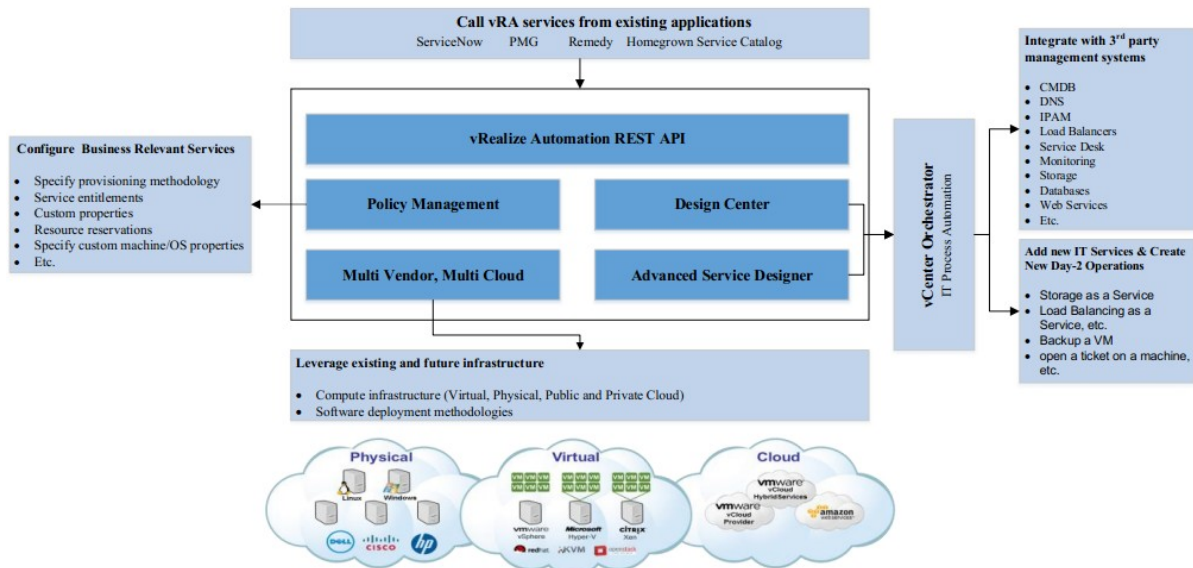
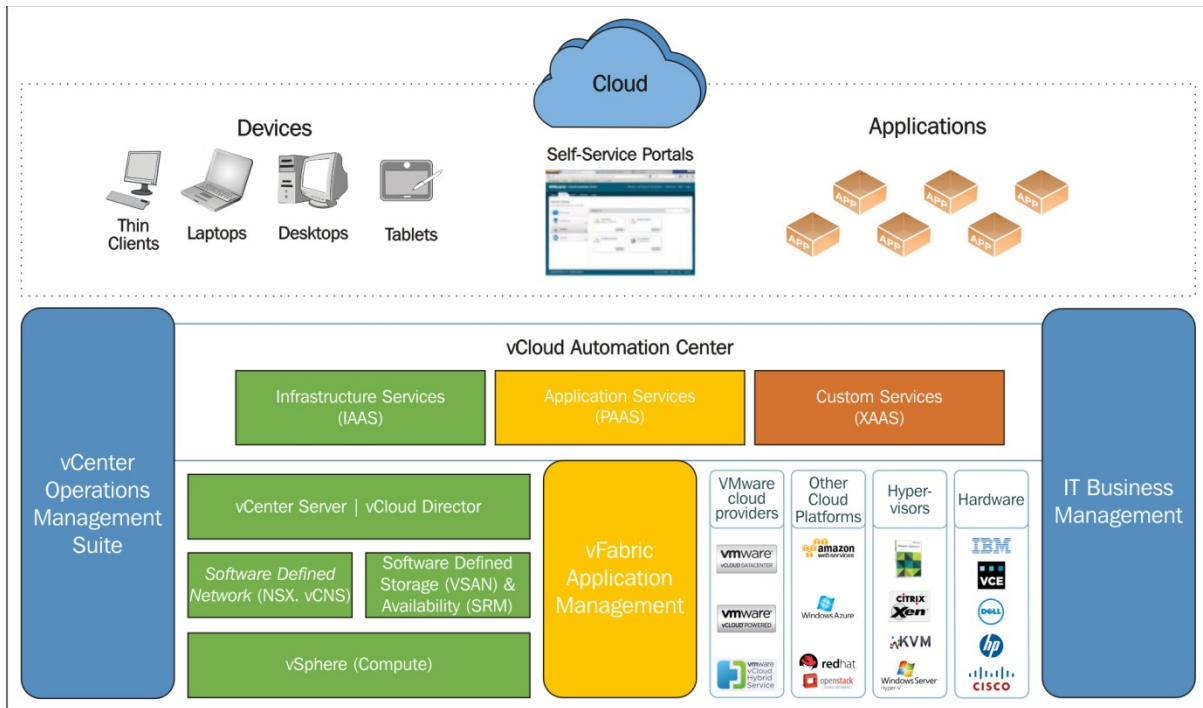


Chapter 1: vRealize Automation and the Deconstruction of Components





vRA Appliance or CAFÉ
(Cloud Automation Framework for Extensibility)

RabbitMQ

vRealize Orchestrator

Core Services

Embedded Postgress DB



Identity Appliance

OR



vSphere PSC or SSO



IAAS Server

Model Manager

Manager Service

DEM Worker (s)

DEM Orchestrator(s)

Proxy Agent (s)



Database Server



Identity Appliance [standalone]

**Linux Based
Appliance**

**High Availability only through vSphere
HA, FT (please read FT requirement)**

OR



vSphere 5.5 SSO U1/U2



**Linux Based
SSO – no HA**

**Windows Based SSO – HA supports
Active/Passive configuration**

OR



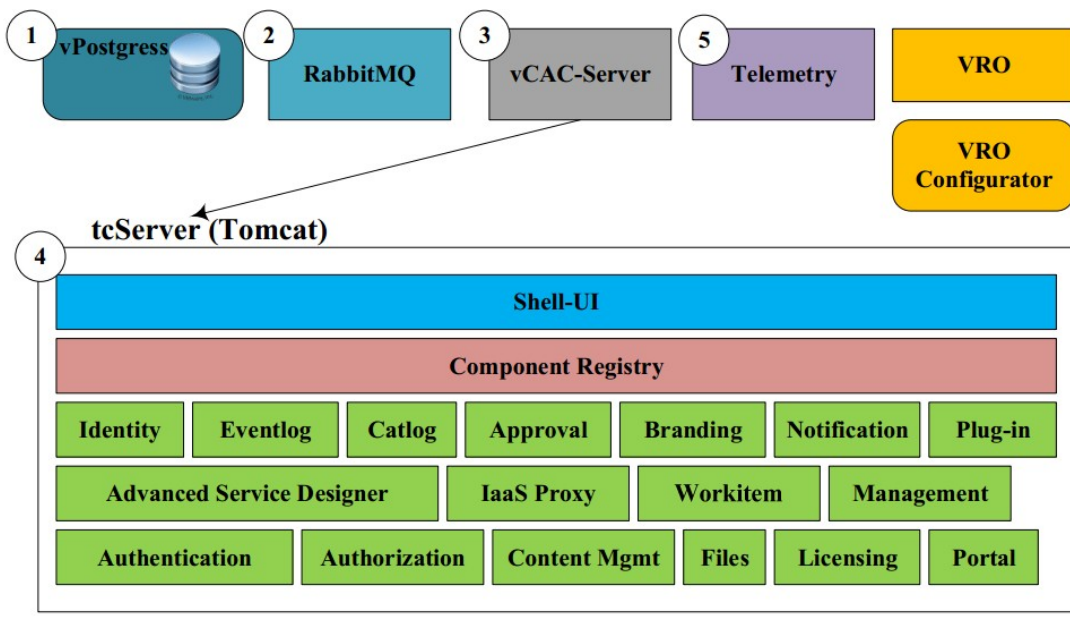
vSphere 6 PSC



**Both Linux and Windows based PSC support HA in
Active/Active configuration**



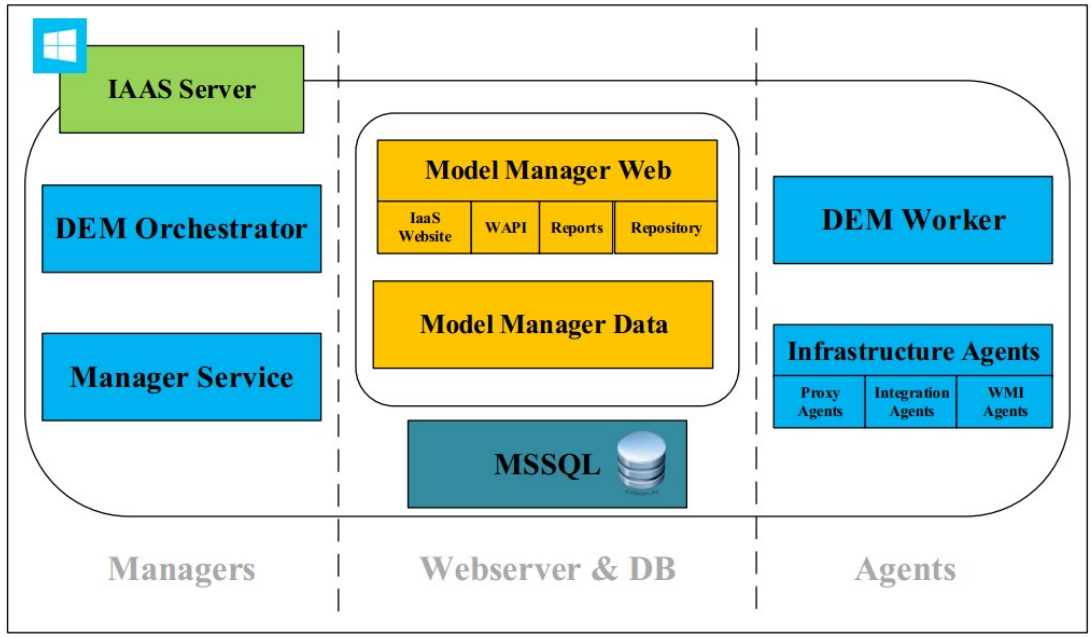
vRA Appliance (CAFÉ)



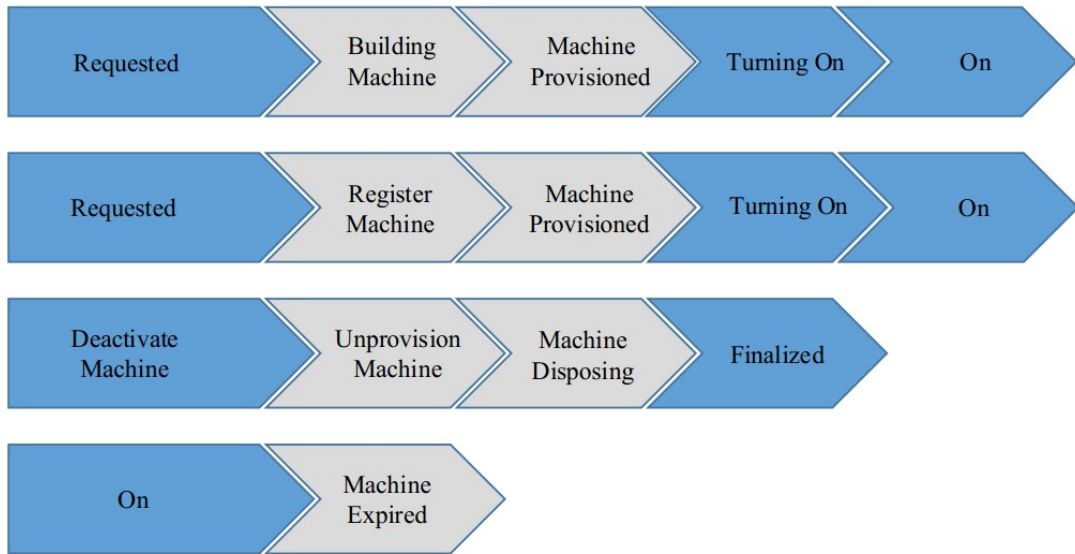
```

CAFÉ1:/var/lib/vcac/server/webapps # ls -lhr
total 84K
drwxr-xr-x 6 root root 4.0K May 20 22:32 advanced-designer-service
drwxr-xr-x 4 root root 4.0K May 20 22:32 ROOT
drwxr-xr-x 5 root root 4.0K May 20 22:32 branding-service
drwxr-xr-x 5 root root 4.0K May 20 22:32 approval-service
drwxr-xr-x 6 root root 4.0K May 20 22:32 catalog-service
drwxr-xr-x 5 root root 4.0K May 20 22:32 identity
drwxr-xr-x 6 root root 4.0K May 20 22:32 iaas-proxy-provider
drwxr-xr-x 5 root root 4.0K May 20 22:32 eventlog-service
drwxr-xr-x 4 root root 4.0K May 20 22:32 console-proxy-service
drwxr-xr-x 5 root root 4.0K May 20 22:32 component-registry
drwxr-xr-x 6 root root 4.0K May 20 22:32 management-service
drwxr-xr-x 4 root root 4.0K May 20 22:32 socialcast-plugin
drwxr-xr-x 5 root root 4.0K May 20 22:32 reservation-service
drwxr-xr-x 5 root root 4.0K May 20 22:32 notification-service
drwxr-xr-x 5 root root 4.0K May 20 22:32 workitem-service
drwxr-xr-x 11 root root 4.0K May 20 22:32 vcac
drwxr-xr-x 6 root root 4.0K May 20 22:33 artifact-management-service
drwxr-xr-x 6 root root 4.0K May 20 22:33 release-management-service
drwxr-xr-x 5 root root 4.0K May 20 22:33 dashboard-service
drwxr-xr-x 5 root root 4.0K May 20 22:33 resource-service
drwxr-xr-x 5 root root 4.0K May 20 22:33 files-service
CAFÉ1:/var/lib/vcac/server/webapps # _

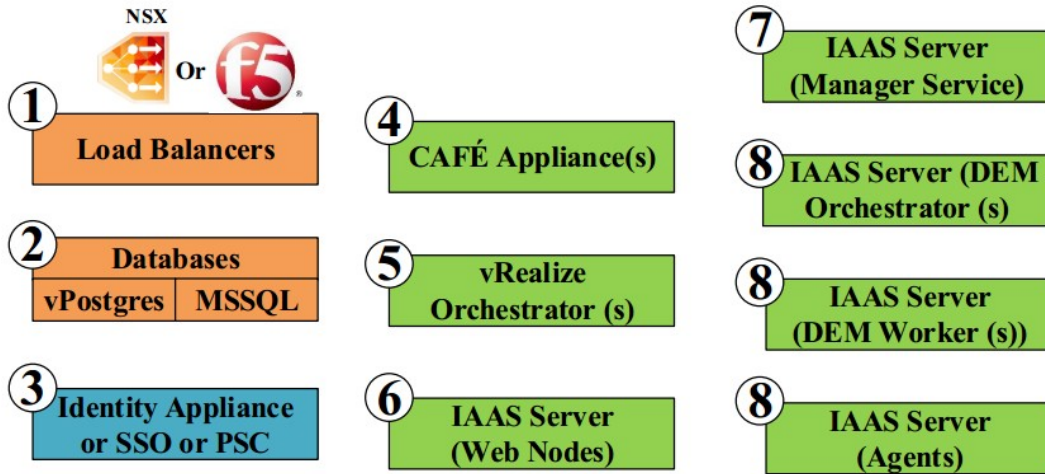
```



