLSKeyDir": "/Samples/tls/",
  "LicenseDir": "/Samples/license/",
  "Region": "ap-northeast-1",
  "Zone": "ap-northeast-1a",
  "DockerVersion": "5:19.03.5~3-0~ubuntu-bionic",
  "AMI": "ami-0278fe6949f6b1a06",
  "InstanceType": "m4.large",
  "Credentials": "/Samples/AWS/sample.credentials",
  "Mirror": "false",
  "UserCPF": "/Samples/cpf/iris.cpf"
}
```

- Label,Tag????????????????????
- DataVolumeSize????????????????
- SSHUser?AWS?ubuntu???ubuntu?????
- SSHPublicKey?SSHPrivateKey?4.2????????????????????
- DockerImage?3.1?Docker Hub????????????????
- InstanceType????????????????

????????????????OK???

?????????Azure????????

/Samples # cat Azure/defaults.json

```
{
  "Provider": "Azure",
  "Label": "Hiroshi",
  "Tag": "TEST",
  "DataVolumeSize": "50",
  "SSHUser": "ubuntu",
}
```

```

"SSHPublicKey": "/Samples/ssh/insecure-ssh2.pub",
"SSHPrivateKey": "/Samples/ssh/insecure",
"DockerImage": "hsato0719/iris:2020.1.0.215.0",
"DockerUsername": "",
"DockerPassword": "",
"TLSKeyDir": "/Samples/tls/",
"LicenseDir": "/Samples/license/",
"Location": "Japaneast",
"Zone": "1",
"PublisherName": "Shardtest",
"Offer": "UbuntuServer",
"Skus": "18.04-LTS",
"Version": "18.04.201909030",
"DockerVersion": "18.06.1~ce~3-0~ubuntu",
"Size": "Standard_DS3_v2",
"AccountTier": "Premium",
"AccountReplicationType": "LRS",
"SubscriptionId": "xxxxxxx",
"ClientId": "xxxxxxxxxx",
"ClientSecret": "xxxxxxxxxx",
"TenantId": "xxxxxxxxxxxx",
"Mirror": "false",
"UserCPF": "/Samples/cpf/iris.cpf"
}

```

????????AWS????????
Label?Tag????????????

????????6.2????????????????????

- SubscriptionId
- ClientId
- ClientSecret
- TenantId

Definitions.json????????????????????

????????????????????????????????

5.2 definitions.json

```

/Samples # cat Azure/definitions.json
[
  {
    "Role": "DATA",
    "Count": "2",
    "LicenseKey": "ubuntu-sharding-iris.key"
  }
]

```

```
}
]
```

6. ????????

6.1 sample.credentials (for AWS)

- AWS??
- ???
- ?????? (?????? ID ??????????????????)????????????????
- ?????????????????????????????
- ??????csv????????????????
- ?????????????????????(XXXX?????????)??sample.credentials??????????

[default]

aws_access_key_id = XXXX

aws_secret_access_key = XXXX

- ??samle.credentials?icm docker??/Samples/AWS???????

```
$ cd /Samples/AWS
```

```
$ cp /myhome/sample.credentials .
```

- ??defaults.json?definitions.json?icm docker??/Samples/AWS???????

```
$ cd /Samples/AWS
```

```
$ cp /myhome/defaults.json .
```

```
$ cp /myhome/definitions.json .
```

6.2 Azure

- subscriptionid Azure????????????????????????????????????
- ??????????ID
- tenant-id Azure?????Azure?????Azure Active Directory??????
- ??????????????????????ID
- ?????????????????????????????
- ?????????????????????
- ?????????????????????
- ?????????????????????

- ??????URLWeb <https://intersystems.com>
- ????????
- ??????????????ID????????ID????????????????????
- ?????????????????
- ?????????API????????????
- + ??????????????????????????????????Azure Service Management?????
- Access Azure Service Management as organization user???
- ?????????????????
- Azure ?????????????????????
- ??????????????????IAM?????
- ?????????????????????????
- ????????
- ??????????????????Azure AD????????????????????????
- ?????????????????????????
- ????????
- ??defaults.json?definitions.json?icm docker??/Samples/AZure???????

