IBM Planning Analytics Workspace Local Distributed

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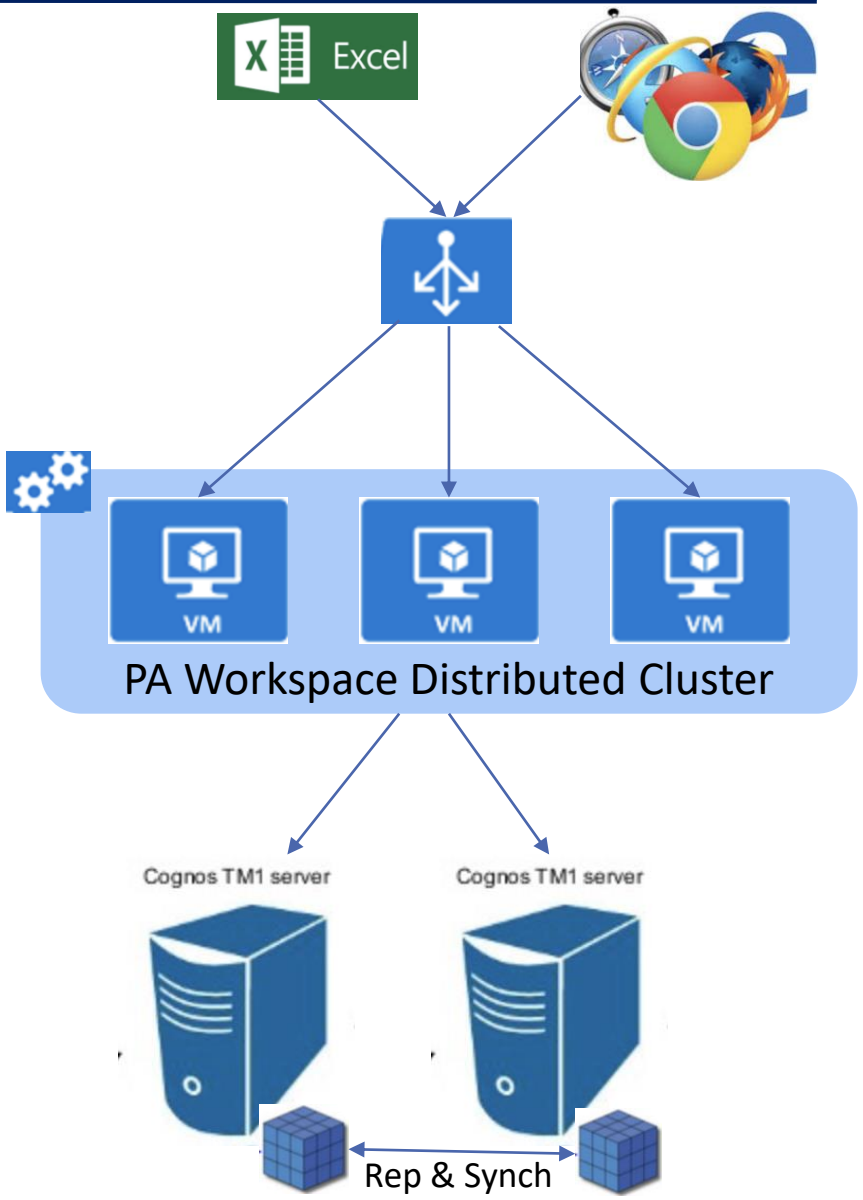
Agenda

1. Demo PAW High Availability on a Prebuilt Swarm cluster
2. Start Building a New Swarm Cluster from SCratch(3 manager and 2 worker nodes)
3. Advantages of the Private Cloud Operational Model
4. Finish Building the New Cluster

Planning Analytics Workspace Local Distrusted: Advantages

A Scalable, Highly Available PA Workspace platform with:

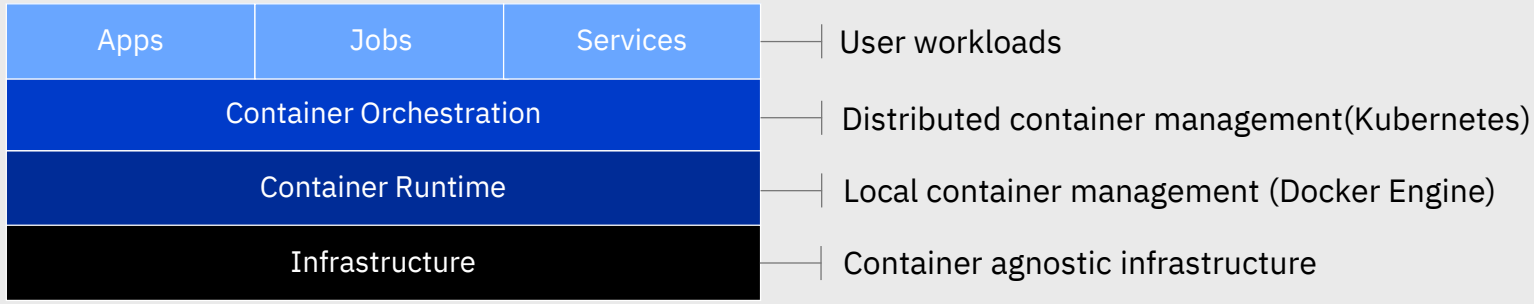
- Non-disruptive operations
- Automated Rollouts and Rollbacks
- Elastic horizontal scaling
- Self-healing
- Service discovery & load balancing
- Secret and configuration mgt
- Intelligent request routing



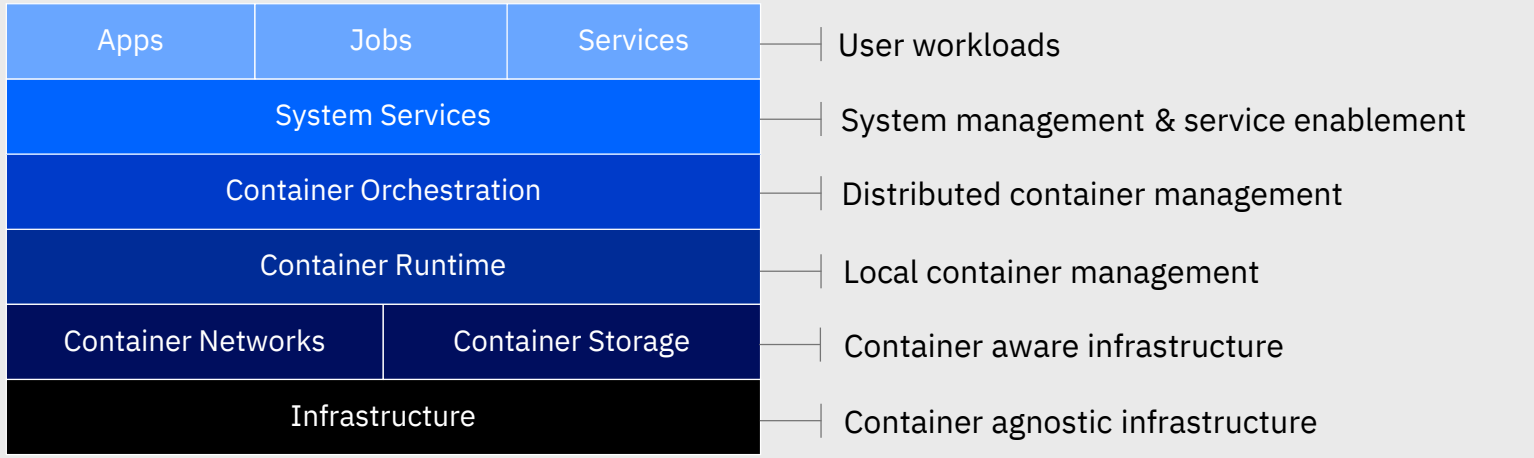
The Introduction of Containers into the Data Center Brings a New Challenge for Sysadmins

Managing Containers and Modernizing Data Centers

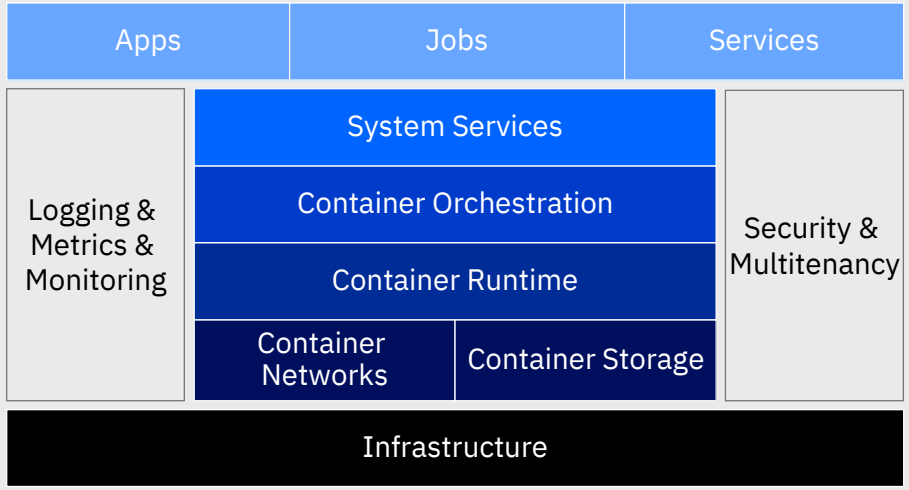
Container Orchestration



Container Platform



Private Cloud



IBM **Cloud** Private

Fast. Flexible. Intelligent.
Open. Enterprise-grade.

What is Kubernetes?

- Enterprise level container orchestration engine
- Provision, manage, scale applications across a cluster
- Declarative model: you provide the “desired state” of a cluster and Kubernetes will make it happen
- What’s in the name? Kubernetes (k8s/Kube): “Helmsman” in ancient Greek

IBM Planning Analytics Workspace – High Availability

Web Tier

TM1 Web, TM1 Application Web, Operations Console

- 8 Cores/32GB for TM1 Web Java engine and PMHUB running in WebSphere
- OS: RHEL Server 6,7—Ubuntu and Windows Server

Rich Tier

Architect, Performance Modeler, Perspectives, Cognos Insight, PAx

- 2 Cores/4GB Desktop/Laptop Windows 7 10 with latest IE11/Chrome/Firefox brow
- MS Excel 2013 and 2016

Workspace Node1
Workspace Node2
Workspace Node3

Dev/QC Swarm cluster
3 ubuntu 18.04 VMs - 4 cores/16GB RAM
Install docker and initialize swarm on node1
Add node2 and 3 to the swarm as managers
Install and configure PAW-Dist on node 1
PAW services will automatically scale to the 3 nodes.