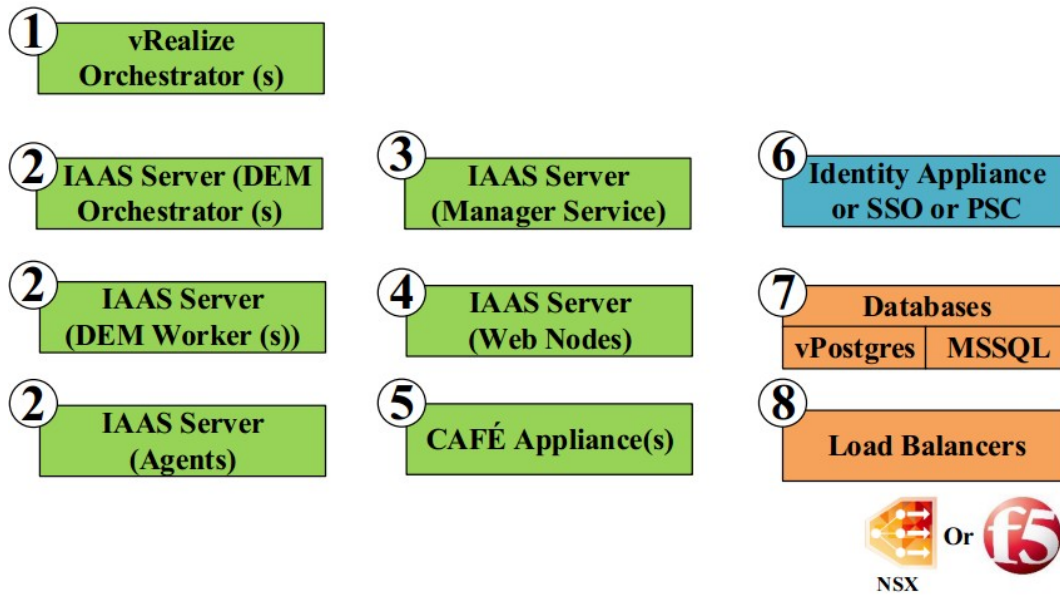
Master Workflow State Transitions



vRA Startup Order



vRA Shutdown Order

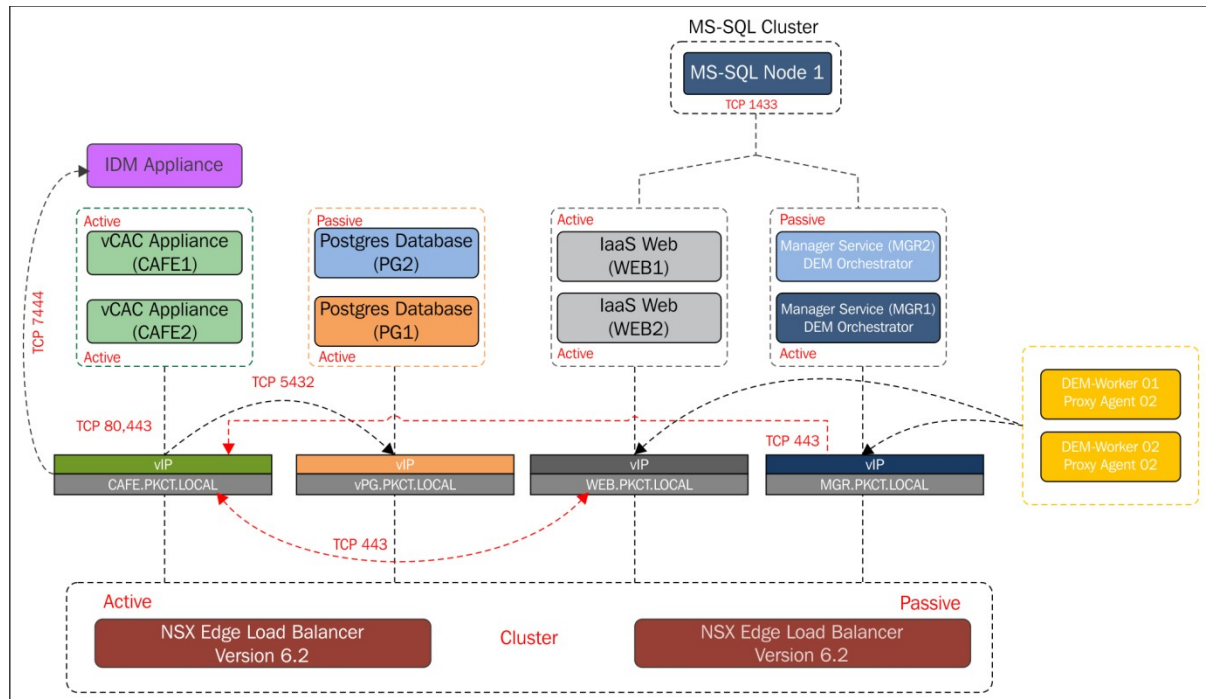


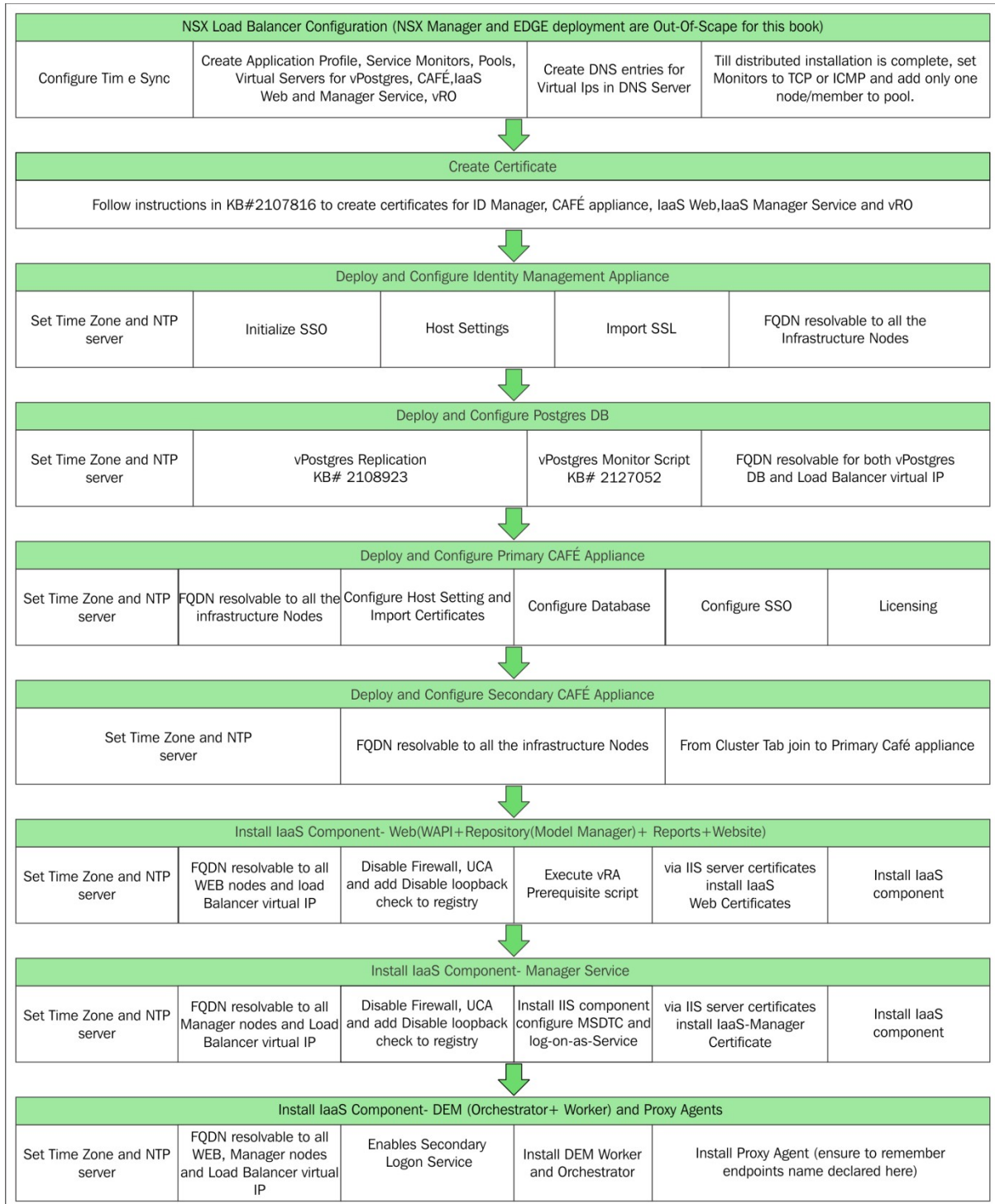
```

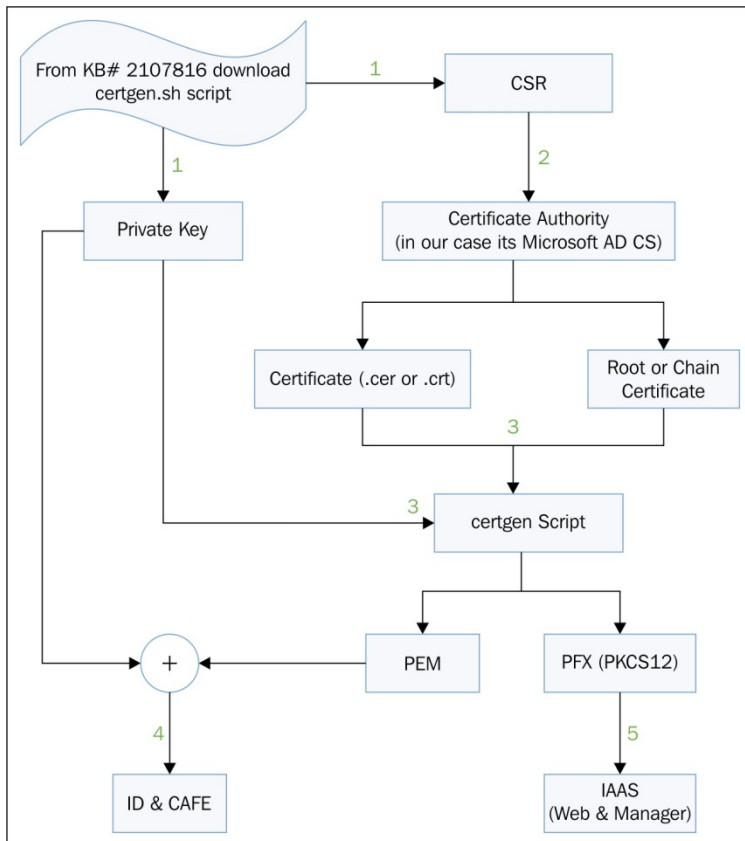
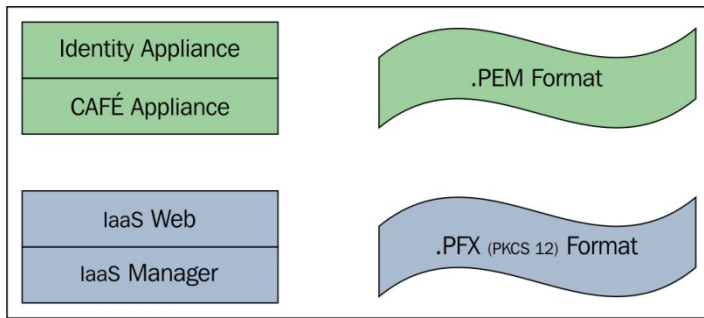
CAFE1:~ # rabbitmqctl list_queues
Listing queues ...
vmware.vcac.core.approval-service.approvalProcessor      0
vmware.vcac.core.approval-service.approvalUpdater      0
vmware.vcac.core.approval-service.error                0
vmware.vcac.core.cache.queue.identity.cafe.node.451376077.918  0
vmware.vcac.core.cache.queue.workitem-service.cafe.node.451376077.918  0
vmware.vcac.core.catalog-service.error                0
vmware.vcac.core.catalog-service.notification          0
vmware.vcac.core.catalog-service.requestApproved       0
vmware.vcac.core.catalog-service.requestCompleted     0
vmware.vcac.core.catalog-service.requestPostApproved  0
vmware.vcac.core.catalog-service.requestSubmitted     0
vmware.vcac.core.catalog-service.retryRequestApproved  0
vmware.vcac.core.catalog-service.retryRequestCompleted 0
vmware.vcac.core.catalog-service.retryRequestSubmitted 0
vmware.vcac.core.catalog-service.rollbackRequest      0
vmware.vcac.core.identity.error                      0
vmware.vcac.core.notification-service.email           0
vmware.vcac.core.notification-service.error           0
vmware.vcac.core.notification-service.inboundMessage  0
vmware.vcac.core.notification-service.notification    0
vmware.vcac.core.notification-service.notificationCallback 0
vmware.vcac.core.notification-service.notificationCallbackError 0
vmware.vcac.core.workitem-service.delegates          0
vmware.vcac.core.workitem-service.error              0
vmware.vcac.core.workitem-service.notification        0
CAFE1:~ #

```

Chapter 2: Distributed Installation Using Custom Certificates










```


vIDM:~/Certificates # cat servers.txt
vIDM
CAFE
CAFE1
CAFE2
vPG
PG1
PG2
WEB
WEB1
WEB2
MGR
MGR1
MGR2
vIDM:~/Certificates #

```


CAFE - FQDN of virtual IP in Loadbalancer for CAFE
CAFE1 & CAFE2 - FQDN of CAFÉ Nodes


vPG - FQDN of virtual IP in Loadbalancer for Postgres DB
PG1 & PG2 - FQDN of Postgres Nodes



WEB - FQDN of virtual IP in Loadbalancer for IAAS WEB
WEB1 & WEB2 - FQDN of IAAS WEB components


MGR - FQDN of virtual IP in Loadbalancer for Manager Service Node
MGR1 & MGR2 - FQDN of Manager Service Nodes

```

Enter Organization:
PACKT
Enter Organizational Unit:
Publication
Enter Locality/Town:
BNG
Enter State/County:
KA
Enter Country Code (2 lettered ISO code e.g. GB,US,etc):
IN
Found server list file, containing the following names:
vIDM
CAFE
CAFE1
CAFE2
vPG
PG1
PG2
WEB
WEB1
WEB2
MGR
MGR1
MGR2
Do you wish to import the servers from this file? (y/n):
Y
Enter domain name to be used for non fully qualified hostnames (e.g. mycompany.com):
HINT: Press enter to add short hostnames to certificate exactly as listed above i.e. without appending any domain
PRCT.LOCAL

```


List of servers from server.txt file

```

vIDM:~/Certificates # ls -lhtr
total 40K
-rwxr--r-- 1 root root 16K Oct 2 13:12 certgen.sh
-rw----- 1 root root 75 Oct 2 22:01 servers.txt
-rw----- 1 root root 1.7K Oct 2 22:37 vrealize.key Private Key
-rw----- 1 root root 1.5K Oct 2 22:37 vrealize.csr Certificate Signing Request
-rw----- 1 root root 1.7K Oct 2 22:37 vrealize-orig.key
-rw----- 1 root root 192 Oct 2 22:37 vrealize-certs.log
-rw----- 1 root root 984 Oct 2 22:37 config.cfg
vIDM:~/Certificates #

```

Submit a Certificate Request or Renewal Request

To submit a saved request to the CA, paste a base-64-encoded CMC or PKCS #10 Saved Request box.

Saved Request:

Base-64-encoded certificate request (CMC or PKCS #10 or PKCS #7):

```
5wC/G2vdXc11bD8K4CnknBvdZM/5mCUi11tYYgaAg:
Aupc
IYGI
5NsM
Vxm9v r.
-----END CERTIFICATE REQUEST-----
```

Copy the contents of vrealize.csr

Certificate Template:

vRA_Certificate

Select the certificate template created for vRA

Additional Attributes:

Attributes:

Submit >

Name of the ROOT Certificate

Certificate Issued

The certificate you requested was issued to you.

DER encoded or Base 64 encoded



[Download certificate](#)

[Download certificate chain](#)

Save this file as vrealize.crt

Save this file to export ROOT Certificate as Root64.cer

1 - Open file in Certificate Manager



2 - Click Certificates

3 - Export ROOT Certificate

Name	Date modified	Type	Size
certnew	9/27/2015 1:51 PM	PKCS #7 Certificates	4 KB

Issued To	Issued By	Expiration Date	Intended P
PKCT-MASTER-CA	PKCT-MASTER-C	2020	<All>
PSC.PKCT.LOCAL	PKCT-MASTER-C	2017	<All>

```
vIDM:~/Certificates # ls -lstr
total 44
16 -rwxr--r-- 1 root root 15510 Oct  2 13:12 certgen.sh
 4 -rw----- 1 root root   75 Oct  2 22:01 servers.txt
 4 -rw----- 1 root root  1679 Oct  2 22:37 vrealize.key
 4 -rw----- 1 root root  1533 Oct  2 22:37 vrealize.csr
 4 -rw----- 1 root root  1679 Oct  2 22:37 vrealize-orig.key
 4 -rw----- 1 root root   984 Oct  2 22:37 config.cfg
 4 -rw----- 1 root root  1262 Oct  2 23:18 Root64.cer
 4 -rw----- 1 root root  2470 Oct  2 23:26 vrealize.crt
vIDM:~/Certificates #
```

 Script expects root file saves as Root64.cer
 Script expects certificate to be saved as vrealize.crt

```
vIDM:~/Certificates # ./certgen.sh
*****
*      VMware vRealize - Signed Certificate Tool      *
*      CSE Reference Architecture Team                *
*****

Existing certificate request found in /root/Certificates. Use this request? (y/n)
y

Save your signed certificate as vrealize.crt in /root/Certificates and hit Enter:

Download your Root CA Certificate and save it as Root64.cer in /root/Certificates and hit Enter. Optionally, you can exit this script here and
resume later:

Please create a PFX file password (store this safely as this will be used when importing across components)
Enter Password:
```

Private Key for vRealize Automation (vCAC) and Identity Appliance

File: /root/Certificates/vrealize.key
Installation Method:
Go to <https://vcac-server:5480> and paste into the Private Key box on the SSL page
Notes: Passphrase is the PFX password you entered earlier

PEM without Private Key for vRealize Automation (vCAC) and Identity Appliance

File: /root/Certificates/vrealize.pem
Installation Method:
Go to <https://vcac-server:5480> and paste into the Certificate Chain box on the SSL page
Notes: Passphrase is the PFX password you entered earlier

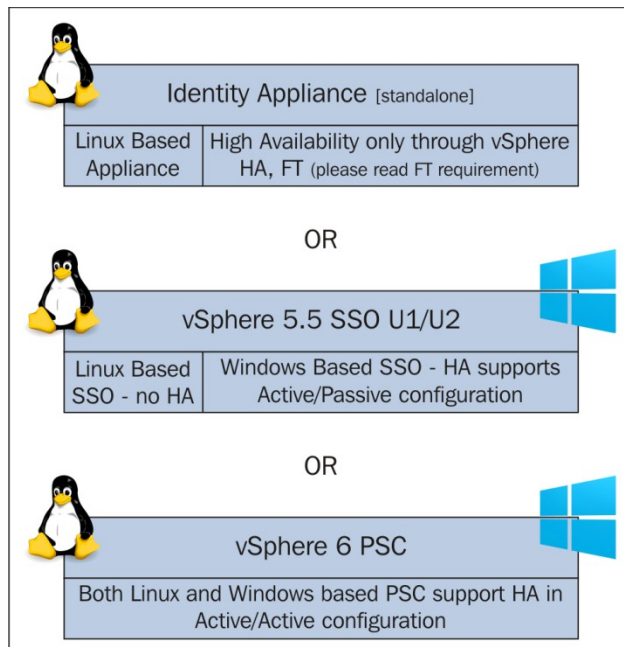
PFX for vRealize Automation IAAS - IIS

File: /root/Certificates/vrealize.pfx
Installation Method:
Copy file to all IAAS servers
Double click the vrealize.pfx file
Click Next until the wizard finishes, accepting default options

```

vIDM:~/Certificates # ls -lhtr
total 100K
-rwxr--r-- 1 root root 16K Oct 2 13:12 certgen.sh
-rw----- 1 root root 75 Oct 2 22:01 servers.txt
-rw----- 1 root root 1.7K Oct 2 22:37 vrealize.key ----- Private Key for CAFE and ID Appliance
-rw----- 1 root root 1.5K Oct 2 22:37 vrealize.csr
-rw----- 1 root root 1.7K Oct 2 22:37 vrealize-orig.key
-rw----- 1 root root 984 Oct 2 22:37 config.cfg
-rw----- 1 root root 1.3K Oct 2 23:18 Root64.cer ----- Root Certificate
-rw----- 1 root root 2.5K Oct 2 23:26 vrealize.crt
-rw----- 1 root root 4.3K Oct 2 23:29 vrealize.pfx ----- Certificate for IAAS Web & Manager Components
-rw----- 1 root root 4.0K Oct 2 23:29 vrealize.pem ----- PEM Encoded certificate for CAFE and ID Appliance
-rw----- 1 root root 16 Oct 2 23:29 vrealize-certs.log
-rw----- 1 root root 4.3K Oct 2 23:29 ssoserver.p12
-rw----- 1 root root 5.3K Oct 2 23:29 vrealize-full.pem ----- PEM Encoded certificate for vROPS
-rw----- 1 root root 4.7K Oct 2 23:29 server.xml.bak
-rw----- 1 root root 4.7K Oct 2 23:29 server.xml
-rw----- 1 root root 3.9K Oct 2 23:29 jssecacerts ----- JKS Certificate Store for vRO
-rw----- 1 root root 3.9K Oct 2 23:29 appdui.jks
vIDM:~/Certificates #

```



System	SSO	Network	Update	Admin
	SSO	Host Settings	SSL	Active Directory

SSO configuration

SSO is initialized.