```
$ cd /Samples/Azure
$ cp /myhome/defaults.json .
$ cp /myhome/definitions.json .
```

7. ?????????

6.??

icm provision????????????????

???Azure???????????

```
$ cd /Samples/AWS
/Samples/Azure # icm provision
Starting init of Sato-ICM...
...completed init of Sato-ICM
Starting plan of Sato-ICM...
...completed plan of Sato-ICM
Starting refresh of Sato-ICM...
...completed refresh of Sato-ICM
Starting apply of Sato-ICM...
Elapsed time for apply on Sato-ICM: 15s...
Elapsed time for apply on Sato-ICM: 30s...
...completed apply of Sato-ICM
Starting init of Sato-DATA-ICM...
...completed init of Sato-DATA-ICM
Starting plan of Sato-DATA-ICM...
...completed plan of Sato-DATA-ICM
Starting refresh of Sato-DATA-ICM...
...completed refresh of Sato-DATA-ICM
Starting apply of Sato-DATA-ICM...
Elapsed time for apply on Sato-DATA-ICM: 15s...
```

Elapsed time for apply on Sato-DATA-ICM: 30s...
 Elapsed time for apply on Sato-DATA-ICM: 45s...
 Elapsed time for apply on Sato-DATA-ICM: 60s...
 Elapsed time for apply on Sato-DATA-ICM: 75s...
 Elapsed time for apply on Sato-DATA-ICM: 90s...
 Elapsed time for apply on Sato-DATA-ICM: 105s...
 Elapsed time for apply on Sato-DATA-ICM: 120s...
 ...completed apply of Sato-DATA-ICM
 Copying files to Sato-DATA-ICM-0002...
 Copying files to Sato-DATA-ICM-0001...
 ...copied files to Sato-DATA-ICM-0001
 Configuring Sato-DATA-ICM-0001...
 ...copied files to Sato-DATA-ICM-0002
 Configuring Sato-DATA-ICM-0002...
 ...configured Sato-DATA-ICM-0001
 Copying more files to Sato-DATA-ICM-0001...
 ...configured Sato-DATA-ICM-0002
 Copying more files to Sato-DATA-ICM-0002...
 ...copied more files to Sato-DATA-ICM-0001
 Mounting volumes on Sato-DATA-ICM-0001...
 ...copied more files to Sato-DATA-ICM-0002
 Mounting volumes on Sato-DATA-ICM-0002...
 ...mounted volumes on Sato-DATA-ICM-0001
 Installing Docker on Sato-DATA-ICM-0001...
 ...mounted volumes on Sato-DATA-ICM-0002
 Installing Docker on Sato-DATA-ICM-0002...
 Elapsed time for provision on Sato-DATA-ICM-0001: 15s...
 Elapsed time for provision on Sato-DATA-ICM-0002: 15s...
 Elapsed time for provision on Sato-DATA-ICM-0001: 30s...
 Elapsed time for provision on Sato-DATA-ICM-0002: 30s...
 Elapsed time for provision on Sato-DATA-ICM-0001: 45s...
 Elapsed time for provision on Sato-DATA-ICM-0002: 45s...
 Elapsed time for provision on Sato-DATA-ICM-0001: 60s...
 Elapsed time for provision on Sato-DATA-ICM-0002: 60s...
 ...installed Docker on Sato-DATA-ICM-0001
 Determining host OS of Sato-DATA-ICM-0001...
 ...installed Docker on Sato-DATA-ICM-0002
 Determining host OS of Sato-DATA-ICM-0002...
 ...determined host OS of Sato-DATA-ICM-0001
 Determining local IP address of Sato-DATA-ICM-0001...
 ...determined host OS of Sato-DATA-ICM-0002
 Determining local IP address of Sato-DATA-ICM-0002...
 ...determined local IP address of Sato-DATA-ICM-0001
 ...determined local IP address of Sato-DATA-ICM-0002
 Installing Weave Net on Sato-DATA-ICM-0001...
 Installing Weave Net on Sato-DATA-ICM-0002...
 Elapsed time for weave on Sato-DATA-ICM-0001: 15s...
 Elapsed time for weave on Sato-DATA-ICM-0002: 15s...
 ...installed Weave Net on Sato-DATA-ICM-0002
 Collecting Weave info for Sato-DATA-ICM-0002...
 ...installed Weave Net on Sato-DATA-ICM-0001
 Collecting Weave info for Sato-DATA-ICM-0001...
 ...collected Weave info for Sato-DATA-ICM-0002
 ...collected Weave info for Sato-DATA-ICM-0001

Machine	IP Address	DNS Name	Provider	Region	Zone
Sato-DATA-ICM-0001	52.185.190.176	satodataicm1.japaneast.cloudapp.azure.co	Azure	Japaneast	1
Sato-DATA-ICM-0002	52.185.190.169	satodataicm2.japaneast.cloudapp.azure.co	Azure	Japaneast	1

To destroy: icm unprovision -stateDir state [-cleanUp] [-force]

8. Deploy

7.??