Data Tier

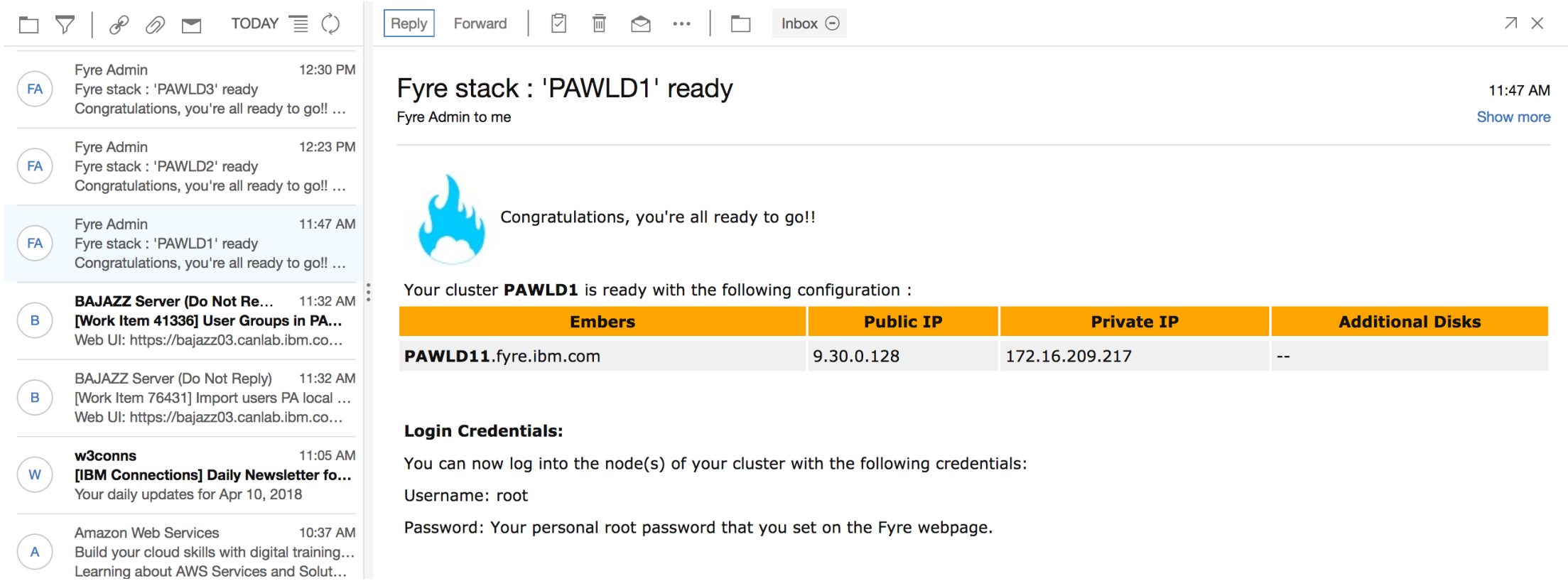
TM1 Admin Server, TM1 Server

CPU/RAM requirements depend on model size and application complexity at runtime.

Linux: RHEL Server 6,7 on x86-64 or IBM z Systems Hardware
Linux: Ubuntu 16.04 LTS on x86-64 Hardware
Windows Server 2008, 2012, 2016

Setting Up a 3 Node PAW Distributed Cluster on Fyre – How to?

Step 0: provision 3 medium sized Ubunto machines



TODAY

Reply Forward Inbox

FA Fyre Admin 12:30 PM
Fyre stack : 'PAWLD3' ready
Congratulations, you're all ready to go!! ...

FA Fyre Admin 12:23 PM
Fyre stack : 'PAWLD2' ready
Congratulations, you're all ready to go!! ...

FA Fyre Admin 11:47 AM
Fyre stack : 'PAWLD1' ready
Congratulations, you're all ready to go!! ...

B **BAJAZZ Server (Do Not Re...** 11:32 AM
[Work Item 41336] User Groups in PA...
Web UI: https://bajazz03.canlab.ibm.co...

B BAJAZZ Server (Do Not Reply) 11:32 AM
[Work Item 76431] Import users PA local ...
Web UI: https://bajazz03.canlab.ibm.co...

W **w3conns** 11:05 AM
[IBM Connections] Daily Newsletter fo...
Your daily updates for Apr 10, 2018

A Amazon Web Services 10:37 AM
Build your cloud skills with digital training...
Learning about AWS Services and Solut...

Fyre stack : 'PAWLD1' ready

11:47 AM

Fyre Admin to me

Show more

Congratulations, you're all ready to go!!

Your cluster **PAWLD1** is ready with the following configuration :

Embers	Public IP	Private IP	Additional Disks
PAWLD11.fyre.ibm.com	9.30.0.128	172.16.209.217	--

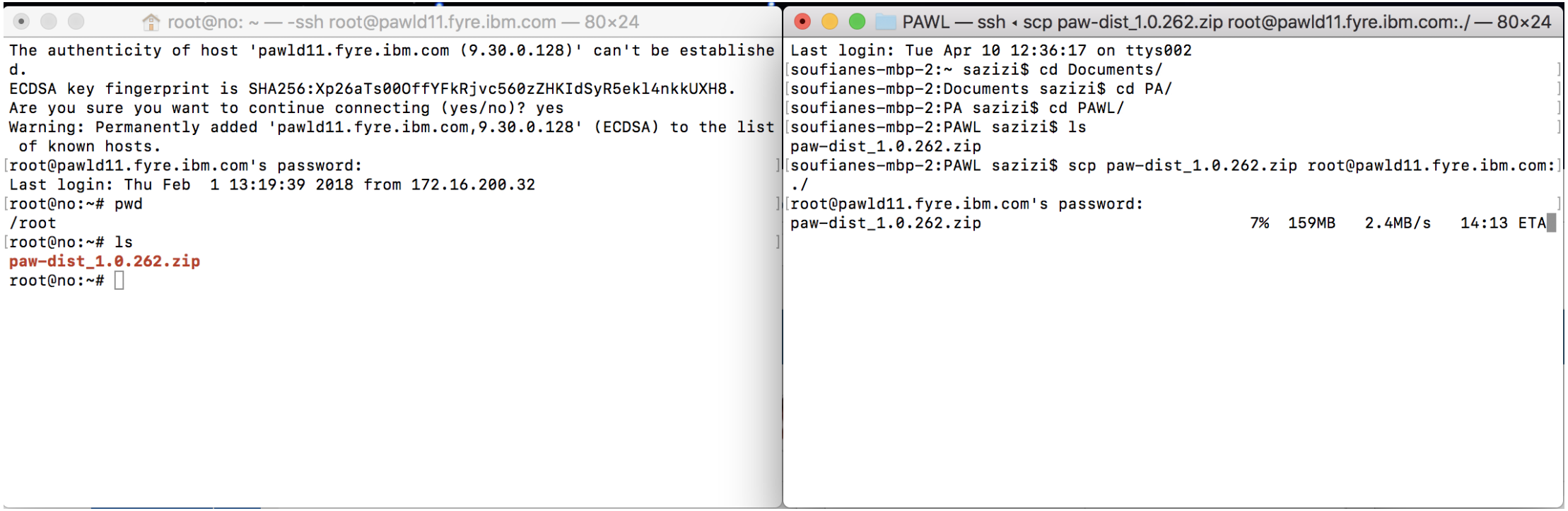
Login Credentials:

You can now log into the node(s) of your cluster with the following credentials:

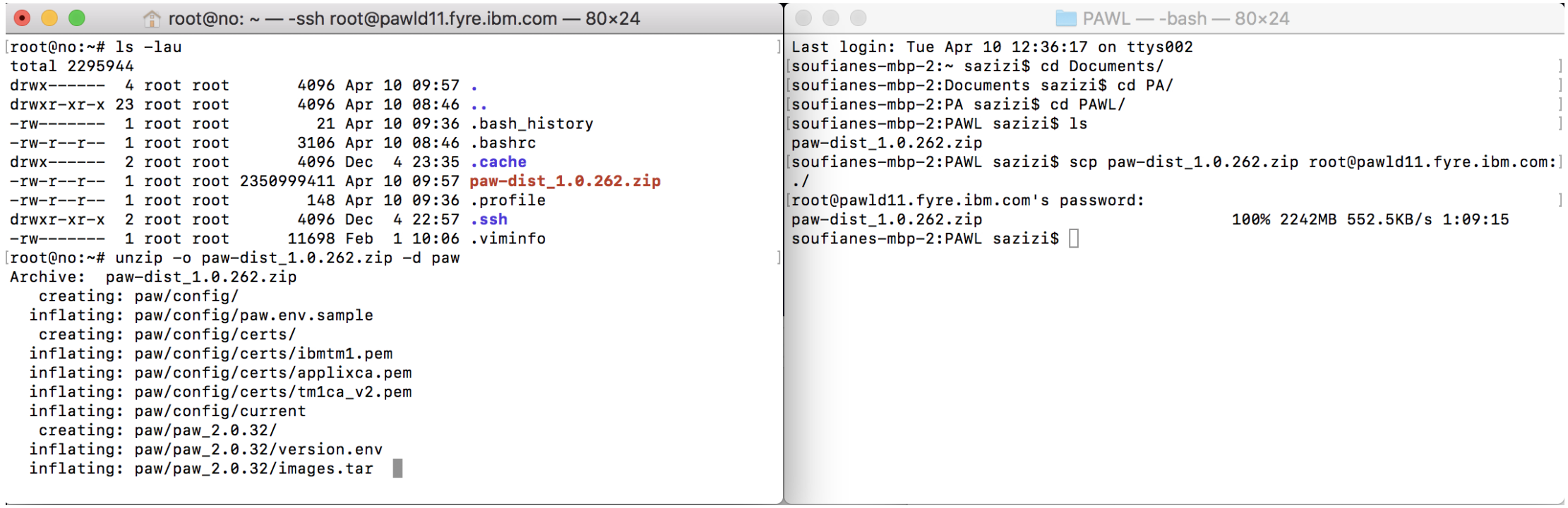
Username: root

Password: Your personal root password that you set on the Fyre webpage.