System Domain*

Admin Password*

Repeat password*

SSO Status **RUNNING**

SSO Host Settings

SSO Hostname* VIDM.PKCT.LOCAL

Replace SSL Certificate

Choose Action* **Import PEM encoded Certificate**

Common Name VIDM.PKCT.LOCAL

Organization*

Organizational Unit*

Country Code* US

Serial B4B18B13686EE198

Fingerprint 26:A7:15:09:74:2B:C4:EB:D7:D0:94:45:18:A1:D1:4F:8D:C1:7D:37

Valid since Oct 4 06:59:25 2015 GMT

Valid to Oct 3 06:59:25 2016 GMT

RSA Private Key* **Copy Contents of vrealize.key**

Certificate Chain* **Copy Contents of vrealize.pem**

Pass Phrase Password used while creating certificate changeme

SSO Active Directory Configuration

Domain Name* PKCT.LOCAL

Domain User*

Password*

Status Joined to domain PKCT.LOCAL

Distinguished Name CN=VIDM,CN=Computers,DC=PKCT,DC=LOCAL

```
PG1:~/2108923_dbCluster # ./configureDisk.sh /dev/sdd
1.) Validating /dev/sdd exists
/dev/sdd found
2.) Creating partition: /dev/sdd1
Information: You may need to update /etc/fstab.
```

Towards the end look for WAL message

```
Ownership changed successfully
WAL Archive disk configured successfully
PG1:~/2108923_dbCluster #
```

```
PG2:~/2108923_dbCluster # ./configureDisk.sh /dev/sdd
1.) Validating /dev/sdd exists
/dev/sdd found
2.) Creating partition: /dev/sdd1
Information: You may need to update /etc/fstab.
```

Towards the end look for WAL message

```
Ownership changed successfully
WAL Archive disk configured successfully
PG2:~/2108923_dbCluster #
```

```
PG1:~/2108923_dbCluster # ./pgClusterSetup.sh -d vPG.PKCT.LOCAL -w changeme -r changeme -p changeme
*****
* VMware vRealize Automation Center - vPostgres Clustering Setup *
```

Wait until you see "Finished" after step 11

```
Finished
PG1:~/2108923_dbCluster #
```

```
PG2:~/2108923_dbCluster # ./pgClusterSetup.sh -d vPG.PKCT.LOCAL -w changeme -r changeme -p changeme
*****
* VMware vRealize Automation Center - vPostgres Clustering Setup *
```

Wait until you see "Finished" after step 11

```
Finished
PG2:~/2108923_dbCluster #
```

vPG.PKCT.LOCAL - FQDN for virtual IP of vPostgres in the NSX Loadbalancer || **changeme** - this password can be anything of your choice

```
./pgClusterSetup.sh [-d] db_fqdn [-w] db_pass [-r] replication_password [-p] postgres_password
[-d] Database load balancer fully qualified domain name
[-w] Database password (will set password to this value)
[-r] Replication password (Optional: will use Database password if not set)
[-p] Postgres password (Optional: will use Database password if not set)
```

From Primary Node

```
PG1:~/2108923_dbCluster # su - postgres Step 1
Last login: Mon Oct 5 09:17:41 UTC 2015 from pg2.pkct.local on ssh
postgres@PG1:~> /opt/vmware/vpostgres/current/share/
archive_command          init_cert.sh            promote_replica_to_primary  timezone/
create_replication_user  init_db.sh              run_as_replica             timezonesets/
doc/                     libpq-doc/              samples/                   tsearch_data/
extension/               locale/                 show_replication_status   update_pgconf.pl
postgres@PG1:~> /opt/vmware/vpostgres/current/share/show_replication_status Step 2 - Execute command
 sync_priority | slave | sync_state | log_receive_position | log_replay_position | receive_delta | replay_delta
-----|-----|-----|-----|-----|-----|-----
(1 row)
0 | PG2.PKCT.LOCAL | async | 0/4000000 | 0/4000000 | | 0 | 0
```

From Secondary Node

```
postgres@PG2:~> /opt/vmware/vpostgres/current/share/show_replication_status
 log_receive_position | log_replay_position | replay_delta
-----|-----|-----
0/400000B8 | 0/400000B8 | 0
(1 row)
```

Login to Master

```
PG1:~ # su - postgres Switching user from root to postgres
Last login: Mon Oct 5 12:00:44 UTC 2015 on pts/0
postgres@PG1:~> /opt/vmware/vpostgres/current/bin/psql Logging into postgres shell
psql.bin (9.2.10)
Type "help" for help.
```

```
postgres=# CREATE TABLE test_replication(test varchar(20)); Creating Table
CREATE TABLE
postgres=# INSERT INTO test_replication VALUES ('data for replication');
INSERT 0 1
postgres=#
```

Login to Slave and check if test_replication table is streamed/replicated

```
PG2:~ # su - postgres
Last login: Mon Oct 5 11:48:39 UTC 2015 on pts/0
postgres@PG2:~> /opt/vmware/vpostgres/current/bin/psql
psql.bin (9.2.10)
Type "help" for help.

postgres=# SELECT * FROM test_replication; Checking if table is replicated
test
-----
data for replication
(1 row)

postgres=#
```

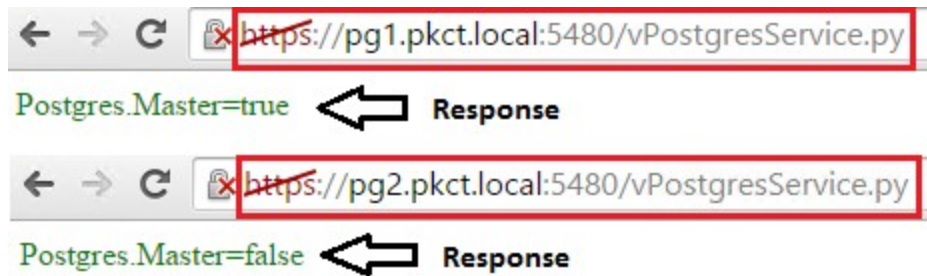
<pre>postgres=# DROP TABLE test_replication; ERROR: cannot execute DROP TABLE in a read-only transaction postgres=#</pre>	REPLICA Node PG2.PKCT.LOCAL - PuTTY
<pre>Last login: Mon Oct 5 12:00:44 UTC 2015 on pts/0 postgres@PG1:~> /opt/vmware/vpostgres/current/bin/psql psql.bin (9.2.10) Type "help" for help. postgres=# CREATE TABLE test_replication(test varchar(20)); CREATE TABLE postgres=# INSERT INTO test_replication VALUES ('data for replication'); INSERT 0 1 postgres=# DROP TABLE test_replication; DROP TABLE postgres=#</pre>	MASTER Node PG1.PKCT.LOCAL - PuTTY


```

PG1:~/2108923_dbCluster # chmod 755 vPostgresNodeState.py vPostgresService.py
PG1:~/2108923_dbCluster # cp vPostgresNodeState.py vPostgresService.py /opt/vmware/share/htdocs/
PG1:~/2108923_dbCluster # cd /opt/vmware/share/htdocs/
PG1:/opt/vmware/share/htdocs # touch postgresNodes.txt
PG1:/opt/vmware/share/htdocs # chmod 755 postgresNodes.txt
PG1:/opt/vmware/share/htdocs #

PG2:~/2108923_dbCluster # chmod 755 vPostgresNodeState.py vPostgresService.py
PG2:~/2108923_dbCluster # ls -lhtcr
total 20K
-rwxr-xr-x 1 root root 8.3K May 20 21:11 vPostgresService.py
-rwxr-xr-x 1 root root 5.1K May 20 21:11 vPostgresNodeState.py
PG2:~/2108923_dbCluster # cp vPostgresNodeState.py vPostgresService.py /opt/vmware/share/htdocs/
PG2:/opt/vmware/share/htdocs # touch postgresNodes.txt
PG2:/opt/vmware/share/htdocs # chmod 755 postgresNodes.txt
PG2:/opt/vmware/share/htdocs #

```



Settings Firewall DHCP NAT Routing Load Balancer VPN SSL VPN-Plus Grouping Objects

Global Configuration Application Profiles Service Monitoring Pools Virtual Servers Application Rules

Show Pool Statistics

Pool and Member Status

Pool Status and Statistics:

Pool ID	Name	Status
pool-7	Postgres_Pool	UP

Member Status and Statistics:

Name	IP Address / VC Container	Status	Member ID
PG1	10.0.0.112	UP	member-13
PG2	10.0.0.113	MAINT	member-15

This is due to the fact that I have unchecked "Enable Member"

vRA Host Settings

Host settings are not configured.

<p>Host Configuration* <input type="radio"/> Keep Existing <input checked="" type="radio"/> Update Host <input type="radio"/> Resolve Automatically</p> <p>Host Name* <input type="text" value="CAFE.PKCT.LOCAL"/> ← FQDN of the virtual IP for CAFE</p> <p><small>ⓘ If you are using an external load balancer, enter the host name of the load balancer instead of the vCloud Automation Center appliance name.</small></p>	<p>Actions</p> <p><input type="button" value="Save Settings"/></p> <p><input type="button" value="Refresh"/></p>
--	---

SSL Configuration

Certificate Action* Keep Existing
 Generate Certificate
 Import

ⓘ Import a PEM encoded certificate, for example for a distributed environment.

RSA Private Key*
Contents of vrealize.key
-----END RSA PRIVATE KEY-----

Certificate Chain*
Contents of vrealize.pem
-----END CERTIFICATE-----

Passphrase Password used when creating the certificates - changeme
ⓘ If your certificate has a pass phrase that encrypts the private key of the certificate, enter it here.

vRA Host Settings

Host and SSL Certificate have been successfully configured.

Host Configuration* Keep Existing Do Not change this settings
 Update Host
 Resolve Automatically

Host Name*

SSL Configuration

Certificate Action* Keep Existing
 Generate Certificate
 Import

Common Name

Organization*

Organizational Unit*

Country Code*

Serial

Fingerprint

Valid since

Valid to

Configure vRA Postgres Database

Database configuration is updated, vCAC is restarted.

Host* ← FQDN of Postgres Database in Loadbalancer
 Port*
 Database*
 User*
 Password* ← Key in the password used while configuring postgres - changeme
 Connection Status CONNECTED, Embedded DB is disabled

SSO Settings

SSO configuration has been updated successfully.

SSO Host* ← FQDN of ID Appliance
 SSO Port
 SSO Default Tenant*
 SSO Admin User*
 SSO Admin Password* ← SSO Password
 Apply Branding
 SSO Info

Status	Build	Version
Connected	3.0-2755561	3.0

 ← SSO Status

Manage Licenses

New License Key
 ⓘ Enter new license key for vRA, Code Stream or IT Business Management

License Type vCAC
 Product Name VMware vCloud Automation Center Advanced
 Product Version 6.0
 Suite Name
 Product Family VMware vCloud Automation Center

Distributed Deployment Information

Leading Cluster Node* ← **FQDN of the first CAFE node**
 Admin User*
 Password*
 Status [2015-10-08 02:06:32] [root] [INFO] Current node not in cluster mode

Distributed Deployment Information

Leading Cluster Node*
 Admin User*
 Password*
 Status [2015-10-12 18:10:47] [root] [INFO] **Current node in cluster mode**

Collect Logs

i Save logs from all nodes connected to this cluster.

There are no collected logs.

cafe.node.451376077.918	CAFE1.PKCT.LOCAL	49 seconds ago	VA
cafe.node.764152404.23342	CAFE2.PKCT.LOCAL	42 seconds ago	VA

The list of Node in Cluster mode

Pool and Member Status

Pool Status and Statistics:

Pool ID	Name	Status
pool-12	Pool_Postgres	UP
pool-13	Pool_CAFE_WEB	UP
pool-14	Pool_CAFE_Console	UP

← → ↻ <https://cafe.pkct.local/vcac/services/api/status>

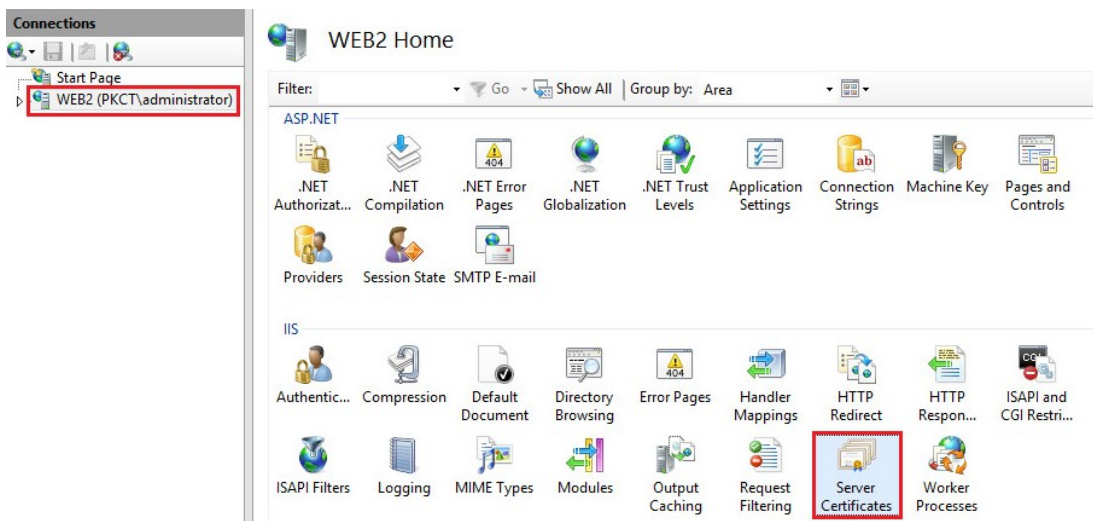
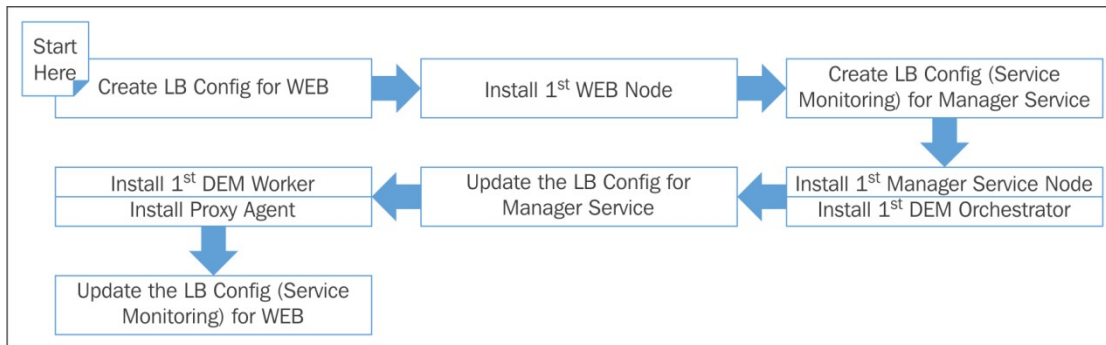
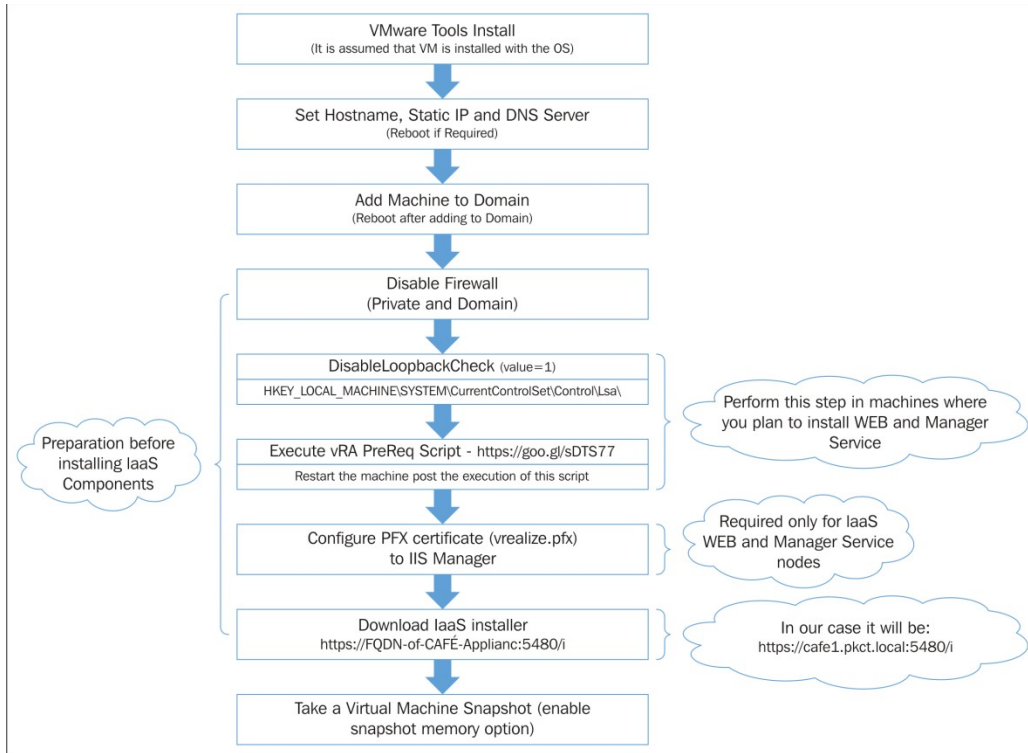
This XML file does not appear to have any style information associated with it. The document tree is shown below.