```
/Samples/Azure # icm run
Enter desired InterSystems IRIS password: ??????????--- ?????IRIS????????????????????????????????????????
Enter password again: ??????????--- ??????????
Pulling image hsato0719/iris:2020.1.0.215.0 on Sato-DATA-ICM-0001 ...
Pulling image hsato0719/iris:2020.1.0.215.0 on Sato-DATA-ICM-0002 ...
Elapsed time for pull on Sato-DATA-ICM-0001: 15s...
Elapsed time for pull on Sato-DATA-ICM-0002: 15s...
...pulled image hsato0719/iris:2020.1.0.215.0 on Sato-DATA-ICM-0002
...pulled image hsato0719/iris:2020.1.0.215.0 on Sato-DATA-ICM-0001
Stopping container iris on Sato-DATA-ICM-0001...
Stopping container iris on Sato-DATA-ICM-0002...
...completed stop of container iris on Sato-DATA-ICM-0001
...completed stop of container iris on Sato-DATA-ICM-0002
Removing container iris on Sato-DATA-ICM-0001...
Removing container iris on Sato-DATA-ICM-0002...
...removed container iris on Sato-DATA-ICM-0001
...removed container iris on Sato-DATA-ICM-0002
Inspecting docker image hsato0719/iris:2020.1.0.215.0 on Sato-DATA-ICM-0001...
Inspecting docker image hsato0719/iris:2020.1.0.215.0 on Sato-DATA-ICM-0002...
...inspected docker image hsato0719/iris:2020.1.0.215.0 on Sato-DATA-ICM-0001
...inspected docker image hsato0719/iris:2020.1.0.215.0 on Sato-DATA-ICM-0002
Creating container iris on Sato-DATA-ICM-0001...
Creating container iris on Sato-DATA-ICM-0002...
...created container iris on Sato-DATA-ICM-0001
...created container iris on Sato-DATA-ICM-0002
Copying license directory /Samples/license/ to Sato-DATA-ICM-0001...
Copying CPF deltas to Sato-DATA-ICM-0002...
...copied license directory /Samples/license/ to Sato-DATA-ICM-0001
Copying CPF deltas to Sato-DATA-ICM-0001...
...copied CPF deltas to Sato-DATA-ICM-0002
...copied CPF deltas to Sato-DATA-ICM-0001
Starting container iris on Sato-DATA-ICM-0001...
Starting container iris on Sato-DATA-ICM-0002...
...completed start of container iris on Sato-DATA-ICM-0001
...completed start of container iris on Sato-DATA-ICM-0002
Waiting for InterSystems IRIS to start on Sato-DATA-ICM-0001...
Waiting for InterSystems IRIS to start on Sato-DATA-ICM-0002...
Elapsed time for wait_started on Sato-DATA-ICM-0001: 15s...
Elapsed time for wait_started on Sato-DATA-ICM-0002: 15s...
...InterSystems IRIS started on Sato-DATA-ICM-0001
Elapsed time for wait_started on Sato-DATA-ICM-0002: 30s...
...InterSystems IRIS started on Sato-DATA-ICM-0002