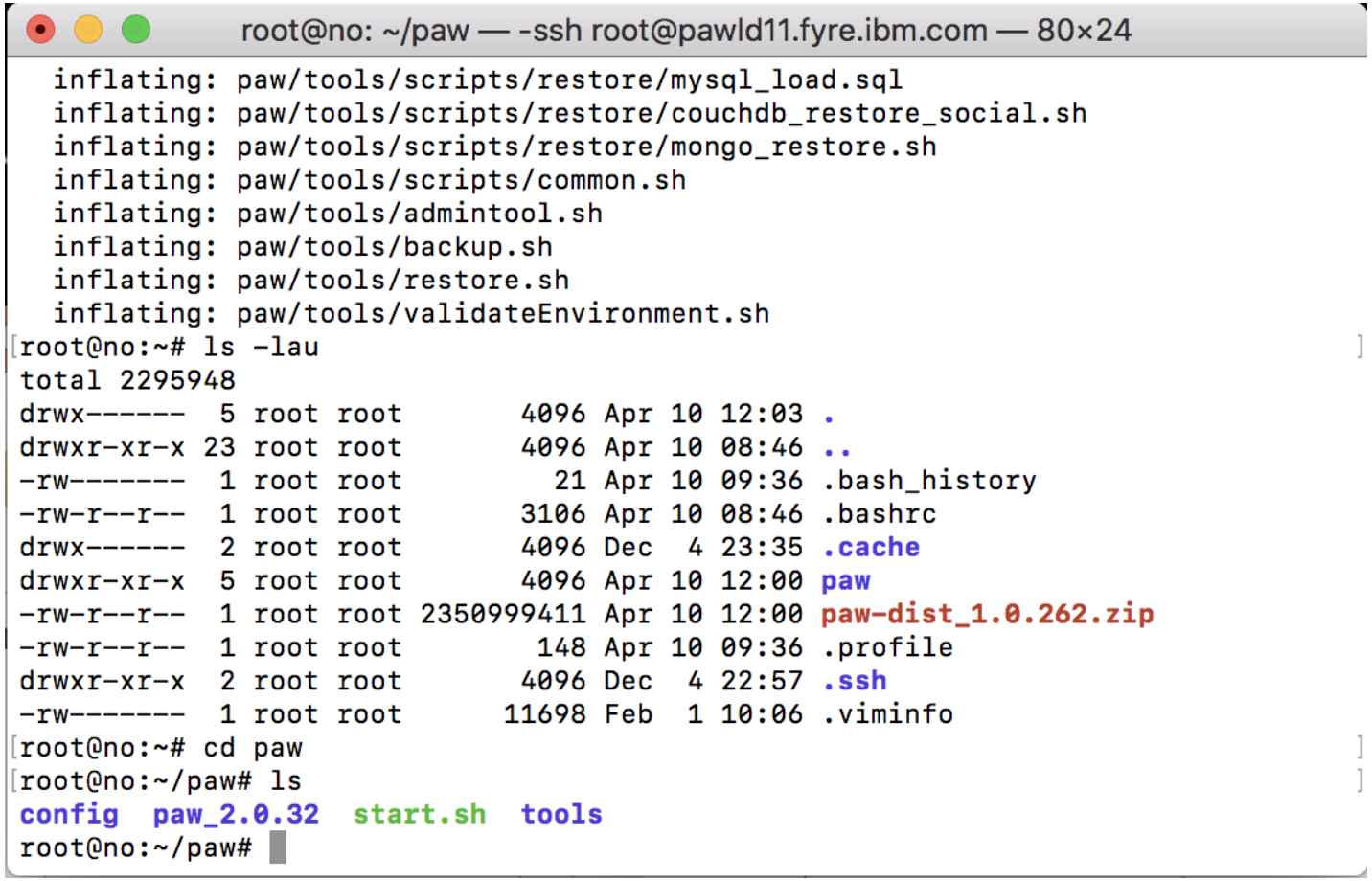
Step 1. Upload paw package to node 1



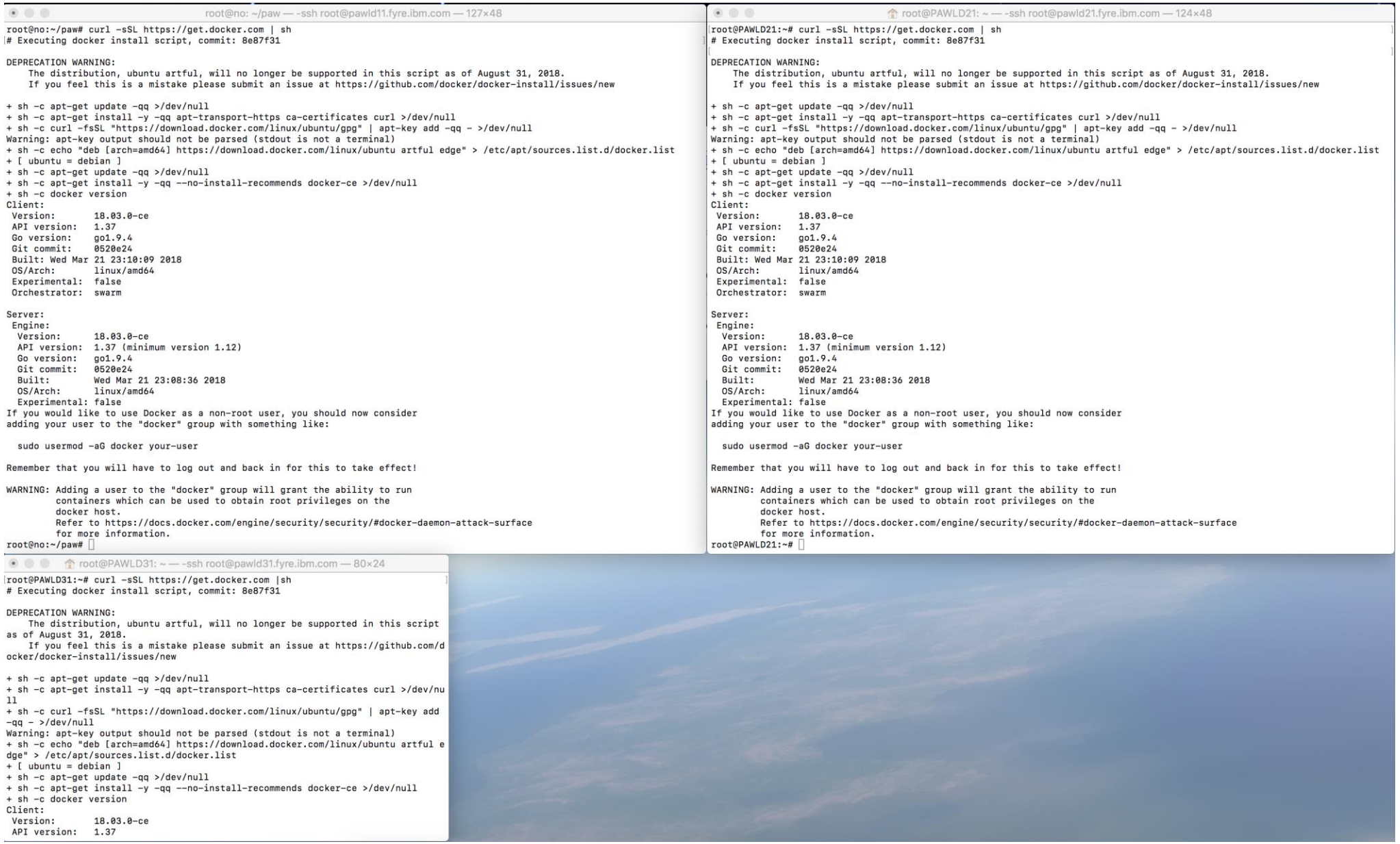
once upload (scp) is complete, unzip paw package



Initial PAW dir content has the start.sh script that installs PAWLD



Install Docker on the 3 nodes ($curl –sSL https://get.docker.com |sh)



root@no: ~/paw — -ssh root@pawld11.fyre.ibm.com — 127×48

```
root@no:~/paw# curl -sSL https://get.docker.com | sh
# Executing docker install script, commit: 8e87f31

DEPRECATION WARNING:
    The distribution, ubuntu artful, will no longer be supported in this script as of August 31, 2018.
    If you feel this is a mistake please submit an issue at https://github.com/docker/docker-install/issues/new

+ sh -c apt-get update -qq >/dev/null
+ sh -c apt-get install -y -qq apt-transport-https ca-certificates curl >/dev/null
+ sh -c curl -fsSL "https://download.docker.com/linux/ubuntu/gpg" | apt-key add -qq - >/dev/null
Warning: apt-key output should not be parsed (stdout is not a terminal)
+ sh -c echo "deb [arch=amd64] https://download.docker.com/linux/ubuntu artful edge" > /etc/apt/sources.list.d/docker.list
+ [ ubuntu = debian ]
+ sh -c apt-get update -qq >/dev/null
+ sh -c apt-get install -y -qq --no-install-recommends docker-ce >/dev/null
+ sh -c docker version
Client:
 Version:       18.03.0-ce
 API version:   1.37
 Go version:    go1.9.4
 Git commit:    0520e24
 Built: Wed Mar 21 23:10:09 2018
 OS/Arch:       linux/amd64
 Experimental:  false
 Orchestrator:  swarm

Server:
 Engine:
  Version:      18.03.0-ce
  API version:  1.37 (minimum version 1.12)
  Go version:   go1.9.4
  Git commit:   0520e24
  Built:        Wed Mar 21 23:08:36 2018
  OS/Arch:      linux/amd64
  Experimental: false
If you would like to use Docker as a non-root user, you should now consider
adding your user to the "docker" group with something like:

  sudo usermod -aG docker your-user

Remember that you will have to log out and back in for this to take effect!

WARNING: Adding a user to the "docker" group will grant the ability to run
         containers which can be used to obtain root privileges on the
         docker host.
         Refer to https://docs.docker.com/engine/security/security/#docker-daemon-attack-surface
         for more information.
root@no:~/paw#
```

root@PAWLD21: ~ — -ssh root@pawld21.fyre.ibm.com — 124×48

```
root@PAWLD21:~# curl -sSL https://get.docker.com | sh
# Executing docker install script, commit: 8e87f31

DEPRECATION WARNING:
    The distribution, ubuntu artful, will no longer be supported in this script as of August 31, 2018.
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+ sh -c apt-get update -qq >/dev/null
+ sh -c apt-get install -y -qq apt-transport-https ca-certificates curl >/dev/null
+ sh -c curl -fsSL "https://download.docker.com/linux/ubuntu/gpg" | apt-key add -qq - >/dev/null
Warning: apt-key output should not be parsed (stdout is not a terminal)
+ sh -c echo "deb [arch=amd64] https://download.docker.com/linux/ubuntu artful edge" > /etc/apt/sources.list.d/docker.list
+ [ ubuntu = debian ]
+ sh -c apt-get update -qq >/dev/null
+ sh -c apt-get install -y -qq --no-install-recommends docker-ce >/dev/null
+ sh -c docker version
Client:
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Server:
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         docker host.
         Refer to https://docs.docker.com/engine/security/security/#docker-daemon-attack-surface
         for more information.
root@PAWLD21:~#
```

root@PAWLD31: ~ — -ssh root@pawld31.fyre.ibm.com — 80×24

```
root@PAWLD31:~# curl -sSL https://get.docker.com |sh
# Executing docker install script, commit: 8e87f31

DEPRECATION WARNING:
    The distribution, ubuntu artful, will no longer be supported in this script
as of August 31, 2018.
    If you feel this is a mistake please submit an issue at https://github.com/d
ocker/docker-install/issues/new

+ sh -c apt-get update -qq >/dev/null
+ sh -c apt-get install -y -qq apt-transport-https ca-certificates curl >/dev/nu
ll
+ sh -c curl -fsSL "https://download.docker.com/linux/ubuntu/gpg" | apt-key add
-qq - >/dev/null
Warning: apt-key output should not be parsed (stdout is not a terminal)
+ sh -c echo "deb [arch=amd64] https://download.docker.com/linux/ubuntu artful e
dge" > /etc/apt/sources.list.d/docker.list
+ [ ubuntu = debian ]
+ sh -c apt-get update -qq >/dev/null
+ sh -c apt-get install -y -qq --no-install-recommends docker-ce >/dev/null
+ sh -c docker version
Client:
 Version:       18.03.0-ce
 API version:   1.37
```