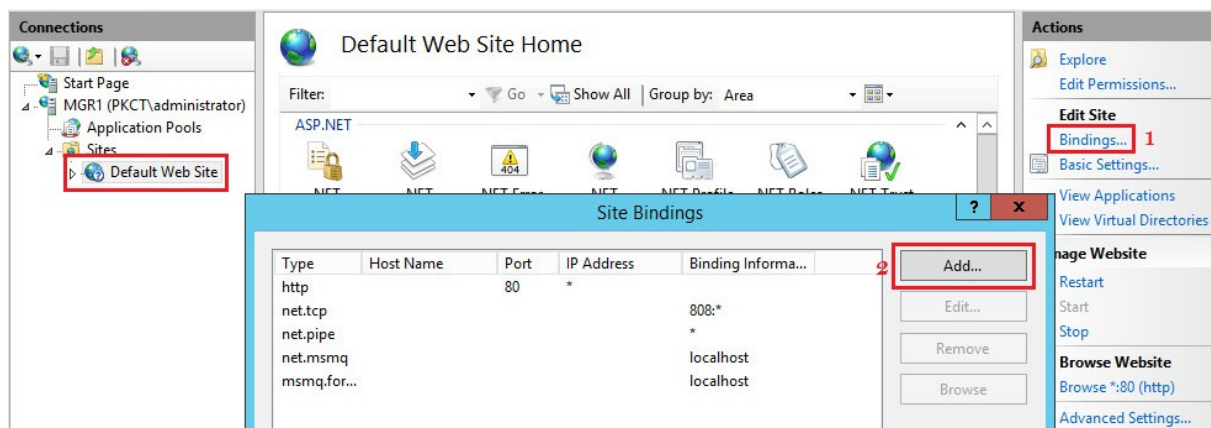
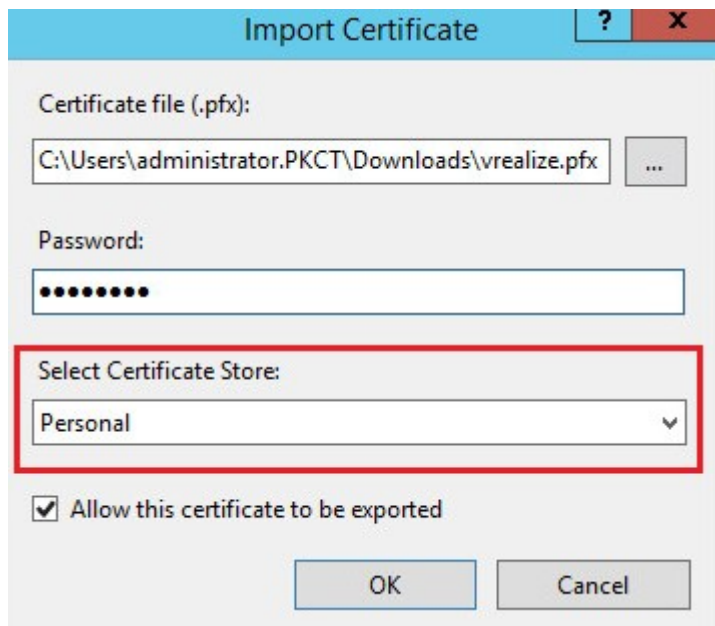
```

▼ <serviceRegistryStatus>
  ▼ <identityCertificateInfo>
    <identityCertificateExists>true</identityCertificateExists>
    <issuerName>CN=cafe-b26fb237-ef8a-4627-a7da-c0ee438f46c3</issuerName>
    <notValidAfter>2017-10-05T20:50:24+05:30</notValidAfter>
    <notValidBefore>2015-10-06T20:50:24+05:30</notValidBefore>
    <principalName>CN=cafe-b26fb237-ef8a-4627-a7da-c0ee438f46c3</principalName>
    ▼ <thumbprint>
      80:F2:4E:66:23:BE:9E:1B:40:4E:16:DC:B5:A1:48:7B:10:E2:52:A2
    </thumbprint>
  </identityCertificateInfo>
  <initialized>true</initialized>
  <serviceInitializationStatus>REGISTERED</serviceInitializationStatus>
  <serviceName>shell-ui-app</serviceName>
  <solutionUser>cafe-b26fb237-ef8a-4627-a7da-c0ee438f46c3</solutionUser>
  <startedTime>2015-10-08T22:09:08.255+05:30</startedTime>
  <serviceRegistrationId>ff333550-041e-47da-8671-7fb57fd93e0c</serviceRegistrationId>
  ▼ <sslCertificateInfo>
    <identityCertificateExists>true</identityCertificateExists>
    <issuerName>CN=PKCT-AD-PKCT-CA,DC=PKCT,DC=LOCAL</issuerName>
    <notValidAfter>2017-10-07T19:59:25+05:30</notValidAfter>
    <notValidBefore>2015-10-07T19:49:25+05:30</notValidBefore>
    ▼ <principalName>
      CN=VMware vRealize for TS at GSS,OU=TS,O=GSS,L=BNG,ST=KA,C=IN
    </principalName>
    ▼ <thumbprint>
      4A:18:6D:34:29:82:2F:22:01:A6:58:48:60:F0:ED:DB:6B:07:11:56
    </thumbprint>
  </sslCertificateInfo>
</serviceRegistryStatus>

```

IaaS Components	HA Mode	Failover Mode	
Web Server	Active - Active	Automatic	Will be installed in the same Node
Manager Server	Active - Passive	Manual	
DEM Orchestrator	Active - Passive	Manual	Will be installed in the same Node
DEM Worker	Active - Active	Automatic	
Proxy Agents	Active - Active	Automatic	





Add Site Binding

Type: https IP address: All Unassigned Port: 443

Host name:

Require Server Name Indication

SSL certificate: vrealize Select... View...

OK Cancel

IaaS Installation

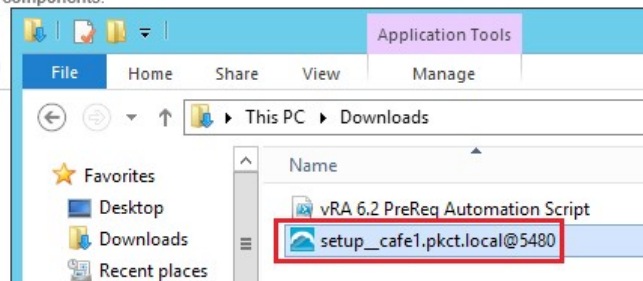
- Download the IaaS Installer to install the IaaS components on Windows, or to upgrade the IaaS components from vCloud Automation Center 6.1 or Automation 6.2 or later to vRealize Automation 6.2.2. Do not rename the files.
Build 2754020
- For manual database installation, download the [database installation scripts](#).
- Download the [database upgrade scripts](#) to upgrade the database from vCloud Automation Center 6.1 or later or vRealize Automation 6.2 or later to 6.2.2. You must upgrade the database before upgrading any IaaS components.

Prerequisites for IaaS Installation:

- [.NET Framework 4.5.2](#) (Not needed for Windows Server 2012 R2)

Provisioning Utilities

- [Windows guest agent files \(32-bit\) \(64-bit\)](#)
- [Linux guest agent packages](#)
- [PE Builder utility](#)



Appliance Login Information

Appliance host name: cafe.1.pkct.local:5480 It auto populates this entry depending from which CAFE appliance the IaaS installer was downloaded

User name:

Password:

Accept Certificate
 Required in order to access the virtual appliance management interface (VAMI)
[View Certificate](#)

IaaS feature selection:

vRealize Automation Ser

- Database
- Website
- ModelManagerData
- ManagerService

Database Administration & Model Manager Web Site Model Manager Data

Database instance: DB.PKCT.LOCAL Scan

Database Name FQDN of the Database Server

Use existing empty database

Database name: Use default data and log directories

Database data directory:

Database log directory:

Authentication

Use the Windows identity of the currently logged on user to create the vRealize Automation database and its schema

Note: Microsoft SQL Server sysadmin privilege is required since the operation involves altering the vRealize Automation database

SQL user name:

SQL user password:

Retype SQL user password:

IaaS feature selection:

vRealize Automation Ser

- Database
- Website
- ModelManagerData
- ManagerService

Database Administration & Model Manager Web Site Model Manager Data

Available Web sites: Default Web Site

IIS Binding Information

Port number: Test Binding

Generate Self-Signed Certificate

VMware recommends a domain certificate in a distributed environment.

Available certificates: vrealize This certificate will autopopulate if its uploaded to Server Certificate in IIS Manager Refresh

[View selected certificate](#) Display certificates using certificate-friendly names.

Suppress certificate mismatch.

IaaS feature selection:

- vRealize Automation Ser
 - Database
 - Website
 - ModelManagerData
 - ManagerService

Database Administration & Model Manager Web Site **Model Manager Data**

Component Registry

Server: **1** **FQDN of CAFE virtual IP in loadbalancer**
 Enter the FQDN of the vRealize Automation Appliance or load balancer.

SSO Default Tenant: **Load 2**

Certificate: **Download 3**
[View Certificate](#) Accept Certificate

SSO Administrator Credentials

User name: **Test** Passed

Password: Confirm:

IaaS

IaaS Server: **FQDN of IAAS WEB virtual IP in loadbalancer** **Test** Passed
 Enter the FQDN or IP address of the IaaS Web server or load balancer.

Running the Prerequisite Checker

PreReq Checker

- Database
- Website
- ModelManagerWebServices

This block is empty since all the PreCheck passed

Its greyed out since all the PreCheck passed

Report Fix It Check Again **Bypass**

Server Installation Information

Local Server: WEB1.PKCT.LOCAL

User name: PKCT\administrator ← All services will run in this account

Password: ***** Confirm: *****

All services will run under the account specified above. ← This is why we mentioned in prerequisites to set the password to never expire

Security

Passphrase: ***** Confirm: *****

The passphrase is used to generate the encryption key that protects data while at rest in the database. Memorize the passphrase or store it in a secure location. You reuse the passphrase across the IaaS deployment so that each component has the same encryption key. The passphrase is also required when you upgrade the installation.

← → ↻ https://web.pkct.local/WAPI/api/status

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<ServiceRegistryStatus xmlns:i="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://schemas.datacontract.org/2004/07/DynamicOps.Api.Model">
  <DefaultServiceEndpointType>com.vmware.csp.iaas.api</DefaultServiceEndpointType>
  <ErrorMessage>
    No Distributed Execution Manager (DEM) is running as a Worker.No Distributed Execution Manager (DEM) is running as an Orchestrator.
  </ErrorMessage>
  <IdentityCertificateInfo i:nil="true"/>
  <Initialized>false</Initialized>
  <ServiceInitializationStatus>FAILED</ServiceInitializationStatus>
  <ServiceName>iaas-service</ServiceName>
  <ServiceRegistrationId i:nil="true"/>
  <SolutionUser i:nil="true"/>
  <SslCertificateInfo i:nil="true"/>
  <StartedTime i:nil="true"/>
</ServiceRegistryStatus>
```

IaaS feature selection:

- vRealize Automation Ser
- Database
- Website
- ModelManagerData
- ManagerService

Manager Service

IaaS

IaaS Server: WEB.PKCT.LOCAL FQDN of WEB virtual IP in Loadbalancer
Enter the FQDN or IP address of the IaaS Web server or load balancer.

Manager Service Startup Type

Active node with startup type set to automatic ← First installed Manager Service Node is Active
Manager Service Windows service startup type is set to automatic.

Disaster recovery cold standby node
Manager Service Windows service startup type is set to manual. Select this option when configuring this Manager Service as a standby node under HA setup.

IIS Binding Information

Available Web sites: Default Web Site

Port number: 443 Test Binding

Generate Self-Signed Certificate

VMware recommends a domain certificate in a distributed environment.

Available certificates: vrealize Refresh

[View selected certificate](#) Display certificates using certificate-friendly names.

Server Installation Information

Local Server: MGR1.PKCT.LOCAL

User name: PKCT\Administrator

Password: ***** Confirm: *****

All services will run under the account specified above.

Security

Passphrase: ***** Confirm: *****

Type the same passphrase used in first IaaS WEB Node installation

The passphrase is used to generate the encryption key that protects data while at rest in the database. Memorize the passphrase or store it in a secure location. You reuse the passphrase across the IaaS deployment so that each component has the same encryption key. The passphrase is also required when you upgrade the installation.

Microsoft SQL Server Database Installation Information

Server: DB.PKCT.LOCAL Database name: vRA

Use Windows authentication

Username: Password: Confirm:

Database name used while installing the first WEB node

DEM role: Orchestrator

Distributed Execution Manager Details

DEM name: DEM-O

DEM description: DEM-O

Manager Service Host name: MGR.PKCT.LOCAL [Test](#) Passed

Model Manager Web Service Host name: WEB.PKCT.LOCAL [Test](#) Passed

Enter the FQDN or IP address of the Manager Service and Web Site in Host:Port format. Default port is 443.

[Add](#) [Save](#)

Role	Name	Description	Manager Service Host	Model Manager Web Service Host	Service User
Orchestrator	DEM-O	DEM-O	MGR.PKCT.LOCAL	WEB.PKCT.LOCAL	PKCT\Administrator

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tns="http://tempuri.org/" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing" xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:msc="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy" xmlns:wsa10="http://www.w3.org/2005/08/addressing"
xmlns:wssu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
xmlns:i0="http://microsoft.com/VMPS" xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" targetNamespace="http://tempuri.org/" name="GuestAgentWorkItemService">
+ <wsp:Policy wsu:Id="BasicHttpBinding_VMPSProxyAgent_policy">
<wsdl:import location="https://mgr1.pkct.local/VMPS2?wsdl=wsdl0" namespace="http://microsoft.com/VMPS"/>
<wsdl:types/>
+ <wsdl:binding name="BasicHttpBinding_VMPSProxyAgent" type="i0:VMPSProxyAgent">
+ <wsdl:service name="GuestAgentWorkItemService">
</wsdl:definitions>
```

← → ↻ <https://web.pkct.local/WAPI/api/status>

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<ServiceRegistryStatus xmlns:i="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://schemas.datacontract.org/2004/07/DynamicOps.Api.Model">
  <DefaultServiceEndpointType>com.vmware.csp.iaas.api</DefaultServiceEndpointType>
  <ErrorMessage>
    No Distributed Execution Manager (DEM) is running as a Worker.
  </ErrorMessage>
  <IdentityCertificateInfo i:nil="true"/>
  <Initialized>false</Initialized>
  <ServiceInitializationStatus>FAILED</ServiceInitializationStatus>
  <ServiceName>iaas-service</ServiceName>
  <ServiceRegistrationId i:nil="true"/>
  <SolutionUser i:nil="true"/>
  <SslCertificateInfo i:nil="true"/>
  <StartedTime i:nil="true"/>
</ServiceRegistryStatus>
```

DEM role:

Distributed Execution Manager Details

DEM name:

DEM description:

Manager Service Host name: Passed

Model Manager Web Service Host name: Passed

Enter the FQDN or IP address of the Manager Service and Web Site in Host:Port format. Default port is 443.

Role	Name	Description	Manager Service Host	Model Manager Web Service Host	Service User
Worker	WRK1	First Worker	MGR.PKCT.LOCAL	WEB.PKCT.LOCAL	PKCT\Administrator

File Action View Help

← →

Name	Description	Status
VMware Tools	Provides su...	Running
VMware vCloud Automation Center Agent - vRA vCenter-HUB Agent	Enables co...	Running
VMware vCloud Automation Center Management Agent	Allows vCA...	Running
Volume Shadow Copy	Manages an...	Running

Proxy Agent Details

Agent type: vSphere

Agent name: vRA vCenter-HUB Agent **Windows services will be created with this name**

Manager Service Host name: MGR.PKCT.LOCAL **Test** Passed

Model Manager Web Service Host name: WEB.PKCT.LOCAL **Test** Passed

Enter the FQDN or IP address of the Manager Service and Web Site in Host:Port format. Default port is 443.

vSphere

Endpoint: vCenter-HUB **This is NOT the name of vCenter Server You will use this name when adding vCenter Endpoint to vRA**

Add Save

Type	Name	Manager Service Host	Model Manager Web Service Host	Service User
vSphere	vRA vCenter-HUB Agent	MGR.PKCT.LOCAL	WEB.PKCT.LOCAL	PKCT\Administrator

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```

<ServiceRegistryStatus xmlns:i="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://schemas.datacontract.org/2004/07/DynamicOps.Api.Model1">
  <DefaultServiceEndpointType>com.vmware.csp.iaas.api</DefaultServiceEndpointType>
  <ErrorMessage i:nil="true"/>
  <IdentityCertificateInfo i:nil="true"/>
  <Initialized>true</Initialized>
  <ServiceInitializationStatus>REGISTERED</ServiceInitializationStatus>
  <ServiceName>iaas-service</ServiceName>
  <ServiceRegistrationId i:nil="true"/>
  <SolutionUser i:nil="true"/>
  <SslCertificateInfo i:nil="true"/>
  <StartTime i:nil="true"/>
</ServiceRegistryStatus>

```

Chapter 3: Functional Validation – Phase 1 and Installing Secondary Nodes



Tenants **Click Add Tenant to add a new Tenant**

Name	URL Name	Description
vsphere.local	vsphere.local	

Default Tenant

Add Tenant

Tenants

Branding

Email Servers

Event Logs

Orchestration Configuration >

General Identity Stores Administrators

*Name: Publishing Comp

Description:

*URL Name: Publishing

Contact email:

Tenant URL will be -
https://<FQDN of CAFE>/vcac/ org/<URL Name>

Edit Identity Store: PKCT Publishing

*Name: PKCT Publishing

*Type: Active Directory

*URL: ldap://AD-PKCT.PKCT.LOCAL

*Domain: PKCT.LOCAL

Domain alias: PKCT

*Login user DN: CN=Administrator,CN=Users,DC=PKCT,DC=LOCAL

*Password:

*Group search base DN: OU=vRA Objects,DC=PKCT,DC=LOCAL

User search base DN: OU=vRA Objects,DC=PKCT,DC=LOCAL

I have created a new OU in Active Directory to store all the vRA objects.