Getting ICM state from Sato-DATA-ICM-0001...
Getting ICM state from Sato-DATA-ICM-0002...
...got ICM state from Sato-DATA-ICM-0001
...got ICM state from Sato-DATA-ICM-0002
```

Configuring Web Gateway on Sato-DATA-ICM-0001...
 Configuring Web Gateway on Sato-DATA-ICM-0002...
 ...configured Web Gateway on Sato-DATA-ICM-0002
 ...configured Web Gateway on Sato-DATA-ICM-0001
 Configuring ODBC on Sato-DATA-ICM-0001...
 Configuring ODBC on Sato-DATA-ICM-0002...
 ...configured ODBC on Sato-DATA-ICM-0002
 ...configured ODBC on Sato-DATA-ICM-0001
 Configuring JDBC on Sato-DATA-ICM-0001...
 Configuring JDBC on Sato-DATA-ICM-0002...
 ...configured JDBC on Sato-DATA-ICM-0001
 ...configured JDBC on Sato-DATA-ICM-0002
 Configuring ECP on Sato-DATA-ICM-0002...
 Configuring ECP on Sato-DATA-ICM-0001...
 ...configured ECP on Sato-DATA-ICM-0002
 ...configured ECP on Sato-DATA-ICM-0001
 Changing WebGateway password on Sato-DATA-ICM-0001...
 Changing WebGateway password on Sato-DATA-ICM-0002...
 ...changed WebGateway password on Sato-DATA-ICM-0002
 ...changed WebGateway password on Sato-DATA-ICM-0001
 Validating license on Sato-DATA-ICM-0001...
 Acquiring license on Sato-DATA-ICM-0002...
 ...acquired license on Sato-DATA-ICM-0002
 ...validated license on Sato-DATA-ICM-0001
 Acquiring license on Sato-DATA-ICM-0001...
 ...acquired license on Sato-DATA-ICM-0001
 Enable sharding on Sato-DATA-ICM-0001...
 Enable sharding on Sato-DATA-ICM-0002...
 ...enabled sharding on Sato-DATA-ICM-0002
 ...enabled sharding on Sato-DATA-ICM-0001
 Initializing shard Sato-DATA-ICM-0001...
 ...initialized shard Sato-DATA-ICM-0001
 Attaching shard Sato-DATA-ICM-0002 as data node....
 ...attached shard Sato-DATA-ICM-0002 as data node
 Setting shard options on Sato-DATA-ICM-0002...
 ...set shard options on Sato-DATA-ICM-0002
 Setting shard options on Sato-DATA-ICM-0001...
 ...set shard options on Sato-DATA-ICM-0001
 Verifying shards on Sato-DATA-ICM-0001...
 ...verified shards on Sato-DATA-ICM-0001
 Setting ICM state on Sato-DATA-ICM-0001...
 Setting ICM state on Sato-DATA-ICM-0002...
 ...set ICM state on Sato-DATA-ICM-0001
 ...set ICM state on Sato-DATA-ICM-0002
 -> Management Portal available at:
<http://satodataicm1.japaneast.cloudapp.azure.com:52773/csp/sys/UtilHome.csp>

???url????????????????????????????????

?????: _system
 ?????: icm deploy????????????

9. test

icm????????????????????