$Docker info

root@no: ~/paw — -ssh root@pawld11.fyre.ibm.com — 86×49

```
root@no:~/paw# docker info
Containers: 0
 Running: 0
 Paused: 0
 Stopped: 0
Images: 0
Server Version: 18.03.0-ce
Storage Driver: overlay2
 Backing Filesystem: extfs
 Supports d_type: true
 Native Overlay Diff: true
Logging Driver: json-file
Cgroup Driver: cgroupfs
Plugins:
 Volume: local
 Network: bridge host macvlan null overlay
 Log: awslogs fluentd gcplogs gelf journald json-file logentries splunk syslog
Swarm: inactive
Runtimes: runc
Default Runtime: runc
Init Binary: docker-init
containerd version: cfd04396dc68220d1cecbe686a6cc3aa5ce3667c
runc version: 4fc53a81fb7c994640722ac585fa9ca548971871
init version: 949e6fa
Security Options:
 apparmor
 seccomp
  Profile: default
Kernel Version: 4.13.0-32-generic
Operating System: Ubuntu 17.10
OSType: linux
Architecture: x86_64
CPUs: 4
Total Memory: 7.79GiB
Name: no
ID: VGCW:PD6B:TLVX:NI5B:JM24:IIP4:B64Q:VPIH:FVEB:SUYF:FG3R:RNRV
Docker Root Dir: /var/lib/docker
Debug Mode (client): false
Debug Mode (server): false
Registry: https://index.docker.io/v1/
Labels:
Experimental: false
Insecure Registries:
 127.0.0.0/8
Live Restore Enabled: false

WARNING: No swap limit support
root@no:~/paw#
```

Initialize swarm and add manager nodes

root@no: ~/paw — -ssh root@pawld11.fyre.ibm.com — 137×46

```
root@no:~/paw# docker swarm init
Error response from daemon: could not choose an IP address to advertise since this system has multiple addresses on different interfaces
(172.16.209.217 on ens3 and 9.30.0.128 on ens7) - specify one with --advertise-addr
root@no:~/paw# docker swarm init --advertise-addr 172.16.209.217
Swarm initialized: current node (x192yxpvxlsnfl36lumgub5wg) is now a manager.

To add a worker to this swarm, run the following command:

    docker swarm join --token SWMTKN-1-2c71cgopm80j4z33l9y164emcnd1jh9yil13gfzo3tb6w736qo-blicjpv4rcqgays1mc9zomnzd 172.16.209.217:2377

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.

root@no:~/paw# docker swarm join-token manager
To add a manager to this swarm, run the following command:

    docker swarm join --token SWMTKN-1-2c71cgopm80j4z33l9y164emcnd1jh9yil13gfzo3tb6w736qo-13tbhmg9syuval9fdmppfgb9z 172.16.209.217:2377

root@no:~/paw#
```

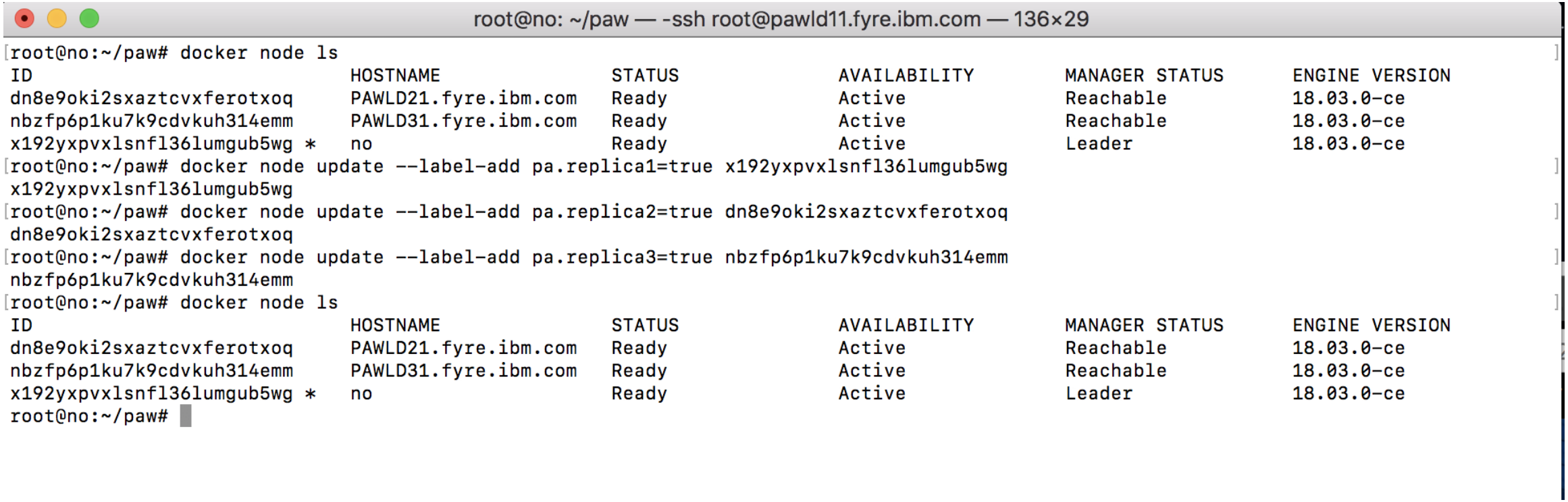
root@PAWLD21: ~ — -ssh root@pawld21.fyre.ibm.com — 137×5

```
        for more information.
root@PAWLD21:~# docker swarm join --token SWMTKN-1-2c71cgopm80j4z33l9y164emcnd1jh9yil13gfzo3tb6w736qo-13tbhmg9syuval9fdmppfgb9z 172.16.20
9.217:2377
This node joined a swarm as a manager.
root@PAWLD21:~#
```

root@PAWLD31: ~ — -ssh root@pawld31.fyre.ibm.com — 137×5

```
        for more information.
root@PAWLD31:~# docker swarm join --token SWMTKN-1-2c71cgopm80j4z33l9y164emcnd1jh9yil13gfzo3tb6w736qo-13tbhmg9syuval9fdmppfgb9z 172.16.20
9.217:2377
This node joined a swarm as a manager.
root@PAWLD31:~#
```