Add Tenant

General Identity Stores Administrators

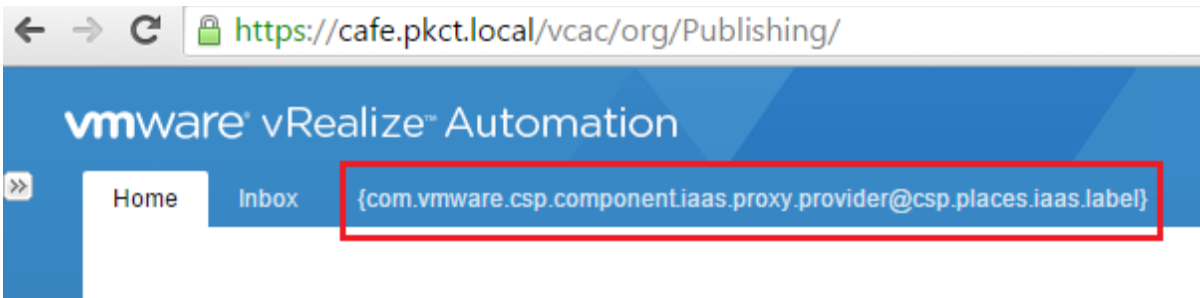
Tenant administrators
Select users or groups from your identity stores to grant the Tenant administrator role.

Search

Tadmin (Admin@pkct.local)

Infrastructure administrators
Select users or groups from your identity stores to grant the Infrastructure administrator role.

ladmin (iAdmin@pkct.local)





When you login as Infrastructure Administrator, you would see only three tabs

You are here: Infrastructure > Monitoring > Distributed Execution Status

- < Back to Infrastructure
- Audit Log
- Distributed Execution Status**
- Log
- Workflow History

Distributed Execution Status

View the status of Distributed Execution Managers and the details of scheduled workflows.

Distributed Execution Status							
Total workflows: 0							
Executing workflows: 0							
Pending workflows: 0							
Name	Status	Workflows Executing	Machine	Role	Last Pinged	Last Completed Workflow	Skills
DEM-O	Online (Active)		MGR1	Orchestrator	17/10/2015 06:55		
WRK1	Online	0	WRK1	Worker	17/10/2015 06:55	17/10/2015 06:53	



You will see four tabs when you login as Tenant Administrator

You are here: Administration > Identity Stores

Identity Stores

Configure the directory services to use to log in to this tenant. OpenLDAP and Active Directory are supported.

- Identity Stores**
- Users & Groups >
- Catalog Management >
- Approval Policies
- Tenant Machines >
- Branding
- Content Management >
- Notifications >
- Orchestration Configuration >

Add Identity Store Edit Delete		
Name	Domain	Domain Alias
PKCT Publishing	PKCT.LOCAL	PKCT

Pool and Member Status

Pool Status and Statistics:

Pool ID	Name	Status
pool-12	Pool_Postgres	UP
pool-13	Pool_CAFE_WEB	UP
pool-14	Pool_CAFE_Console	UP
pool-17	MGR_Pool	UP
pool-16	WEB_Pool	UP

Member Status and Statistics:

Name	IP Address / VC Container	Status	Member ID
WEB1	10.112.103.114	UP	member-29
WEB2	10.112.103.115	DOWN	member-31

IaaS feature selection:

vRealize Automation Ser

- Database
- Website
- ModelManagerData
- ManagerService

Administration & Model Manager Web Site

Available Web sites:

IIS Binding Information

Port number:

VMware recommends a domain certificate in a distributed environment.

Available certificates:

[View selected certificate](#)

- Display certificates using certificate-friendly names.
- Suppress certificate mismatch.

IaaS

IaaS Server: Passed

Enter the FQDN or IP address of the IaaS Web server or load balancer.

Server Installation Information

Local Server:

User name:

Password: Confirm:

All services will run under the account specified above.

Enter the passphrase used when installing WEB1 node

Security

Passphrase: Confirm:

The passphrase is used to generate the encryption key that protects data while at rest in the database. Memorize the passphrase or store it in a secure location. You reuse the passphrase across the IaaS deployment so that each component has the same encryption key. The passphrase is also required when you upgrade the installation.

Microsoft SQL Server Database Installation Information

Server: Database name:

Use Windows authentication

Username:

Password: Confirm:

<https://web2.pkct.local/WAPI/api/status>

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```

<ServiceRegistryStatus xmlns:i="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://schemas.datacontract.org/2004/07/DynamicOps.Api.Model1">
  <DefaultServiceEndpointType>com.vmware.csp.iaas.api</DefaultServiceEndpointType>
  <ErrorMessage i:nil="true"/>
  <IdentityCertificateInfo i:nil="true"/>
  <Initialized>true</Initialized>
  <ServiceInitializationStatus>REGISTERED</ServiceInitializationStatus>
  <ServiceName>iaas-service</ServiceName>
  <ServiceRegistrationId i:nil="true"/>
  <SolutionUser i:nil="true"/>
  <SslCertificateInfo i:nil="true"/>
  <StartedTime i:nil="true"/>
</ServiceRegistryStatus>

```

Pool and Member Status

Pool Status and Statistics:

Pool ID	Name	Status
pool-12	Pool_Postgres	UP
pool-13	Pool_CAFE_WEB	UP
pool-14	Pool_CAFE_Cons...	UP
pool-17	MGR_Pool	UP
pool-16	WEB_Pool	UP

Member Status and Statistics:

Name	IP Address / VC Container	Status	Member ID
WEB1	10.112.103.114	UP	member-29
WEB2	10.112.103.115	UP	member-31

Pool and Member Status

Pool Status and Statistics:

Pool ID	Name	Status
pool-12	Pool_Postgres	UP
pool-13	Pool_CAFE_WEB	UP
pool-14	Pool_CAFE_Cons...	UP
pool-16	WEB_Pool	UP
pool-17	MGR_Pool	UP

Member Status and Statistics:

Name	IP Address / VC Container	Status	Member ID
MGR1	10.112.103.117	UP	member-30
MGR2	10.112.103.118	DOWN	member-32

IaaS feature selection:

vRealize Automation Ser
 Database
 Website
 ModelManagerData
 ManagerService

Manager Service

IaaS

IaaS Server: WEB.PKCT.LOCAL
Enter the FQDN or IP address of the IaaS Web server or load balancer.

Manager Service Startup Type

Active node with startup type set to automatic
Manager Service Windows service startup type is set to automatic.

Disaster recovery cold standby node
Manager Service Windows service startup type is set to manual. Select this option when configuring this Manager Service as a standby node under HA setup.

IIS Binding Information

Available Web sites: Default Web Site

Port number: 443 Test Binding

Generate Self-Signed Certificate

VMware recommends a domain certificate in a distributed environment.

Available certificates: vrealize Refresh

[View selected certificate](#) Display certificates using certificate-friendly names.

Server Installation Information

Local Server:

User name:

Password: Confirm:

All services will run under the account specified above.

Security **Enter the same passphrase used while installing active Manager Service**

Passphrase: Confirm:

The passphrase is used to generate the encryption key that protects data while at rest in the database. Memorize the passphrase or store it in a secure location. You reuse the passphrase across the IaaS deployment so that each component has the same encryption key. The passphrase is also required when you upgrade the installation.

Microsoft SQL Server Database Installation Information

Server: Database name:

Use Windows authentication

Username:

Password: Confirm:

DEM role:

Distributed Execution Manager Details

DEM name:

DEM description:

Manager Service Host name: [Test](#) Passed

Model Manager Web Service Host name: [Test](#) Passed

Enter the FQDN or IP address of the Manager Service and Web Site in Host:Port format. Default port is 443.

Role	Name	Description	Manager Service Host	Model Manager Web Service Host	Service User
Orchestrator	DEM-O2		MGR.PKCT.LOCAL	WEB.PKCT.LOCAL	PKCT\Administrator

```
<?xml version="1.0" encoding="UTF-8"?>
- <wsdl:definitions xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tns="http://tempuri.org/" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing" xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:msc="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy" xmlns:wsa10="http://www.w3.org/2005/08/addressing"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
xmlns:i0="http://microsoft.com/VMPS" xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" targetNamespace="http://tempuri.org/" name="GuestAgentWorkItemService">
+ <wsp:Policy wsu:Id="BasicHttpBinding_VMPSProxyAgent_policy">
<wsdl:import location="https://mgr1.pkct.local/VMPS2?wsdl=wsdl0" namespace="http://microsoft.com/VMPS"/>
<wsdl:types/>
+ <wsdl:binding name="BasicHttpBinding_VMPSProxyAgent" type="i0:VMPSProxyAgent">
+ <wsdl:service name="GuestAgentWorkItemService">
</wsdl:definitions>
```

Server Installation Information

Local Server:

User name:

Password: Confirm:

All services will run under the account specified above.

Distributed Execution Manager Details

DEM role:

DEM name:

DEM description:

Manager Service Host name: [Test](#) Passed

Model Manager Web Service Host name: [Test](#) Passed

Enter the FQDN or IP address of the Manager Service and Web Site in Host:Port format. Default port is 443.

Role	Name	Description	Manager Service Host	Model Manager Web Service Host	Service User
Worker	WRK2		MGR.PKCT.LOCAL	WEB.PKCT.LOCAL	PKCT\administrator

Proxy Agent Details

Agent type:

Agent name: **A Windows Service will be created in this name**

Manager Service Host name: [Test](#) Passed

Model Manager Web Service Host name: [Test](#) Passed

Enter the FQDN or IP address of the Manager Service and Web Site in Host:Port format. Default port is 443.

vSphere

Endpoint: **This is NOT the name of vCenter Server. This name will be used while adding a vCenter endpoint to vRA.**

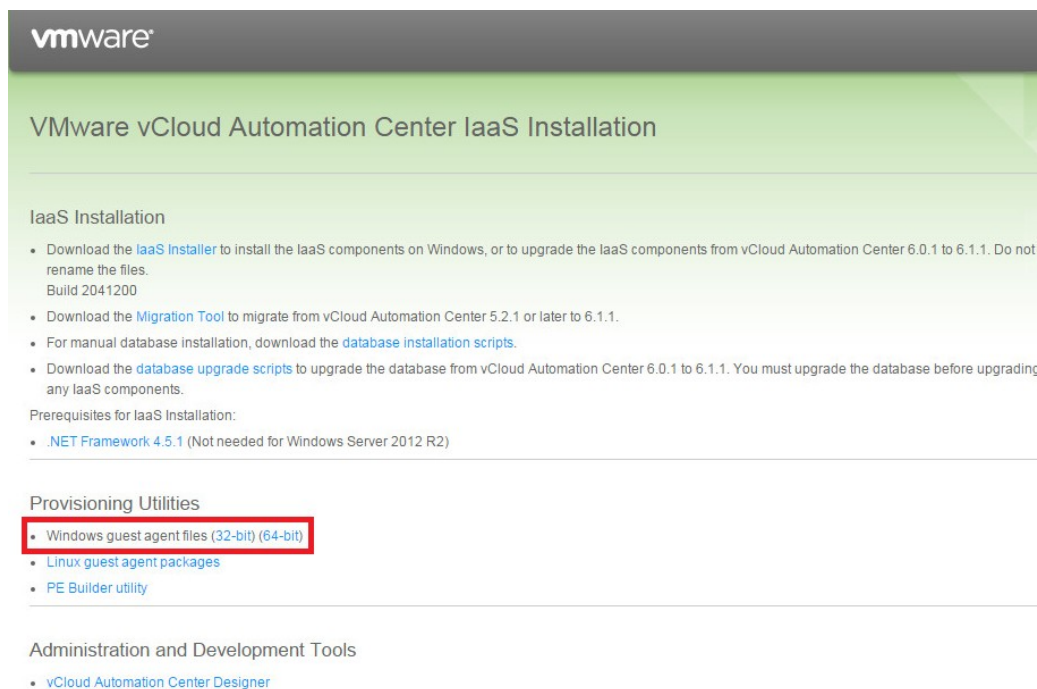
Type	Name	Manager Service Host	Model Manager Web Service Host	Service User
vSphere	vRA vCenter-...	MGR.PKCT.LOCAL	WEB.PKCT.LOCAL	PKCT\administrator

Distributed Execution Status

View the status of Distributed Execution Managers and the details of scheduled workflows.

Distributed Execution Status								
Total workflows: 0								
Executing workflows: 0								
Pending workflows: 0								
Name	Status	Workflows Executing	Machine	Role	Last Pinged	Last Completed Workflow	Skills	
DEM-O	● Online (Active)		MGR1	Orchestrator	17/10/2015 11:00			
DEM-O2	● Online		MGR2	Orchestrator	17/10/2015 11:00			
WRK1	● Online	0	WRK1	Worker	17/10/2015 11:00	17/10/2015 10:58		
WRK2	● Online	0	WRK2	Worker	17/10/2015 11:00	17/10/2015 10:58		

Chapter 4: Configuring a Guest OS for vRealize Automation vSphere Blueprints



The screenshot shows the VMware vCloud Automation Center IaaS Installation page. It includes a list of installation steps and prerequisites. The 'Provisioning Utilities' section is highlighted with a red box, containing the following items:

- Windows guest agent files (32-bit) (64-bit)
- Linux guest agent packages
- PE Builder utility

The 'Administration and Development Tools' section includes:

- vCloud Automation Center Designer

```
Administrator: C:\Windows\system32\cmd.exe

C:\>cd URMGuestAgent

C:\URMGuestAgent>WinService.exe -i -h MGR.PKCT.LOCAL:443 -p ssl
Service installed successfully

C:\URMGuestAgent>_
```

VRMGuestAgent

This PC > Local Disk (C:) > VRMGuestAgent

Name	Date modified	Type	Size
axis2_parser.dll	5/20/2015 6:29 AM	Application extens...	80 KB
axutil.dll	5/20/2015 6:29 AM	Application extens...	232 KB
cert.pem	12/22/2015 1:06 PM	PEM File	3 KB
config	5/20/2015 6:28 AM	XML Document	1 KB
doagentsccm-template	5/20/2015 6:28 AM	Windows Batch File	1 KB

Services

Help

Services (Local)

VCACGuestAgentService

- Stop the service
- Pause the service
- Restart the service

Name	Description	Status	Startup Typ
Thread Ordering Server	Provides or...		Manual
UPnP Device Host	Allows UPn...		Disabled
User Access Logging Service	This service ...	Running	Automatic
User Profile Service	This service ...	Running	Automatic
VCACGuestAgentService		Running	Automatic
Virtual Disk	Provides m...		Manual
VMware Snapshot Provider	VMware Sn...		Manual
VMware Tools	Provides su...	Running	Automatic
Volume Shadow Copy	Manages an...		Manual

C:\LinuxGuestAgentPkgs\LinuxGuestAgentPkgs\rhel6-amd64

Name	Date modified	Type
gugent-6.2.2-05062015.tar.gz	12/23/2015 6:04 PM	GZ File
gugent-6.2.2-05062015.x86_64.rpm	12/23/2015 6:04 PM	RPM File
sample-https.cfg	12/23/2015 6:04 PM	CFG File

https://mgr.pkct.local

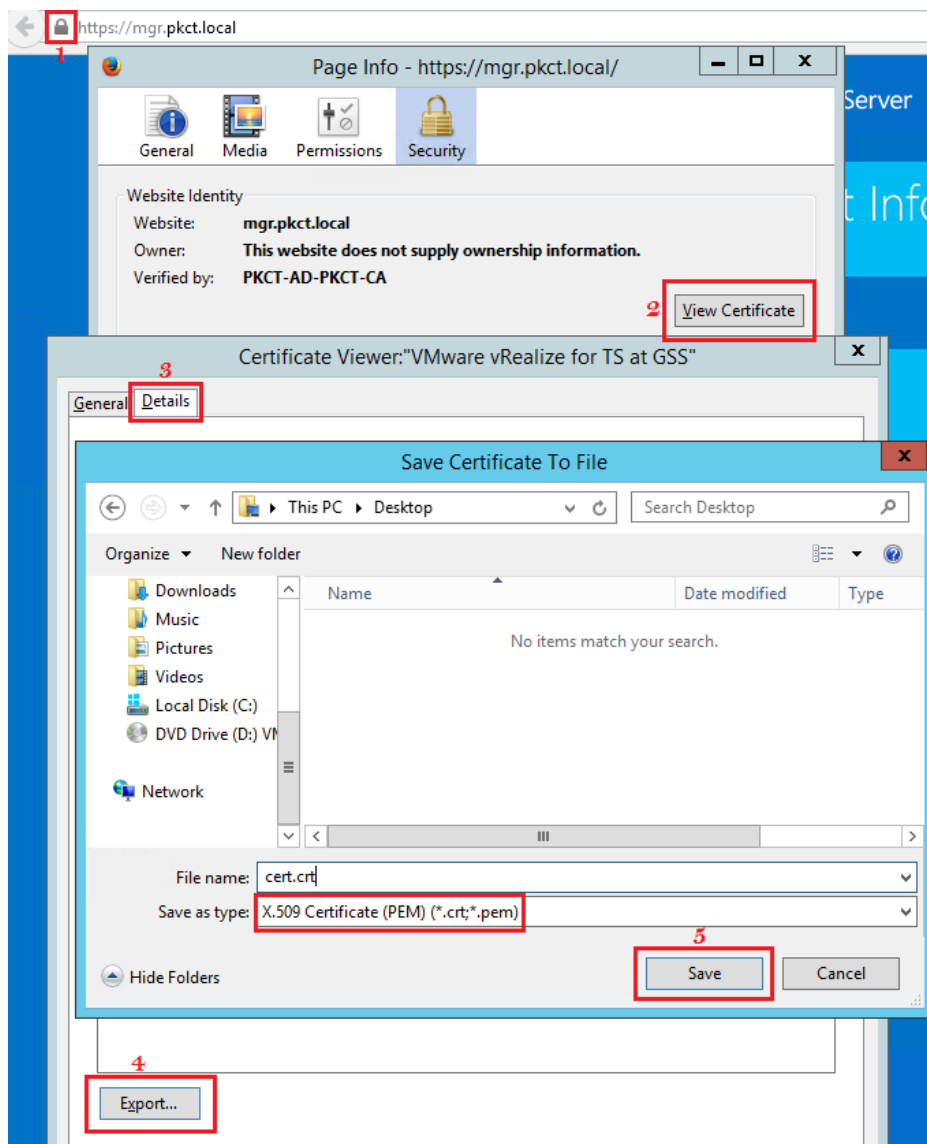
Authentication Required

Enter username and password for https://mgr.pkct.local

User Name: administrator@pkct.local

Password: ●●●●●●●●

OK Cancel