```
$ icm ps -container iris
$ icm exec -command "df -k" -machine Sato-DATA-ICM-0001
$ icm session -interactive -machine Sato-DATA-ICM-0001 -namespace USER
$ icm scp -localPath local-path [-remotePath remote-path]

$ icm sql -command "create table order (orderid varchar(20), primary key (orderid), shard)" -role DATA
$ icm sql -command "create table lineitem (product varchar(20), orderid varchar(20), quantity integer, shard)" -role DATA
$ icm sql -command "create table product (name varchar(20), price number(7,2))" -role DATA
$ icm sql -command "create table product (name varchar(20), price number(7,2))" -role DATA

$ icm sql -command "insert into product values ('hammer',9.95)" -role DATA
$ icm sql -command "insert into product values ('nail',0.02)" -role DATA
$ icm sql -command "insert into product values ('pliers',8.95)" -role DATA
$ icm sql -command "insert into product values ('screw',0.05)" -role DATA
$ icm sql -command "insert into product values ('screwdriver',7.95)" -role DATA
$ icm sql -command "insert into product values ('saw',12.95)" -role DATA
$ icm sql -command "insert into order values ('A-001')" -role DATA
$ icm sql -command "insert into order values ('A-002')" -role DATA
$ icm sql -command "insert into order values ('B-001')" -role DATA
$ icm sql -command "insert into order values ('B-002')" -role DATA
$ icm sql -command "insert into order values ('B-003')" -role DATA
$ icm sql -command "insert into order values ('B-004')" -role DATA
$ icm sql -command "insert into order values ('B-005')" -role DATA
$ icm sql -command "insert into lineitem values ('hammer','A-001',1)" -role DATA
$ icm sql -command "insert into lineitem values ('nail','A-001',1000)" -role DATA
$ icm sql -command "insert into lineitem values ('pliers','A-002',1)" -role DATA
$ icm sql -command "insert into lineitem values ('screwdriver','B-001',1)" -role DATA
$ icm sql -command "insert into lineitem values ('screw','B-001',500)" -role DATA
$ icm sql -command "insert into lineitem values ('screwdriver','B-002',2)" -role DATA
$ icm sql -command "insert into lineitem values ('pliers','B-002',1)" -role DATA
$ icm sql -command "insert into lineitem values ('screw','B-002',1500)" -role DATA
$ icm sql -command "insert into lineitem values ('saw','B-003',1)" -role DATA
$ icm sql -command "insert into lineitem values ('saw','B-004',1)" -role DATA
$ icm sql -command "insert into lineitem values ('pliers','B-004',1)" -role DATA
$ icm sql -command "insert into lineitem values ('pliers','B-005',2)" -role DATA

$ icm sql -command "select avg(quantity) from lineitem" -role DATA
$ icm sql -command "select %id, * from order" -role DATA
$ icm sql -command "select %id, * from lineitem" -role DATA
$ icm sql -command "select order.orderid, product, quantity from order, lineitem where order.orderid=lineitem.orderid order by 1" -role DATA
$ icm sql -command "select orderid, sum(price*quantity) from lineitem, product where lineitem.product=product.name group by orderid" -role DATA

$ icm sql -command "select orderid, sum(price*quantity) from lineitem, product where lineitem.product=product.name group by orderid" -machine Sato-DATA-TEST-0001
$ icm sql -command "select orderid, sum(price*quantity) from lineitem, product where lineitem.product=product.name group by orderid" -machine Sato-DATA-TEST-0002
```

10. cleanUp

- ??????????????????????

icm unprovision -cleanUp -force

[#AI](#) [#DevOps](#) [#Docker](#) [#????](#) [#????????](#) [#????????????](#) [#????????](#) [#InterSystems](#) [IRIS](#)
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??URL: <https://jp.community.intersystems.com/post/icm%E3%82%92%E5%88%A9%E7%94%A8%E3%81%97%E3%81%A6iris%E3%82%AF%E3%83%A9%E3%82%B9%E3%82%BF%E3%83%BC%E3%82%92%E6%A7%8B%E6%88%90%E3%81%99%E3%82%8B%E6%96%B9%E6%B3%95>