List and Label the swarm nodes

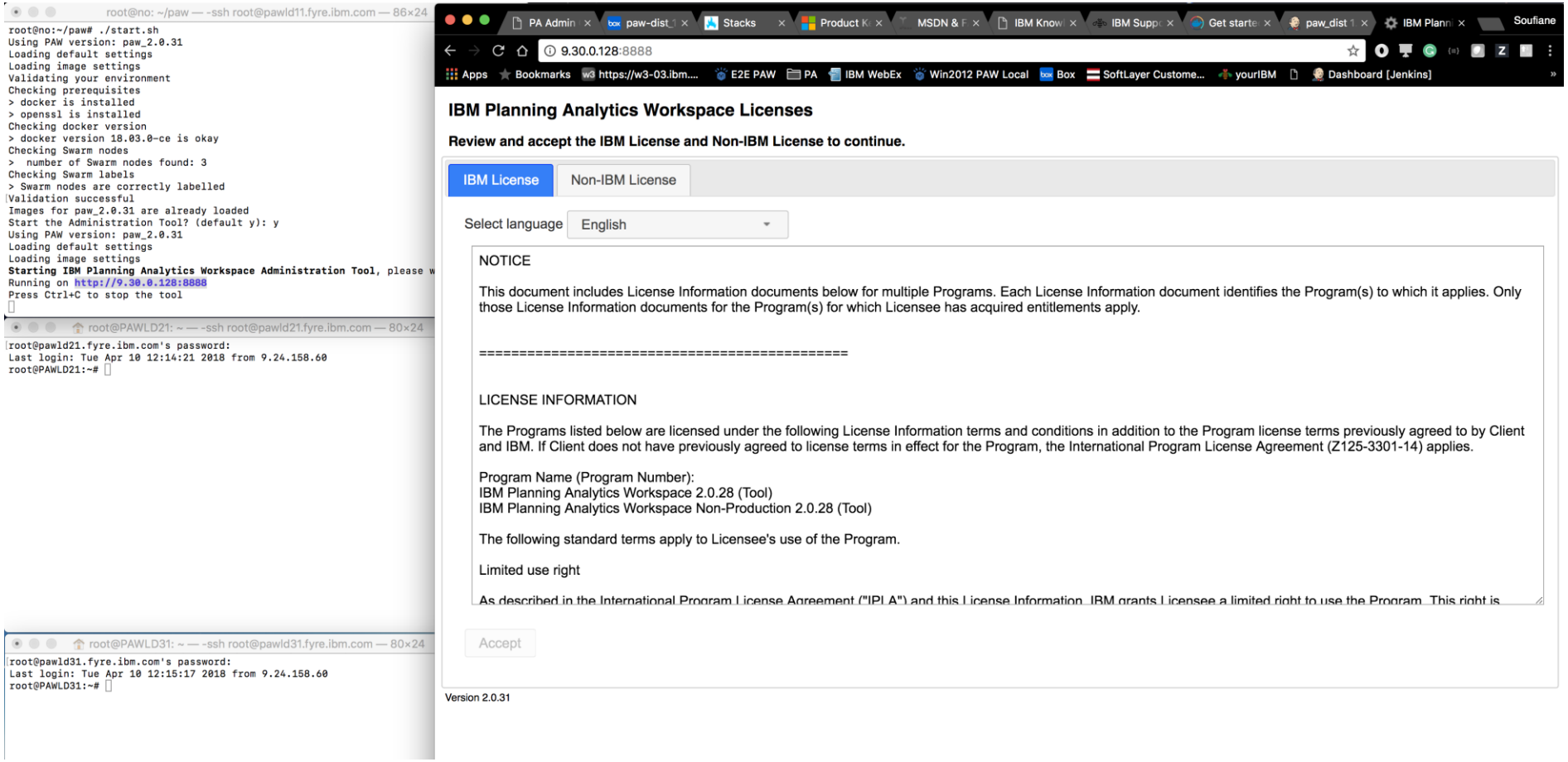


Install PAW: $./start.sh and wait for 7 mn

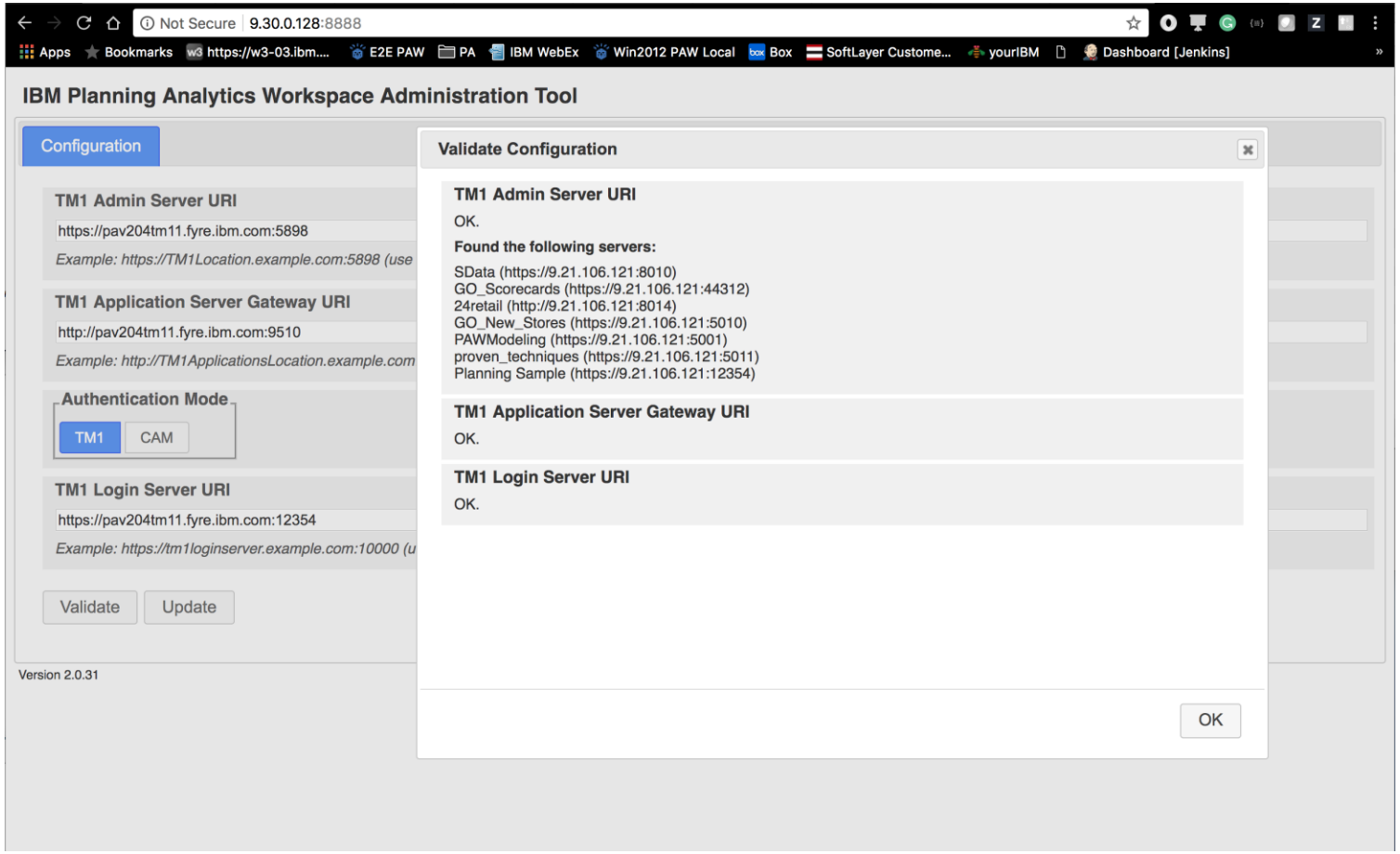
```
root@no: ~/paw — -ssh root@pawld11.fyre.ibm.com — 80×24
[root@no:~# cd paw/
[root@no:~/paw# ls
config  paw_2.0.31  start.sh  tools
[root@no:~/paw# ./start.sh
Using PAW version: paw_2.0.31
Loading default settings
Loading image settings
Validating your environment
Checking prerequisites
> docker is installed
> openssl is installed
Checking docker version
> docker version 18.03.0-ce is okay
Checking Swarm nodes
>  number of Swarm nodes found: 3
Checking Swarm labels
> Swarm nodes are correctly labelled
Validation successful
Loading images for paw_2.0.31
Deploying private registry on this Swarm node
Waiting for registry to be available.....
Registry is available
Pushing images to the registry...
```

```
root@no: ~/paw — -ssh root@pawld11.fyre.ibm.com — 80×24
[root@no:~/paw# ./start.sh
Using PAW version: paw_2.0.31
Loading default settings
Loading image settings
Validating your environment
Checking prerequisites
> docker is installed
> openssl is installed
Checking docker version
> docker version 18.03.0-ce is okay
Checking Swarm nodes
>  number of Swarm nodes found: 3
Checking Swarm labels
> Swarm nodes are correctly labelled
Validation successful
Loading images for paw_2.0.31
Deploying private registry on this Swarm node
Waiting for registry to be available.....
Registry is available
Pushing images to the registry...
Images loaded at Wed Apr 11 09:13:55 PDT 2018
[Start the Administration Tool? (default y): n
Complete the configuration before deploying Planning Analytics Workspace
root@no:~/paw#
```