```
[root@Chap4-BP sysconfig]# cat selinux
```

```
# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#   enforcing - SELinux security policy is enforced.
#   permissive - SELinux prints warnings instead of enforcing
#   disabled - No SELinux policy is loaded.
SELINUX=disabled
# SELINUXTYPE= can take one of these two values:
#   targeted - Targeted processes are protected,
#   mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

```
[root@Chap4-BP sysconfig]#
```



```

[root@Chap4-BP tmp]# rpm -i gugent-6.2.2-05062015.x86_64.rpm
[root@Chap4-BP tmp]# cp cert.crt /usr/share/gugent/
[root@Chap4-BP tmp]# cd /usr/share/gugent/
[root@Chap4-BP gugent]# openssl x509 -in cert.crt -out cert.pem -outform PEM
[root@Chap4-BP gugent]# ls
axis2      cert.pem    gugent.properties  postmortem.sh  vrm-agent  VRM_daemon.pl
cert.crt   config.xml  installgugent.sh    site           vrm-agentd
[root@Chap4-BP gugent]# ./installgugent.sh MGR.PKCT.LOCAL:443 ssl
chkconfig
[root@Chap4-BP gugent]#

```

```

[root@Chap4-BP gugent]# ./rungugent.sh
Application.MachineQuery: [Information] uuid = 421ec03a-3997-6590-0352-6366225aeb15
Application: [Debug] Using the network enabled proxy ...
Application: [Debug] The vCAC endpoint is https://mgr.pkct.local:443/VMPS2
Application: [Debug] The AXIS2C directory is axis2/.
Application: [Debug] Requesting work for agent ID 3ac01e42-9739-9065-0352-6366225aeb15.
Application: [Debug] Fetching a work item ...
Application.Proxy: [Debug]

```

Application.Proxy: [Debug] No workitem currently available

```

Application: [Debug] Requesting work for agent ID 421ec03a-3997-6590-0352-6366225aeb15.
Application: [Debug] Fetching a work item ...
Application.Proxy: [Debug]

```

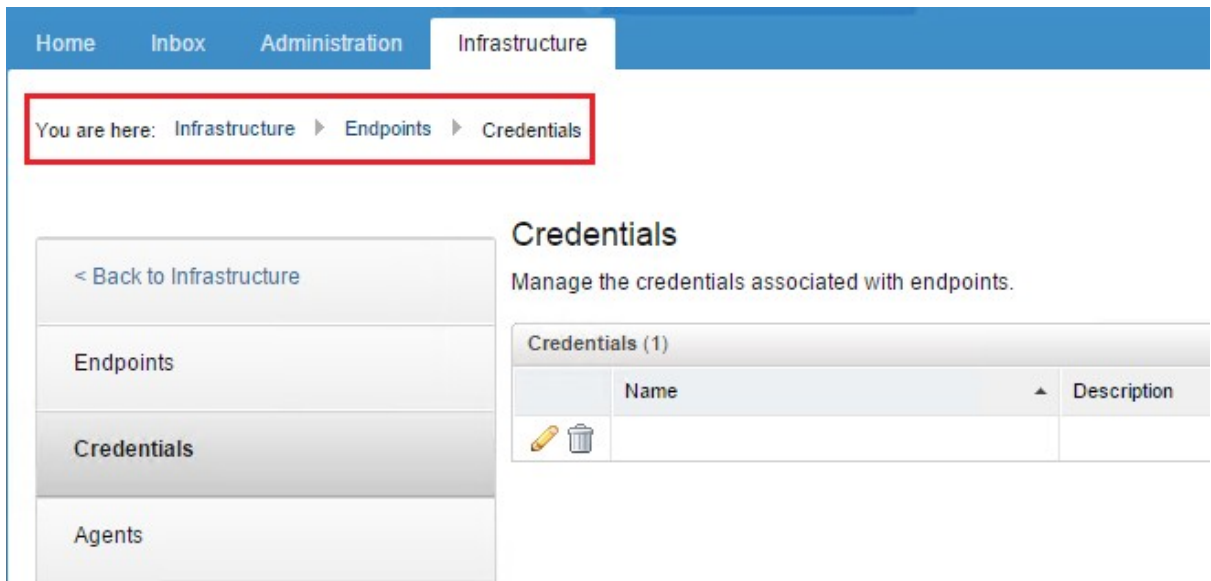
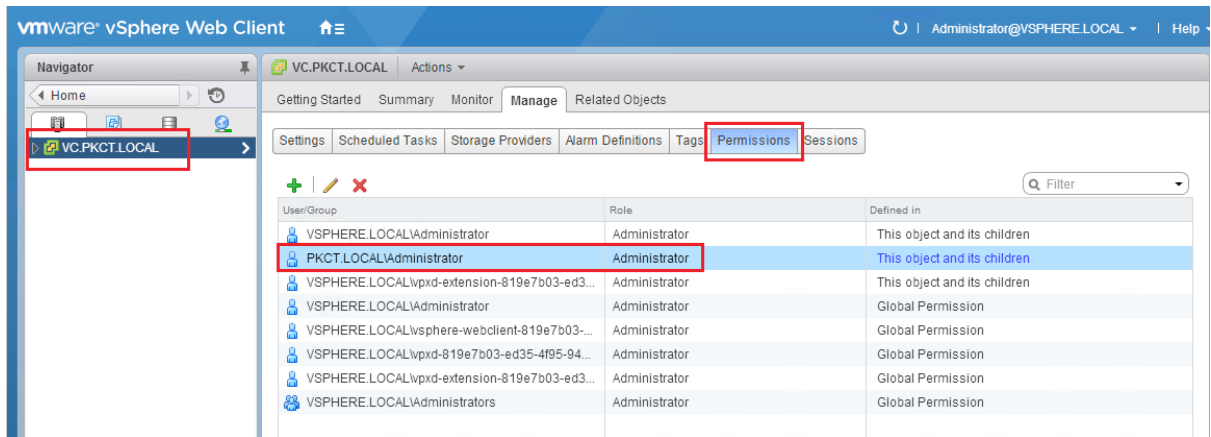
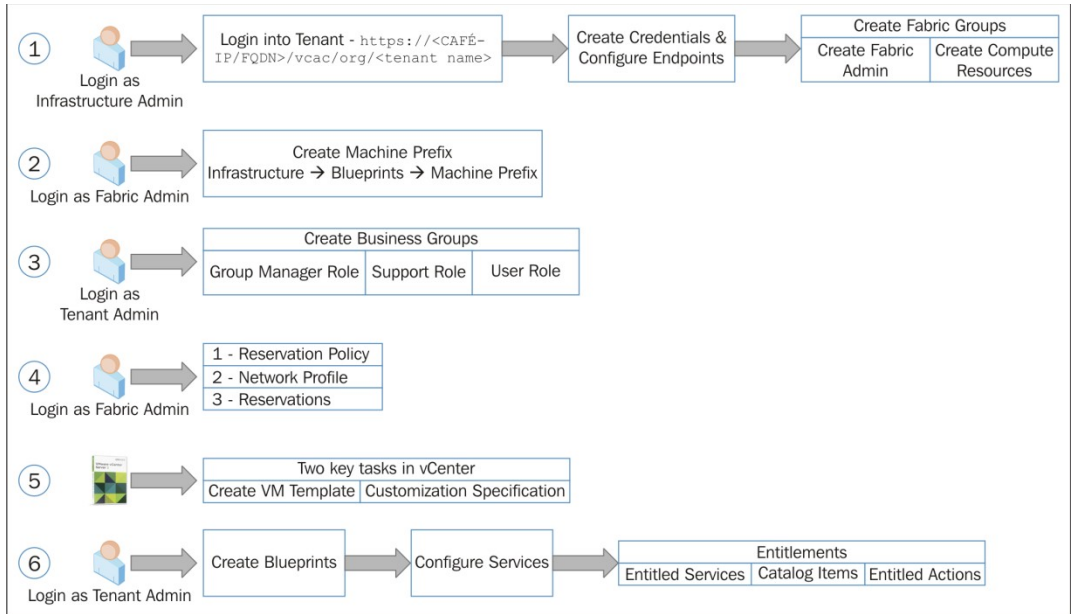
Application.Proxy: [Debug] No workitem currently available

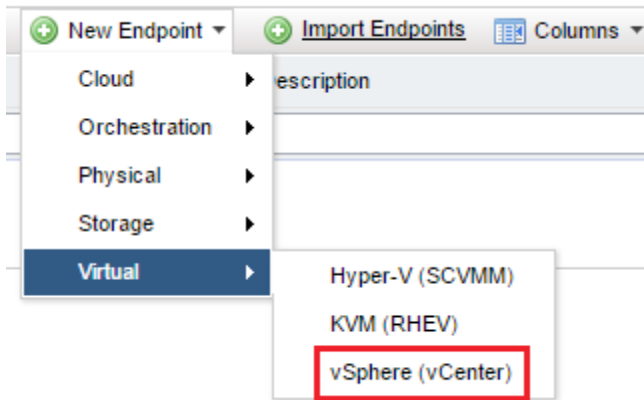
```

Application: [Debug] Uninitializing subsystem: Logging Subsystem
^C
[root@Chap4-BP gugent]#

```

Chapter 5: Functional Validation – Phase 2 and Zero to VM Provisioning





Edit Endpoint - vSphere (vCenter)

Manage a specific endpoint.

Endpoint

* Name:

Description:

Address:

* Credentials: ... ← Click here to select the credentials

Specify manager for network and security platform

Custom properties: Properties (0) + New Property

Name	Value	Encrypted
No data to display		

OK Cancel

✘ Error	01/09/2015 18:18	VRM Agent	vRA vCenter6 Agent-IAAS-WRKR1	PKCT\administrator	IAAS-WRKR1	This exception was caught: The attached endpoint 'vCenter6' cannot be found.
---------	------------------	-----------	-------------------------------	--------------------	------------	--

✘ Error	11/09/2015 14:26	VRM Agent	vRA vCenter6 Agent-IAAS-WRKR2	PKCT\administrator	IAAS-WRKR2	This exception was caught: Cannot complete login due to an incorrect user name or password.
✘ Error	10/09/2015 13:55	VRM Agent	vRA vCenter6 Agent-IAAS-WRKR2	PKCT\administrator	IAAS-WRKR2	This exception was caught: Cannot complete login due to an incorrect user name or password.

Edit Fabric Group

Modify the fabric group.

* Name:

Description:

Fabric administrators:

Compute resources:

	Name	Endpoint	Platform Type
<input checked="" type="checkbox"/>	Cluster1	vCenter6	vSphere (vCenter)
<input type="checkbox"/>	vsan	vCenter-HUB	vSphere (vCenter)

New Business Group

Create a business group to associate services and resources to a group of users. You also can copy an existing business group as a starting point.

* Name:

Description:

* Default machine prefix:

Active directory container:

Group manager role:

* Send manager emails to:

Support role:

User role:

Custom properties: Properties (0) [New Property](#)

Name	Value	Encrypted	Prompt User
No data to display			

Reservation Policies

A reservation policy is a set of reservations that you can select from a machine blueprint to restrict provisioning to only those reservations. When you create or edit a reservation, add the reservation to a policy.

Reservation Policies (1) New Reservation Policy	
Name	Description
Compute-Policy	

Storage Reservation Policies (1) New Storage Reservation Policy	
Name	Description
Storage-Policy	

New Network Profile - External

Create a network profile to manage ranges of static IPv4 network addresses.

Network Profile Information

IP Ranges

IPv4 ranges: New Network Range

	Name	Description	Start IP	End IP
	Static		10.112.100.1	10.112.100.10

IP addresses: Defined IP Addresses (4)

	IP Address	Machine	Last Modified	Status
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	All
	10.112.100.1		9/11/2015 11:06 PM	Unallocated
	10.112.100.2		9/11/2015 11:06 PM	Unallocated
	10.112.100.3		9/11/2015 11:06 PM	Unallocated
	10.112.100.4		9/11/2015 11:06 PM	Unallocated

Upload CSV:

New Reservation - vSphere (vCenter)

Step 1

Reservation Information

Resources

Network

Alerts

* Compute resource:

* Name:

* Tenant:

* Business group:

Reservation policy:

Machine quota:

* Priority:

Enable this reservation

Custom properties: Properties (0)

	Name

New Reservation - vSphere (vCenter)

Create a reservation to allocate provisioning resources to a business group in a tenant. You also can copy an existing reservation to use as a starting point.

Step 2

Reservation Information | Resources | Network | Alerts

* Memory: Memory (GB)

Physical	Reserved	Allocated	This Reservation
128	0	0	50

* Storage: Storage Paths (5)

	Storage Path	Storage Cost (per GB)	Physical	Free	Reserved	This reservation reserved	This reservation allocated	Priority	Disabled
<input checked="" type="checkbox"/>	datastore1 (1)	\$0.0000	831	764	0	500		0	1
<input type="checkbox"/>	ex#15_ISOs	\$0.0000	7551	308	0				
<input type="checkbox"/>	MGMT-01	\$0.0000	498	20	0				
<input type="checkbox"/>	MGMT-02	\$0.0000	250	47	0				
<input type="checkbox"/>	vmlib-a33ea	\$0.0000	1834	616	0				

Resource pool: Resources

New Reservation - vSphere (vCenter)

Create a reservation to allocate provisioning resources to a business group in a tenant. You also can copy an existing reservation to use as a starting point.

Step 3

Reservation Information | Resources | Network | Alerts

* Network: Network Paths (5)

	Network Path	Network Profile
<input type="checkbox"/>	Customer1-Network1-Edge	
<input type="checkbox"/>	Customer1-Network2-Edge	
<input type="checkbox"/>	Customer2-Network1-Edge	
<input type="checkbox"/>	Customer2-Network2-Edge	
<input checked="" type="checkbox"/>	VM Network 2	LAN

OK Cancel

Blueprints

Manage blueprints that are accessible to your business groups.

Blueprints (0)

Name	Published	Platform Type	Business Group	Lease (days)	Archive (days)	Can Be Copied	Description
No data to display							

New Blueprint

- Cloud
- Physical
- Virtual**
 - Generic
 - Hyper-V
 - Hyper-V (SCVMM)
 - KVM (RHEV)
 - vSphere (vCenter)**
 - XenServer
- Multi-Machine

Blueprint Information | Build Information | Properties | Actions

* Name: Win OS

Description:

Blueprint options:
 Master (can be copied)
 Display location on request
 Shared blueprint (can be shared across groups)

Reservation policy: Compute-Policy

* Machine prefix: PKCT

Maximum per user: Unlimited

* Archive (days): 5

Cost (daily):

Blueprint Information | Build Information | Properties | Actions

Blueprint type: Server

Action: Linked Clone

* Provisioning workflow: CloneWorkflow

* Clone from: Image\Sanap - vRA ...

Delete snapshot after the blueprint is deleted.

Customization spec: WIND ?

This name should match the name used in vCenter Customization Wizard

Click and Select the VM you have prepared for Blueprint use

Machine Resources

	* Minimum	Maximum
CPUs:	1	4
Memory (MB):	4096	8192
Storage (GB):	40	60
Lease (days):		

(Leave blank for no expiration date.)

Blueprints

Manage blueprints that are accessible to your business groups.

Blueprints (1)		
Name	Published	Platform Type
Win OS		Sphere (vCenter)

Confirm Publish Blueprint

Publish blueprint Win OS?


To confirm, click OK. To return to the previous page, click Cancel.

Add Service

*** Name:**

Description:

Icon:

Preview: 


Status:

Hours: GMT+05:30 to GMT+05:30

Owner:

Support Team:

Change Window: GMT+05:30 to GMT+05:30

 This will define who has access to this Service

Services

Create, edit, publish, and manage services.

Name	Status	Description	Last Updated On	Last Updated By
WIND-OS	Active		9/9/15 2:13 PM	Administrator@pkct.local

Catalog Items

Manage catalog items published from source providers. Use the source provider's interface to create catalog items or edit their details.

Name	Status	Source	Resource Type	Scope	Service
Win OS	Published	iaas-service	Virtual Machine	Shared	

Catalog Items

Manage catalog items published from source providers. Use the source provider's interface to create catalog items or edit their details.

Name	Status	Source	Resource Type	Scope	Service
Win OS	Published	iaas-service	Virtual Machine	Shared	WIND-OS

Add Entitlement

Details | Items & Approvals

*Name: WIND-OS

Description:

Expiration Date:

*Status: Active

*Business Group: PKCT

*Users & Groups:

Name
supportuser (supportuser@pkct.local)
user (user@pkct.local)

Note: The search result will be empty if you are trying to add a User or Group which is not included in the Business Group

Add Entitlement

Details | Items & Approvals

Entitled Services +

Search

Name	Approval Policy
No data selected	

Add Services to Entitlement

Selec...	Name
<input checked="" type="checkbox"/>	WIND-OS

Add Catalog Items to Entitlement

Service: All

Type: All

Name: Search

Selec...	Name	Service	Type
<input checked="" type="checkbox"/>	Win OS	WIND-OS	Virtual Machine

Entitled Actions +

Search	
Name	Approval Policy
Power Off (M...	(none) ▼
Power On (M...	(none) ▼
Reboot (Mac...	(none) ▼
Reconfigure ...	(none) ▼
Shutdown (M...	(none) ▼
Suspend (Ma...	(none) ▼

Entitlements

Create and manage entitlements to control the access to catalog items and actions, and specify the approval policies to apply to catalog requests. You can update the priority of entitlements to determine which approval policy applies to a particular r

+ Add Edit Deactivate Prioritize						
Name	Business Group	Order	Description	Status	Expires On	Last Updated By
WIND-OS	PKCT	1		Active		Administrator@pkct.local


vmware vRealize Automation

Home | **Catalog** | Items | Requests | Inbox

Service Catalog

Browse the catalog for services you need.

WIND-OS (1)



Win OS

Request

Requests

Monitor the status of your requests and view request details.

View Details Delete						
Request	Item	Description	Cost	Lease Cost	Status	Submitter
1	Win OS		Not Applicable	Not Applicable	In Progress	user@pkct.local


Requests

Monitor the status of your requests and view request details.

Request	Item	Description	Cost	Lease Cost	Status
1	Win OS		Not Applicable	Not Applicable	Successful

Managed Machines

Display and manage machines.

Managed Machines (1)		
<input checked="" type="checkbox"/> Select All on Page	<input type="checkbox"/> Deselect All on Page	
Machine	Status	Platform Type
 PKCT001	On	vSphere (vCenter)

Edit Network Profile - External

Edit a network profile for managing ranges of static IPv4 network addresses.

Network Profile Information IP Ranges

*** Name:** LAN

Description:

*** Subnet mask:** 255.255.252.0

Gateway:

DNS / WINS

Primary DNS:

Secondary DNS:

DNS suffix:



DNS search suffix:

Preferred WINS:

Alternate WINS:

Machine Prefixes

Add, edit, or delete the prefixes used to create machine names. Each blueprint must specify a prefix. Any business group can use any prefix in a blueprint.

Machine Prefixes (1) New Machine Prefix		
Machine Prefix	Number of Digits	Next Number
  PKCT	3	1

Chapter 6: Testing Failover Scenarios for vRealize Automation Components

```
▼ <serviceRegistryStatus>
  ▼ <identityCertificateInfo>
    <identityCertificateExists>true</identityCertificateExists>
    <issuerName>CN=cafe-b26fb237-ef8a-4627-a7da-c0ee438f46c3</issuerName>
    <notValidAfter>2017-10-05T20:50:24+05:30</notValidAfter>
    <notValidBefore>2015-10-06T20:50:24+05:30</notValidBefore>
    <principalName>CN=cafe-b26fb237-ef8a-4627-a7da-c0ee438f46c3</principalName>
    ▼ <thumbprint>
      80:F2:4E:66:23:BE:9E:1B:40:4E:16:DC:B5:A1:48:7B:10:E2:52:A2
    </thumbprint>
  </identityCertificateInfo>
  <initialized>true</initialized>
  <serviceInitializationStatus>REGISTERED</serviceInitializationStatus>
  <serviceName>shell-ui-app</serviceName>
  <solutionUser>cafe-b26fb237-ef8a-4627-a7da-c0ee438f46c3</solutionUser>
  <startedTime>2015-10-17T19:10:33.904+05:30</startedTime>
  <serviceRegistrationId>ff333550-041e-47da-8671-7fb57fd93e0c</serviceRegistrationId>
  ▼ <sslCertificateInfo>
    <identityCertificateExists>true</identityCertificateExists>
    <issuerName>CN=PKCT-AD-PKCT-CA,DC=PKCT,DC=LOCAL</issuerName>
    <notValidAfter>2017-10-07T19:59:25+05:30</notValidAfter>
    <notValidBefore>2015-10-07T19:49:25+05:30</notValidBefore>
    ▼ <principalName>
      CN=VMware vRealize for TS at GSS,OU=TS,O=GSS,L=BNG,ST=KA,C=IN
    </principalName>
    ▼ <thumbprint>
      4A:18:6D:34:29:82:2F:22:01:A6:58:48:60:F0:ED:DB:6B:07:11:56
    </thumbprint>
  </sslCertificateInfo>
</serviceRegistryStatus>
```

Pool and Member Status ✕

Pool Status and Statistics:

Pool ID	Name	Status
pool-12	Pool_Postgres	UP
pool-13	Pool_CAFE_WEB	UP
pool-14	Pool_CAFE_Cons...	UP
pool-16	WEB_Pool	UP
pool-17	MGR_Pool	UP

Member Status and Statistics:

Name	IP Address / VC Container	Status	Member ID
CAFE1	10.112.103.1...	UP	member-24
CAFE2	10.112.103.1...	UP	member-25

- Settings
- Firewall
- DHCP
- NAT
- Routing
- Load Balancer
- VPN
- SSL VPN-Plus
- Grouping Objects

Global Configuration

Application Profiles

Service Monitoring

Pools

Virtual Servers

Application Rules

Pool ID: pool-7 Name: Postgres_Pool Status: UP

Pool and Member Status ✕

Pool Status and Statistics:

Pool ID	Name	Status
pool-7	Postgres_Pool	UP

Member Status and Statistics:

Name	IP Address / VC Container	Status	Member ID
PG1	10.0.0.112	UP	member-13
PG2	10.0.0.113	MAINT	member-15

This is due to the fact that I have unchecked "Enable Member"

← → ↻ <https://pg1.pkct.local:5480/vPostgresService.py>

Postgres.Master=true ← Response

← → ↻ <https://pg2.pkct.local:5480/vPostgresService.py>

Postgres.Master=false ← Response

IaaS feature selection:

- vRealize Automation Ser
 - Database
 - Website
 - ModelManagerData
 - ManagerService

Manager Service

IaaS

IaaS Server: WEB.PKCT.LOCAL
Enter the FQDN or IP address of the IaaS Web server or load balancer.

Manager Service Startup Type

Active node with startup type set to automatic
Manager Service Windows service startup type is set to automatic.

Disaster recovery cold standby node
Manager Service Windows service startup type is set to manual. Select this option when configuring this Manager Service as a standby node under HA setup.

IIS Binding Information

Available Web sites: Default Web Site

Port number: 443 Test Binding

Generate Self-Signed Certificate

VMware recommends a domain certificate in a distributed environment.

Available certificates: vrealize Refresh

[View selected certificate](#) Display certificates using certificate-friendly names.

```
- <wsdl:service name="GuestAgentWorkItemService">
- <wsdl:port name="BasicHttpBinding_VMPSProxyAgent" binding="tns:BasicHttpBinding_VMPSProxyAgent">
  <soap:address location="https://mgr1.pkct.local/VMPS2"/>
</wsdl:port>
</wsdl:service>
</wsdl:definitions>
```

Pool and Member Status

Pool Status and Statistics:

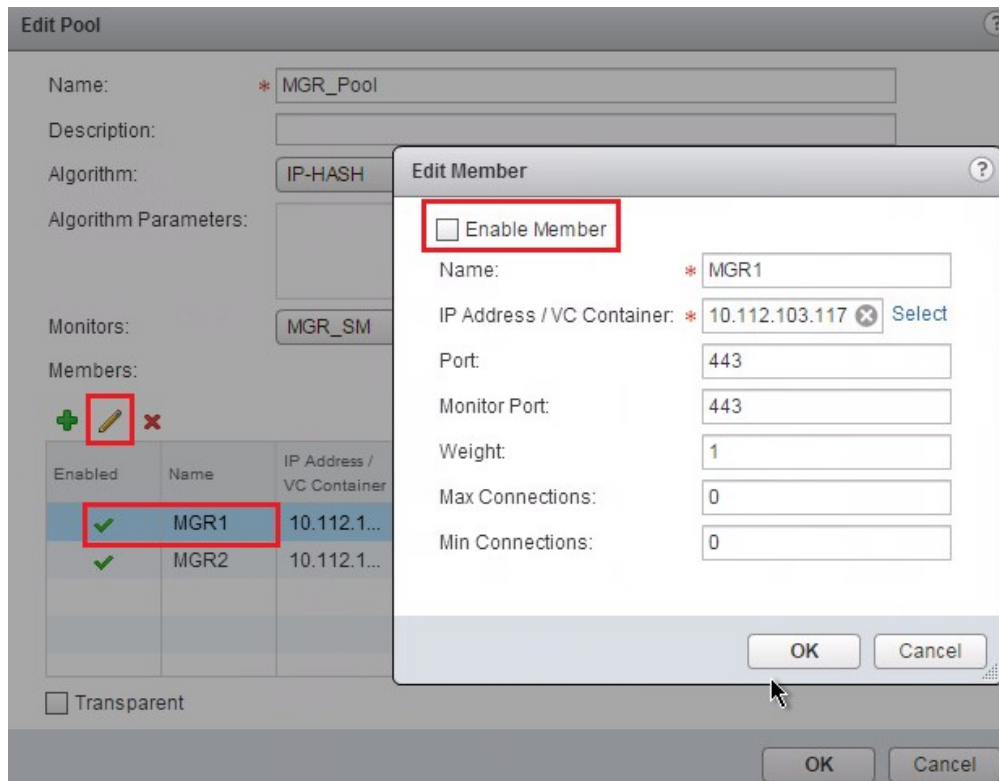
Pool ID	Name	Status
pool-12	Pool_Postgres	UP
pool-13	Pool_CAFE_WEB	UP
pool-14	Pool_CAFE_Console	UP
pool-16	WEB_Pool	UP
pool-17	MGR_Pool	UP

Member Status and Statistics:

Name	IP Address / VC Container	Status	Member ID
MGR1	10.112.103.117	UP	member-30
MGR2	10.112.103.118	DOWN	member-32

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<ServiceRegistryStatus xmlns:i="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://schemas.datacontract.org/2004/07/DynamicOps.Api.Model">
  <DefaultServiceEndpointType>com.vmware.csp.iaas.api</DefaultServiceEndpointType>
  <ErrorMessage i:nil="true"/>
  <IdentityCertificateInfo i:nil="true"/>
  <Initialized>true</Initialized>
  <ServiceInitializationStatus>REGISTERED</ServiceInitializationStatus>
  <ServiceName>iaas-service</ServiceName>
  <ServiceRegistrationId i:nil="true"/>
  <SolutionUser i:nil="true"/>
  <SslCertificateInfo i:nil="true"/>
  <StartTime i:nil="true"/>
</ServiceRegistryStatus>
```



Distributed Execution Status

View the status of Distributed Execution Managers and the details of scheduled workflows.

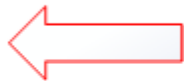
Distributed Execution Status							
Total workflows: 0							
Executing workflows: 0							
Pending workflows: 0							
Name	Status	Workflows Executing	Machine	Role	Last Pinged	Last Completed Workflow	Skills
DEM-O	● Online (Active)		MGR1	Orchestrator	17/10/2015 11:00		
DEM-O2	● Online		MGR2	Orchestrator	17/10/2015 11:00		
WRK1	● Online	0	WRK1	Worker	17/10/2015 11:00	17/10/2015 10:58	
WRK2	● Online	0	WRK2	Worker	17/10/2015 11:00	17/10/2015 10:58	

vRealize Components	HA Modes	Failover Type
CAFE	Active – Active	Automatic
Postgres Database	Active – Passive	Manual
IaaS Manager Service	Active – Passive	Manual
IaaS Web Server	Active – Active	Automatic
DEM Orchestrator	Active – Passive	Automatic
DEM Worker	Active – Active	Automatic
Proxy Agents	Active – Active	Automatic

Chapter 7: vRealize Orchestrator in High Availability via the NSX Load Balancer

```
vIDM:~/Certificates/vRO_Certificate # cat servers.txt
```

```
vRO
vRO1
vRO2
vRO3
```



vRO – FQDN of Orchestrator virtual IP in Loadbalancer
vRO1, vRO2, vRO3 – FQDN of Orchestrator Nodes

```
vIDM:~/Certificates/vRO_Certificate #
```

JKS for vRealize Orchestrator (vCO)

File: /root/Certificates/vRO_Certificate/jssecacerts

Installation Method:

Copy jssecacerts to /etc/vco/app-server/security/ on each vCO appliance and run the following commands:

```
chmod 600 /etc/vco/app-server/security/jssecacerts
chown vco:vco /etc/vco/app-server/security/jssecacerts
vcac-config vco-configure (embedded vCAC version only)
service vco-configurator restart
service vco-server restart
```

Tenants

Tenants
Branding
Email Servers
Event Logs
Orchestration Configuration >

+ Add Tenant Edit Delete	
Name	URL Name
vsphere.local	vsphere.local
Publishing Comp	Publishing

↓
Default Tenant

Edit Identity Store: PKCT Domain

✓ Connection is available.

*Name: PKCT Domain

*Login user DN: cn=administrator,cn=users,dc=pkct,dc=local

*Type: Active Directory

*Password:

*URL: ldap://10.112.103.198:389

*Group search base DN: dc=pkct,dc=local

*Domain: pkct.local

User search base DN: dc=pkct,dc=local

Domain alias: pkct

The screenshot shows the SQL Server Enterprise Manager interface. The Object Explorer on the left shows the server 'DB (SQL Server 11.0.2100 - PKCT\administrator)' with a tree view including Databases, System Databases, Database Snapshots, vCOdb, vRA, Security, Server Objects, Replication, AlwaysOn High Availability, Management, Integration Services Catalogs, and SQL Server Agent (Agent XPs disabled). The vCOdb database is highlighted with a red box. The SQL Query window on the right shows the following commands:

```
alter database vCOdb set read_committed_snapshot on  
alter database vCOdb set allow_snapshot_isolation on
```

The Messages pane at the bottom shows the output: "Command(s) completed successfully."

Database

Install Up to date

Database Type

Select the database type: ▼

Connection Parameters

For more details about installing this database, see [SQLServer](#)

User name:

Password (if any):

Use SSL

Database server IP address or DNS

name:

Port:

Database name:

Instance name (if any):

Domain:

Use Windows authentication mode (NTLMv2)

```
login as: root
VMware vRealize Orchestrator Appliance
root@vR01.PKCT.LOCAL's password:
Last login: Thu Dec 10 20:20:46 IST 2015 from vidm.pkct.local on ssh
Last login: Thu Dec 10 20:21:22 2015 from ad-pkct.pkct.local
vR01:~ # mv /etc/vco/app-server/security/jssecacerts /etc/vco/app-server/security/jssecacerts-old
vR01:~ # mv /tmp/jssecacerts /etc/vco/app-server/security/
vR01:~ # chmod 600 /etc/vco/app-server/security/jssecacerts
vR01:~ # chown vco:vco /etc/vco/app-server/security/jssecacerts
vR01:~ # cd /etc/vco/app-server/security
vR01:/etc/vco/app-server/security # ls -lhr
total 24K
-rw----- 1 vco vco 32 Aug 20 14:46 clientcerts
-rw----- 1 vco vco 2.2K Dec 10 19:12 jssecacerts-old
-rw----- 1 vco vco 4.2K Dec 10 19:13 sso.keystore
-rw----- 1 vco vco 48 Dec 10 19:14 passwordencryptor.key
-rw----- 1 vco vco 3.9K Dec 10 20:20 jssecacerts
vR01:/etc/vco/app-server/security # reboot

Broadcast message from root (pts/0) (Thu Dec 10 20:25:21 2015):

The system is going down for reboot NOW!
vR01:/etc/vco/app-server/security #
```

VMware vRealize Orchestrator

Welcome

Enter your username and password to login in VMware vRealize Orchestrator

Username:

Password:

Login

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POWERED BY VMware vRealize Orchestrator

Page Info - https://10.112.103.128:8283/vco-config/auth/Log...

Website Identity

Website: 10.112.103.128:8283

Owner: This website does not supply ownership information.

Verified by: PKCT-AD-PKCT-CA

View Certificate

Certificate Viewer: "VMware vRealize for Publication at PACT"

General Details

Could not verify this certificate because the issuer is unknown.

Issued To

Common Name (CN) VMware vRealize for Publication at PACT

Organization (O) PACT

Organizational Unit (OU) Publication

Serial Number 12:00:00:00:12:D4:F7:56:FE:D9:42:15:CC:00:00:00:00:12

Issued By

Common Name (CN) PKCT-AD-PKCT-CA

Organization (O) PKCT-AD-PKCT-CA

Organizational Unit (OU) <Not Part Of Certificate>

Period of Validity

Begins On 12/9/2015

Expires On 12/9/2017

```
login as: root
VMware vRealize Orchestrator Appliance
root@vrol.PKCT.LOCAL's password:
Last login: Thu Dec 10 20:21:22 IST 2015 from ad-pkct.pkct.local on pts/0
Last login: Thu Dec 10 20:28:42 2015 from ad-pkct.pkct.local
vrol:~ #
vrol:~ # keytool -list -keystore /etc/vco/app-server/security/jssecacerts -v
Enter keystore password:
```