Accept licences and Configure PAW as usual

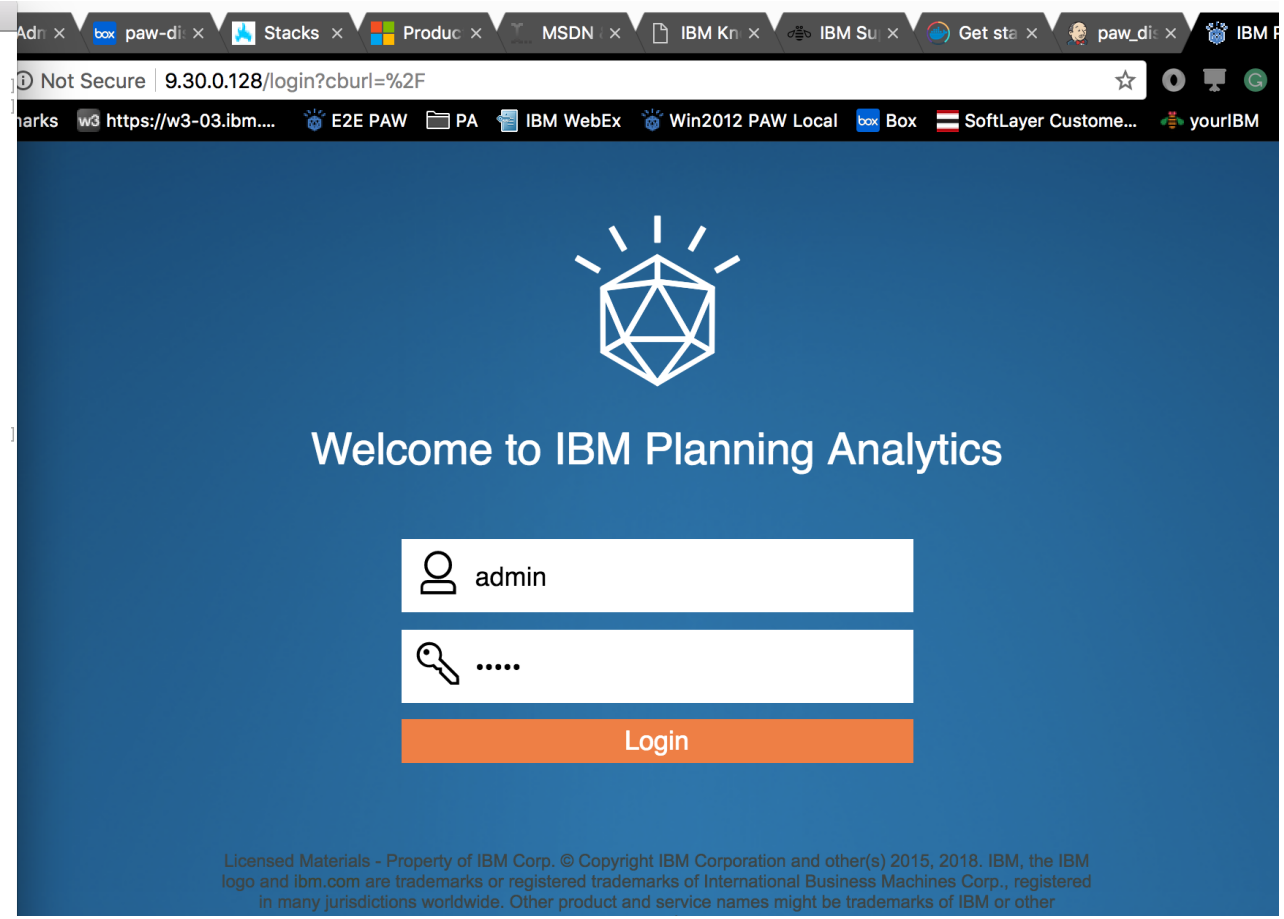


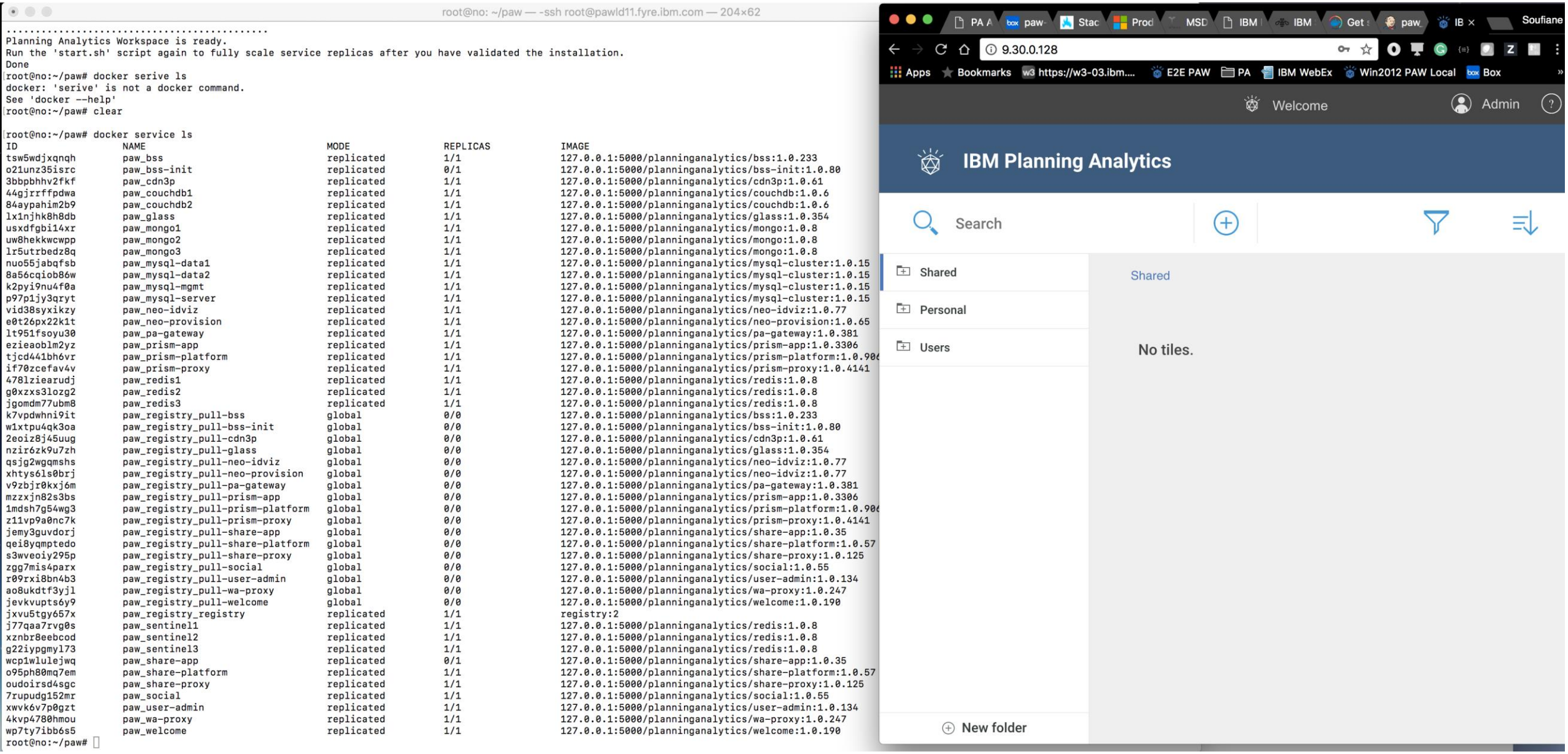
Validate your congfiguration and update (notice no status tab)



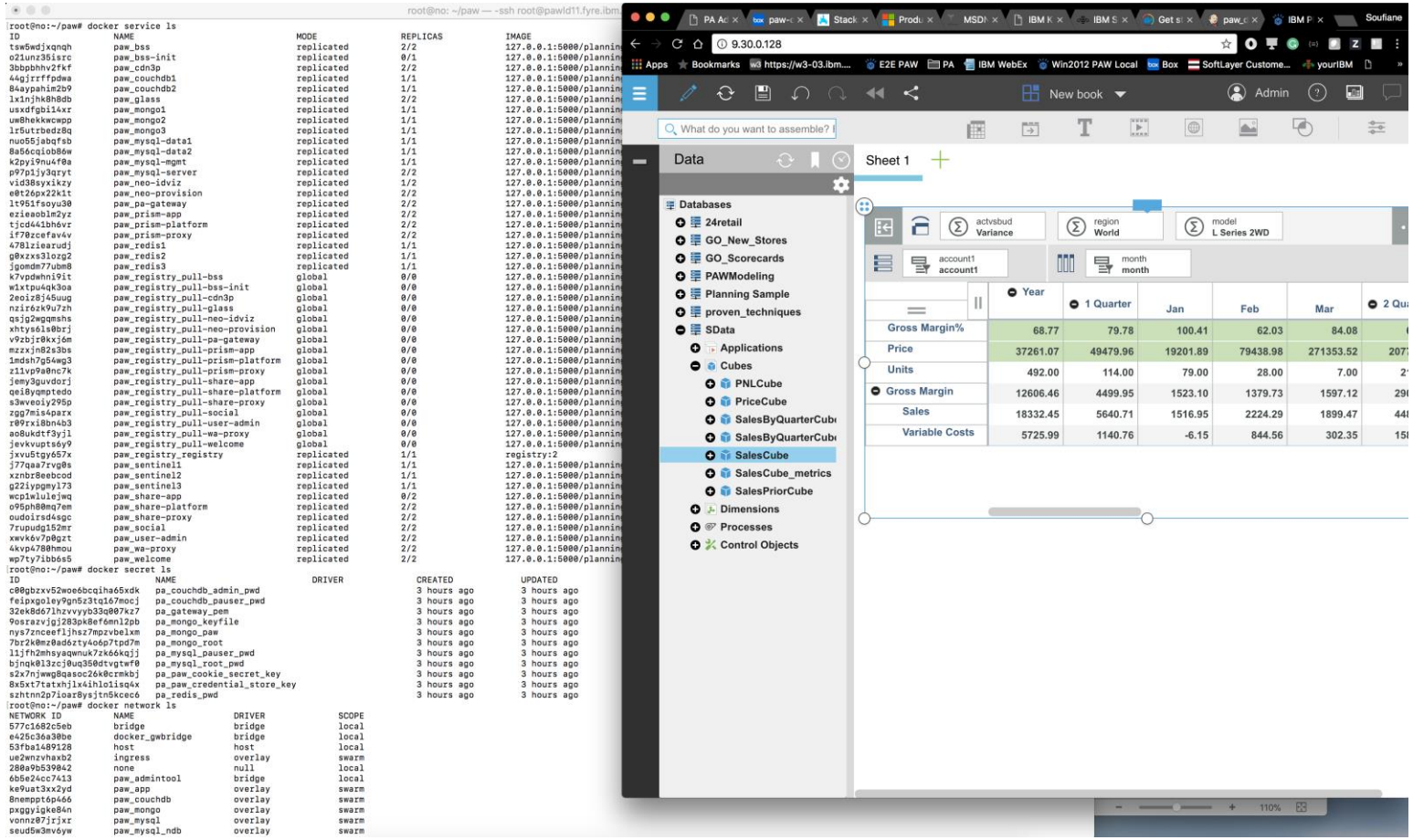
root@no: ~/paw — -ssh root@pawld11.fyre.ibm.com — 124×47

```
^CStopping IBM Planning Analytics Workspace Administration Tool...
Complete the configuration before deploying Planning Analytics Workspace
root@no:~/paw# export ADMINTOOL_IP=9.30.0.128
root@no:~/paw# ./start.sh
Using PAW version: paw_2.0.31
Loading default settings
Loading image settings
Validating your environment
Checking prerequisites
> docker is installed
> openssl is installed
Checking docker version
> docker version 18.03.0-ce is okay
Checking Swarm nodes
>  number of Swarm nodes found: 3
Checking Swarm labels
> Swarm nodes are correctly labelled
Validation successful
Images for paw_2.0.31 are already loaded
Start the Administration Tool? (default y): y
Using PAW version: paw_2.0.31
Loading default settings
Loading image settings
Starting IBM Planning Analytics Workspace Administration Tool, please wait...
Running on http://9.30.0.128:8888
Press Ctrl+C to stop the tool
^CStopping IBM Planning Analytics Workspace Administration Tool...
Creating secrets and configs
Certificate was added to keystore
Certificate was added to keystore
Certificate was added to keystore
Generating a 2048 bit RSA private key
...............................+++
.............................................................+++
writing new private key to 'pa-workspace.key'
-----
Initializing Planning Analytics Workspace
Deploying stack 'paw'
Waiting for Planning Analytics Workspace to initialize
.........................................
Planning Analytics Workspace is ready.
Run the 'start.sh' script again to fully scale service replicas after you have validated the installation.
Done
```

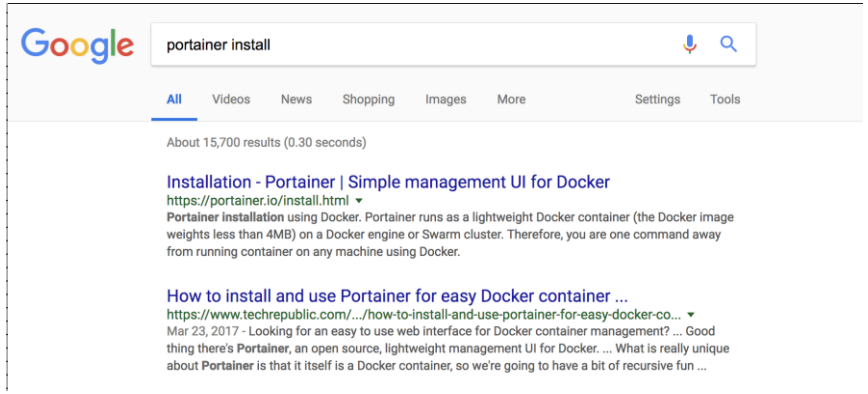



root@no: ~/paw — -ssh root@pawld11.fyre.ibm.com — 204×62
.....
Planning Analytics Workspace is ready.
Run the 'start.sh' script again to fully scale service replicas after you have validated the installation.
Done
root@no:~/paw# docker serive ls
docker: 'serive' is not a docker command.
See 'docker --help'
root@no:~/paw# clear
root@no:~/paw# docker service ls
ID NAME MODE REPLICAS IMAGE
tsw5wdjxqnqh paw_bss replicated 1/1 127.0.0.1:5000/planninganalytics/bss:1.0.233
o21unz35isrc paw_bss-init replicated 0/1 127.0.0.1:5000/planninganalytics/bss-init:1.0.80
3bbpbhhv2fkf paw_cdn3p replicated 1/1 127.0.0.1:5000/planninganalytics/cdn3p:1.0.61
44gjrrffpdwa paw_couchdb1 replicated 1/1 127.0.0.1:5000/planninganalytics/couchdb:1.0.6
84aypahim2b9 paw_couchdb2 replicated 1/1 127.0.0.1:5000/planninganalytics/couchdb:1.0.6
lx1njhk8h8db paw_glass replicated 1/1 127.0.0.1:5000/planninganalytics/glass:1.0.354
usxdfgbi14xr paw_mongo1 replicated 1/1 127.0.0.1:5000/planninganalytics/mongo:1.0.8
uw8hekkwcwpp paw_mongo2 replicated 1/1 127.0.0.1:5000/planninganalytics/mongo:1.0.8
lr5utrbedz8q paw_mongo3 replicated 1/1 127.0.0.1:5000/planninganalytics/mongo:1.0.8
nuo55jabqfsb paw_mysql-data1 replicated 1/1 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15
8a56cqiob86w paw_mysql-data2 replicated 1/1 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15
k2pyi9nu4f0a paw_mysql-mgmt replicated 1/1 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15
p97p1jy3qryt paw_mysql-server replicated 1/1 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15
vid38syxikzy paw_neo-idviz replicated 1/1 127.0.0.1:5000/planninganalytics/neo-idviz:1.0.77
e0t26px22k1t paw_neo-provision replicated 1/1 127.0.0.1:5000/planninganalytics/neo-provision:1.0.65
lt951fsoyu30 paw_pa-gateway replicated 1/1 127.0.0.1:5000/planninganalytics/pa-gateway:1.0.381
ezieaoblm2yz paw_prism-app replicated 1/1 127.0.0.1:5000/planninganalytics/prism-app:1.0.3306
tjcd441bh6vr paw_prism-platform replicated 1/1 127.0.0.1:5000/planninganalytics/prism-platform:1.0.906
if70zcefav4v paw_prism-proxy replicated 1/1 127.0.0.1:5000/planninganalytics/prism-proxy:1.0.4141
478lziearudj paw_redis1 replicated 1/1 127.0.0.1:5000/planninganalytics/redis:1.0.8
g0xzxs3lozg2 paw_redis2 replicated 1/1 127.0.0.1:5000/planninganalytics/redis:1.0.8
jgomdm77ubm8 paw_redis3 replicated 1/1 127.0.0.1:5000/planninganalytics/redis:1.0.8
k7vpdwhni9it paw_registry_pull-bss global 0/0 127.0.0.1:5000/planninganalytics/bss:1.0.233
w1xtpu4qk3oa paw_registry_pull-bss-init global 0/0 127.0.0.1:5000/planninganalytics/bss-init:1.0.80
2eoiz8j45uug paw_registry_pull-cdn3p global 0/0 127.0.0.1:5000/planninganalytics/cdn3p:1.0.61
nzir6zk9u7zh paw_registry_pull-glass global 0/0 127.0.0.1:5000/planninganalytics/glass:1.0.354
qsjg2wgqmshs paw_registry_pull-neo-idviz global 0/0 127.0.0.1:5000/planninganalytics/neo-idviz:1.0.77
xhtys6ls0brj paw_registry_pull-neo-provision global 0/0 127.0.0.1:5000/planninganalytics/neo-idviz:1.0.77
v9zbjr0kxj6m paw_registry_pull-pa-gateway global 0/0 127.0.0.1:5000/planninganalytics/pa-gateway:1.0.381
mzzxjn82s3bs paw_registry_pull-prism-app global 0/0 127.0.0.1:5000/planninganalytics/prism-app:1.0.3306
1mdsh7g54wg3 paw_registry_pull-prism-platform global 0/0 127.0.0.1:5000/planninganalytics/prism-platform:1.0.906
z11vp9a0nc7k paw_registry_pull-prism-proxy global 0/0 127.0.0.1:5000/planninganalytics/prism-proxy:1.0.4141
jemy3guvdorj paw_registry_pull-share-app global 0/0 127.0.0.1:5000/planninganalytics/share-app:1.0.35
qei8yqmptedo paw_registry_pull-share-platform global 0/0 127.0.0.1:5000/planninganalytics/share-platform:1.0.57
s3wveoiy295p paw_registry_pull-share-proxy global 0/0 127.0.0.1:5000/planninganalytics/share-proxy:1.0.125
zgg7mis4parx paw_registry_pull-social global 0/0 127.0.0.1:5000/planninganalytics/social:1.0.55
r09rxi8bn4b3 paw_registry_pull-user-admin global 0/0 127.0.0.1:5000/planninganalytics/user-admin:1.0.134
ao8ukdtf3yjl paw_registry_pull-wa-proxy global 0/0 127.0.0.1:5000/planninganalytics/wa-proxy:1.0.247
jevkvupts6y9 paw_registry_pull-welcome global 0/0 127.0.0.1:5000/planninganalytics/welcome:1.0.190
jxvu5tgy657x paw_registry_registry replicated 1/1 registry:2
j77qaa7rvg0s paw_sentinel1 replicated 1/1 127.0.0.1:5000/planninganalytics/redis:1.0.8
xznbr8eebcod paw_sentinel2 replicated 1/1 127.0.0.1:5000/planninganalytics/redis:1.0.8
g22iypgmyl73 paw_sentinel3 replicated 1/1 127.0.0.1:5000/planninganalytics/redis:1.0.8
wcp1wlulejwq paw_share-app replicated 0/1 127.0.0.1:5000/planninganalytics/share-app:1.0.35
o95ph80mq7em paw_share-platform replicated 1/1 127.0.0.1:5000/planninganalytics/share-platform:1.0.57
oudoirsd4sgc paw_share-proxy replicated 1/1 127.0.0.1:5000/planninganalytics/share-proxy:1.0.125
7rupudg152mr paw_social replicated 1/1 127.0.0.1:5000/planninganalytics/social:1.0.55
xwvk6v7p0gzt paw_user-admin replicated 1/1 127.0.0.1:5000/planninganalytics/user-admin:1.0.134
4kvp4780hmou paw_wa-proxy replicated 1/1 127.0.0.1:5000/planninganalytics/wa-proxy:1.0.247
wp7ty7ibb6s5 paw_welcome replicated 1/1 127.0.0.1:5000/planninganalytics/welcome:1.0.190
root@no:~/paw#
9.30.0.128
Apps
Bookmarks
E2E PAW
PA
IBM WebEx
Win2012 PAW Local
Box
Welcome
Admin
IBM Planning Analytics
Search
Shared
Personal
Users
Shared
No tiles.
New folder

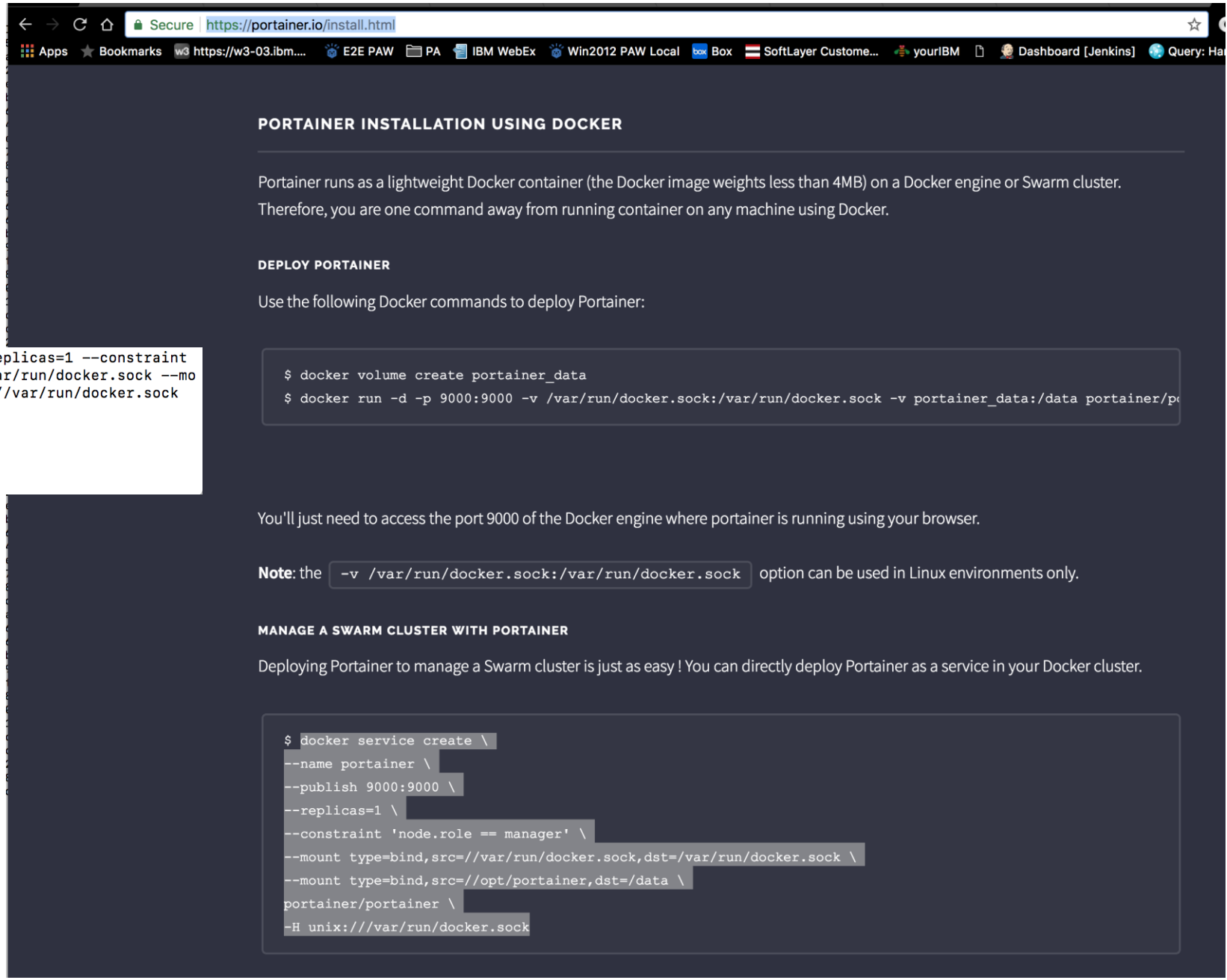
$docker service ls $docker secret ls @docker network ls