```
Keystore type: JKS
Keystore provider: SUN
```

```
Your keystore contains 1 entry
```

```
Alias name: dunes
Creation date: Dec 9, 2015
Entry type: PrivateKeyEntry
Certificate chain length: 2
Certificate[1]:
```

```
Owner: CN=VMware vRealize for Publication at PACT, OU=Publication, O=PACT, L=BNG, ST=KA, C=IN
Issuer: CN=PKCT-AD-PKCT-CA, DC=PKCT, DC=LOCAL
```

```
Serial number: 1200000012d4f756fed94215cc000000000012
Valid from: Wed Dec 09 21:01:06 IST 2015 until: Sat Dec 09 21:11:06 IST 2017
Certificate fingerprints:
```

```
MD5: 0A:5C:2B:05:C8:3D:09:E7:FC:25:D1:47:1D:CA:C9:BD
SHA1: 40:E1:5A:DC:06:FA:27:E7:96:FE:94:2F:02:23:C6:34:AD:25:0A:2E
SHA256: C4:9A:3F:91:2A:87:A7:58:B6:88:DE:13:9C:F9:92:49:89:07:4F:EA:1A:BF:80:90:5C:B2:CC:CA:ED:83:EB:29
Signature algorithm name: SHA256withRSA
Version: 3
```

Authentication

Authentication mode: SSO Authentication

SSO Registration - Basic Mode

Host:



Admin user name:



Admin password:



SSO Configuration

SSO domain:

Groups filter:



vRO Admin - domain and group:

Clock tolerance:



Test Login


User logged in successfully

User name:

Password:

vCenter Server License

The license is successfully saved.

Use vCenter Server license Add vCenter Server license manually Use License Service 

Host:

Port:

Secure channel

Path:

User name:

Password:

Server startup options


vRO Server

Status Stopped

 [Refresh](#)

- Install vRO server as service
- [Uninstall vRO server from service](#)

 [Start service](#)

 Stop service

 Restart service

vRO Configuration Server

 [Restart the vRO configuration server](#)

VMware vRealize™ Orchestrator™

Getting Started with vRealize Orchestrator

To create and modify workflows, or to perform administrative tasks, start the Orchestrator client by using Java Web Start:

- [Start Orchestrator Client](#)

To use the Orchestrator client on your local machine, install the Orchestrator client. After you complete the installation, start the Orchestrator client and connect to the Orchestrator server.

- [Download Orchestrator Client Installable](#)
 - [vRealizeOrchestratorClient-64bit-6.0.3.exe](#) Windows 64-bit
 - [vRealizeOrchestratorClient-macosx-6.0.3.zip](#) Mac 32 and 64-bit
 - [vRealizeOrchestratorClient-64bit-6.0.3.bin](#) Linux 64-bit

vRealize Orchestrator Resources

- [Product Information](#)
- [Orchestrator Blog](#)
- [Community](#)
- [Support](#)
- [Plug-ins](#)

VMware Quick Links

- [VMware Communities](#)
- [VMware Forums](#)
- [VMware Site](#)

VMware vRealize Orchestrator Login...

vmware

vRealize™ Orchestrator™

Host name

User name

Password

Server Availability Options

Server mode

Standalone mode 

Cluster mode 

Cluster mode settings

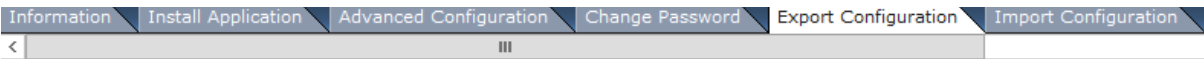
Number of active nodes: 

Heartbeat interval in milliseconds: 

Number of failover heartbeats: 

Started cluster nodes

Server host address	Server host name	Server state
10.112.103.128	vRO1.PKCT.LOCAL	RUNNING



Export Configuration

Configuration exported to /var/lib/vco/vmo_config_151210232112.vmoconfig.

Password (optional):


Server Availability Options

Server mode

Standalone mode 

Cluster mode 

Cluster mode settings

Number of active nodes: 

Heartbeat interval in milliseconds: 

Number of failover heartbeats: 

Started cluster nodes

Server host address	Server host name	Server state
10.112.103.129	vRO2.PKCT.LOCAL	RUNNING
10.112.103.128	vRO1.PKCT.LOCAL	RUNNING

Global Configuration Application Profiles Service Monitoring **Pools** Virtual Servers Application Rules

+ ✎ ✖ Show Pool Statistics

Pool and Member Status

Pool Status and Statistics:

Pool ID	Name	Status
pool-12	Pool_Postgres	UP
pool-13	Pool_CAFE_WEB	UP
pool-14	Pool_CAFE_Cons...	UP
pool-16	WEB_Pool	UP
pool-17	MGR_Pool	UP
pool-18	vRO_Pool	UP

Member Status and Statistics:

Name	IP Address / VC Container	Status	Member ID
vRO1	10.112.103.128	UP	member-35
vRO2	10.112.103.129	UP	member-36

VREALIZE ORCHESTRATOR API

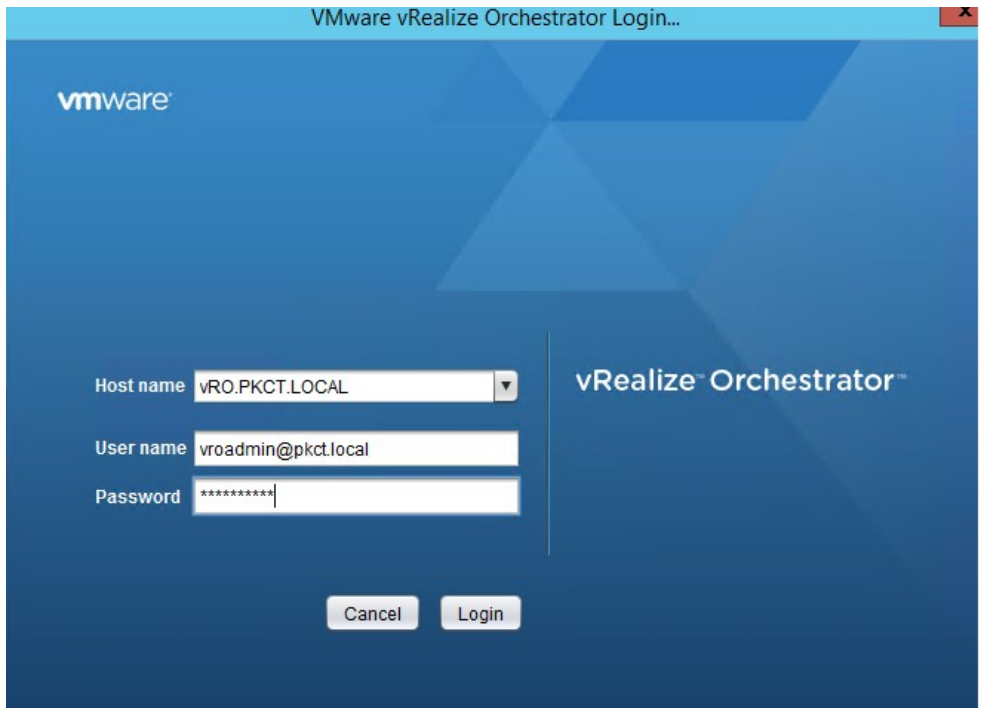
REST Data Model Files and Libraries

Home

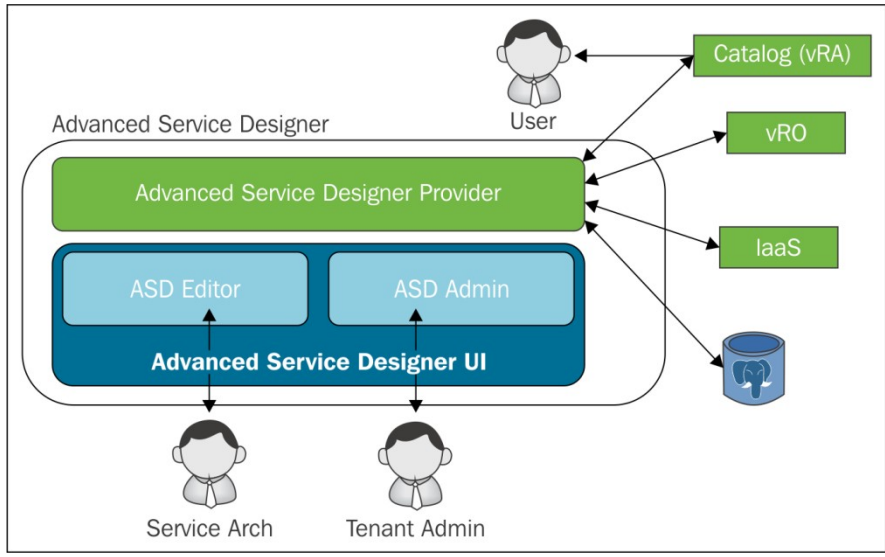
REST Resources

This API supports a [Representational State Transfer \(REST\)](#) model for accessing a set of resources through a fixed set of operations. The following resources are accessible through the RESTful model:

- [Actions Service](#)
- [Catalog Service](#)
- [Category Service](#)
- [Configuration Service](#)
- [Content Service](#)
- [Inventory Service](#)
- [Packages Service](#)
- [Plugin Service](#)
- [Resource Service](#)
- [Server Configuration Service](#)
- [Service Descriptor Service](#)
- [Tagging Service](#)
- [Task Service](#)
- [User Interaction Service](#)



Chapter 8: The Power of Advanced Service Designer (ASD)



Manage Licenses

New License Key

i Enter new license key for vRA, Code Stream or IT Business Management

License Type vCAC

Product Name VMware vCloud Automation Center Advanced

Product Version 6.0

Suite Name

Product Family VMware vCloud Automation Center

Actions

Submit Key

Refresh

You are here: Administration > Users & Groups > **Identity Store Users & Groups**

User Details: ASD

< Back to Administration

Identity Store Users & Groups

Custom Groups

Details **Identity Store Groups** Custom Groups Business Groups Entitled Items

First name: ASD

Last name:

Email:

User name: ASD@pkct.local

Domain: pkct.local

Tenant: Publishing

Add roles to this User.

Approval Administrator

Release Dashboard User

Release Engineer

Release Manager

Service Architect

Authorities Granted by Selected Roles.

Access my tenant administration GUI.

Create and publish advanced services.

Create, update and publish services, ca

Import/Export ASD content.

You are here: Advanced Services > Custom Resources

Custom Resources

Create and manage custom resources to provision by using service blueprints.

Custom Resources

Resource Mappings

Service Blueprints

Resource Actions

[Add](#) [Edit](#) [Delete](#)

Name	Type	Description
No data to display		

Server Configuration

✔ Successfully updated the server configuration.

- Use the default Orchestrator server.
- Use an external Orchestrator server.

*Name Description

*Host Authentication Single Sign-On Basic
*Port *User name
*Password



- ▶ SNMP
- ▶ PowerShell
- ▶ AMQP
- ▶ vCAC Infrastructure Administration
- ▶ SOAP
- ▶ vCloud Automation Center
- ▶ vRO Configuration
- ▶ Dynamic Types
- ▶ SSH
- ▶ Active Directory
- ▶ vRO Multi-Node
- ▶ vCenter Server
 - ▶ <https://10.112.103.75:443/sdk>
 - ▶ Datacenters
 - ▶ PrivateClub
 - ▶ host
 - ▶ vm
 - ▶ datastore
 - ▶ network
- ▶ HTTP-REST
- ▶ SQL Plug-in

Create DC - Edit Resource

Resource type Details Form Where Used

Select an orchestrator type and add the resource name and description.

*Orchestrator Type: VC:Datacenter

*Name: Create DC

Description:

Version: 0.0.0

Create datacenter - Edit Blueprint

Workflow Details Blueprint Form Provisioned Resource

Select an output parameter and an existing resource type to provision as the resource.

newDatacenter [Create DC]

Resource type: Create DC

Mapped to Orchestrator type: VC:Datacenter

Description:

Service Blueprints

Create and manage service blueprints and publish them as catalog items. You can select a workflow, define the forms associated with the catalog

Name	Description	Status
Create datacenter	Creates a new datacenter in a datacenter folder.	Published

Services

Search

Create, edit, publish, and manage services.

Name	Status	Description	Last Updated On	Last Updated By
DC	Active		12/2/15 5:34 PM	ASD
LAMP	Active		10/29/15 8:13 PM	Tadmin

Catalog Items

Manage catalog items published from source providers. Use the source provider's interface to create catalog items or edit their details.

Advanced Search					
View Details	Activate				
Name ▲	Status	Source	Resource Type	Scope	Service
Create datacenter	Published	Advanced Designer Service		Shared	DC
LAMP	Published	iaas-service	Virtual Machine	Shared	LAMP

Entitlements

Create and manage entitlements to control the access to catalog items and actions, and specify the approval policies to apply to catalog requests. You can update the priority of entitlements to determine which approval policy applies to a particular request.

+ Add Edit Deactivate Prioritize							
Name	Business Group ▲	Order	Description	Status	Expires On	Last Updated By	Last Updated On
LAMP	Publishing BG	1		Active		Tadmin	10/30/15 4:14 PM
DC	Publishing BG	2		Active		ASD	12/2/15 5:35 PM



Service Catalog

Browse the catalog for services you need.

DC (1)

Create datacenter
Creates a new datacenter in a datacenter folder.

Request

Home | Catalog | **Items** | Requests | Inbox | Advanced Services | Administration | Infrastructure

You are here: Items > Item Details

Item Details

First ASD DC
First ASD DC

Owner
ASD

Provisioned
12/4/15 1:25 PM

Type
Create DC

Business Group
Publishing BG

id: datacenter-579

Name: First ASD DC

SDK Connection: https://10.112.103.75:443/sdk

Delete datacenter - Edit Resource Action

Workflow Input Resource Details Form

***Name** Delete DC

Description Deletes a datacenter.

Hide catalog request information page

Version 1.0.0

Type Disposal
 Provisioning

Target criteria Always available
 Available based on conditions

Resource Actions

Create and manage custom resource actions to define the operations that can be performed on the provisioned items.

Advanced Search

+ Add Edit Publish Unpublish Clone Delete

Name	Description	Resource	Status
Delete DC	Deletes a datacenter.	Create DC	Published

Edit Entitlement

Details Items & Approvals

Add Actions to Entitlement

Type: All

Name: Search

<input type="checkbox"/>	Connect by Using RDP	Machine
<input type="checkbox"/>	Connect by Using SSH	Machine
<input type="checkbox"/>	Connect by Using Virtual Desktop	Machine
<input type="checkbox"/>	Connect to Remote Console	Machine
<input type="checkbox"/>	Decommission	Physical Machine
<input checked="" type="checkbox"/>	Delete DC	Create DC
<input type="checkbox"/>	Destroy	Cloud Machine
<input type="checkbox"/>	Destroy	Virtual Machine

1 Entitled Actions +


Search

Name	Approval Policy
No data selected	

Home Catalog Items Requests Inbox Advanced Services Administration Infrastructure

You are here: Items > Item Details

Item Details



First ASD DC
First ASD DC

Owner: ASD
Provisioned: 12/4/15 1:25 PM
Type: Create DC
Business Group: Publishing BG

id: datacenter-579
Name: First ASD DC
SDK Connection: https://10.112.103.75:443/sdk

Actions:
Delete DC

Name of the Datacenter created using ASD

vmware vRealize Automation

Welcome, ASD. Preferences Help Logout

Home Catalog Items Requests Inbox Advanced Services Administration Infrastructure

You are here: Infrastructure > Groups > Business Groups

Business Groups

Manage business groups or create a business group.

Business Groups (1)

Business Group	Group Managers	Description	Virtual Machines Total	Quota Allocated (%) (Alloc/Res)	Memory Allocated (%) (Alloc/Res)	Storage Allocated (%) (Alloc/Res)
Publishing BG	ASD@pkc1.local Admin@pkc1.local		0	0% 0 of Unlimited	0% 0 GB of 30 GB	0% 0 GB of 149 GB

You are here: Advanced Services > Service Blueprints

Service Blueprints

Create and manage service blueprints and publish them as catalog items. You can select a workflow, define the forms associated with the catalog

+ Add Edit Publish Unpublish Clone Delete

Name	Description	Status
Create datacenter	Creates a new datacenter in a datacenter folder.	Published
Create VM	Creates a virtual machine with the most common devices and config	Published

Services

Create, edit, publish, and manage services.

Search

+ Add View Details Copy Delete Activate Manage Catalog Items

Name	Status	Description	Last Updated On	Last Updated By
Create VM	Active		12/3/15 9:38 PM	ASD
DC	Active		12/2/15 5:34 PM	ASD
LAMP	Active		10/29/15 8:13 PM	Tadmin

Catalog Items

Manage catalog items published from source providers. Use the source provider's interface to create catalog items or edit their details.

Advanced Search					
View Details Deactivate					
Name	Status	Source	Resource Type	Scope	Service
Create datacenter	Published	Advanced Designer Service		Shared	DC
Create VM	Published	Advanced Designer Service		Shared	Create VM
LAMP	Published	iaas-service	Virtual Machine	Shared	LAMP

Entitlements

Create and manage entitlements to control the access to catalog items and actions, and specify the approval policies to apply to catalog requests. You can update the priority of entitlements to determine which approval policy applies to a particular request.

Add Edit Deactivate Prioritize							
Name	Business Group	Order	Description	Status	Expires On	Last Updated By	Last Updated On
LAMP	Publishing BG	1		Active		Tadmin	10/30/15 4:14 PM
DC	Publishing BG	2		Active		ASD	12/2/15 5:35 PM
VM	Publishing BG	3		Active		ASD	12/3/15 9:52 PM

Service Catalog

Browse the catalog for services you need.

All Services

Create VM

DC

All Services (2)

Create datacenter
Creates a new datacenter in a datacenter folder.
Request

Create VM
Creates a virtual machine with the most common devices and configuration options.
Request