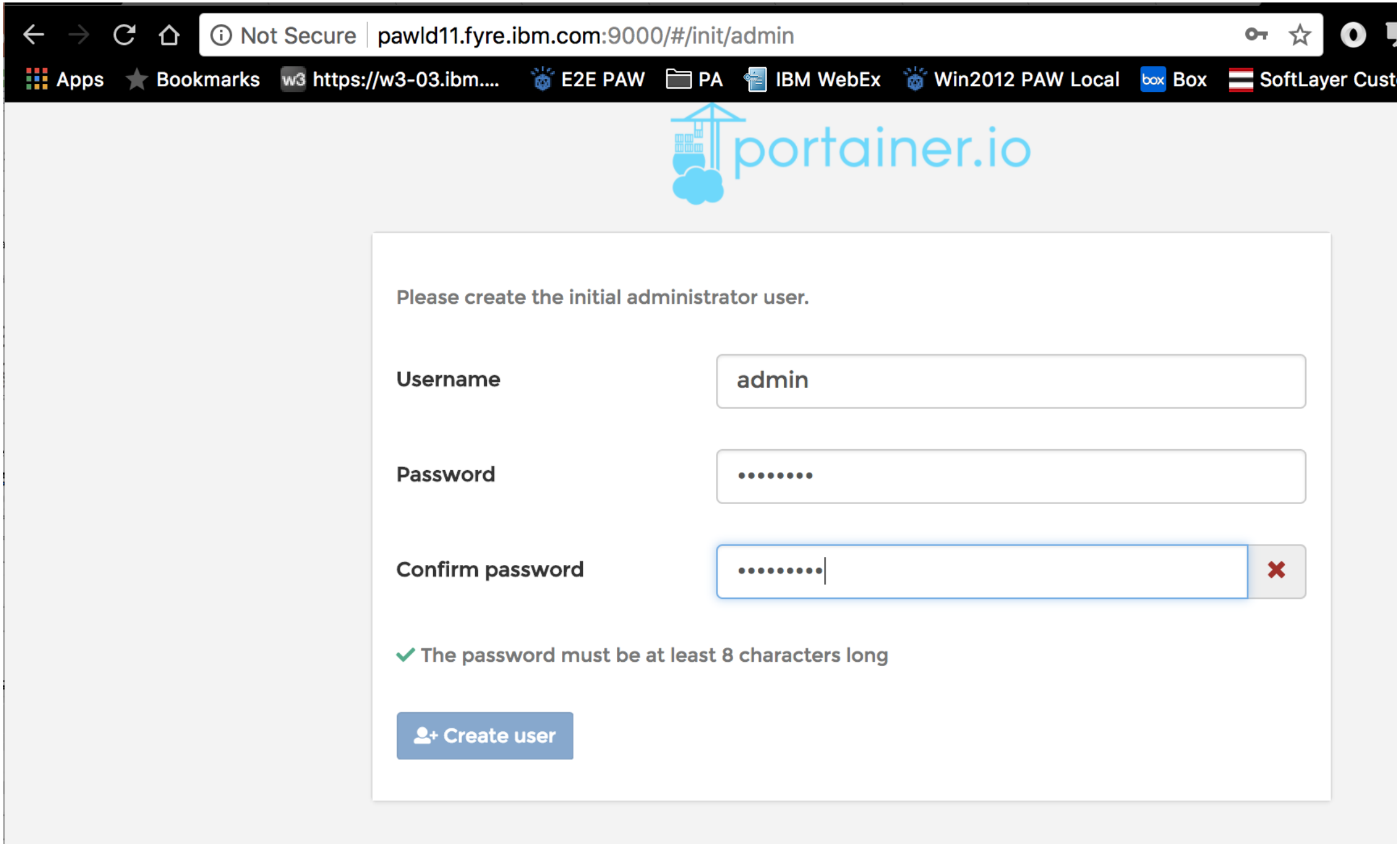


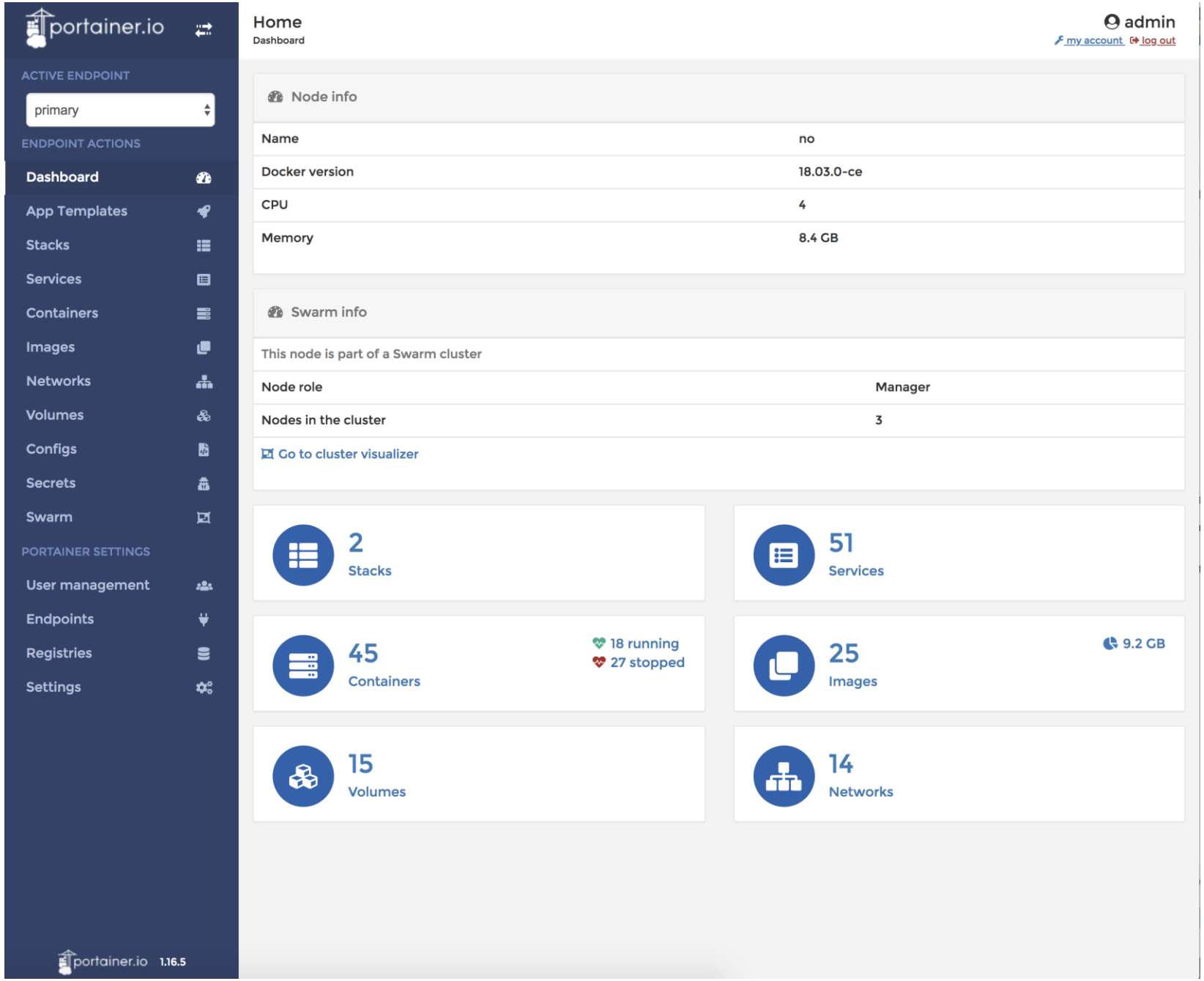
Google portainer install

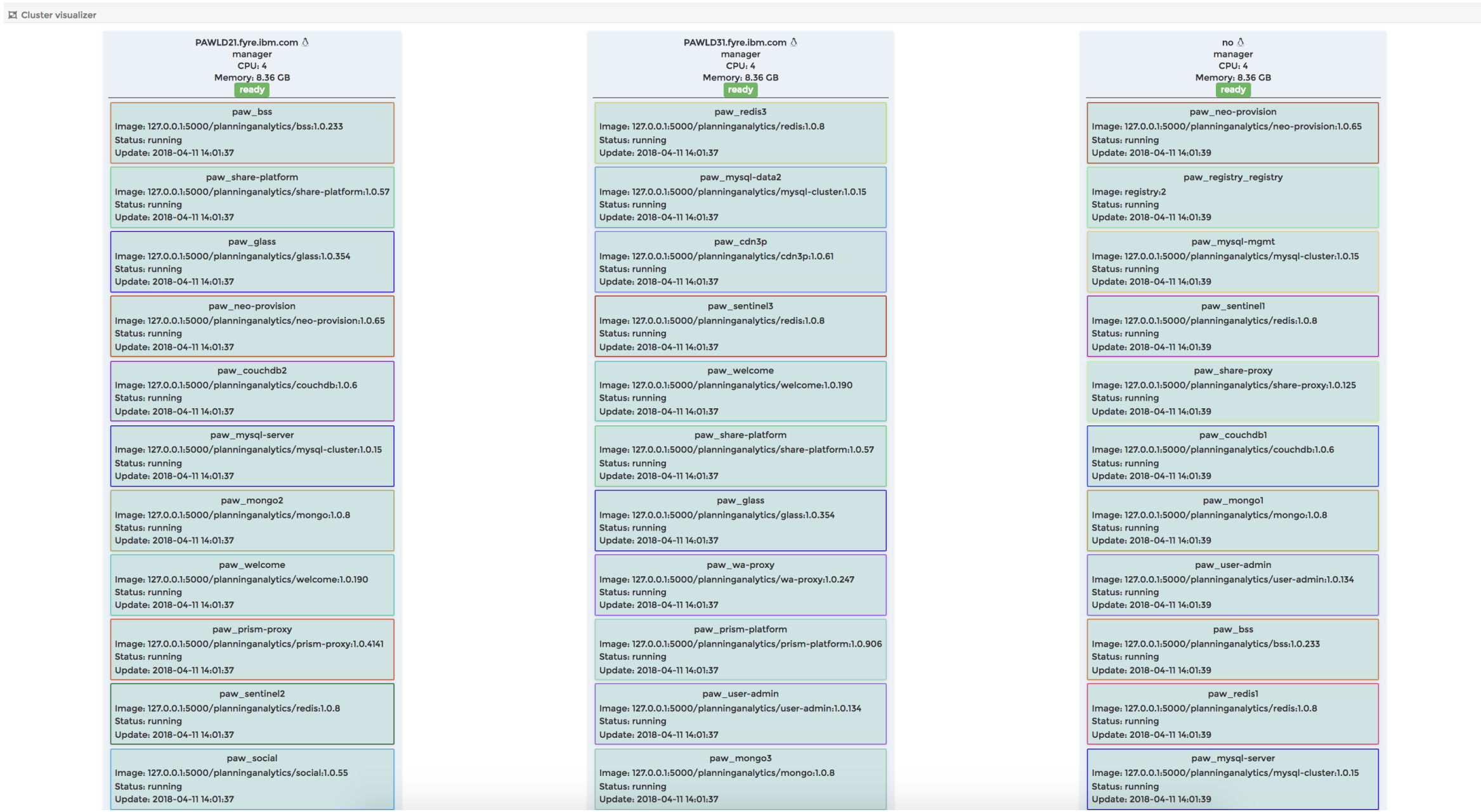



```
root@no:~# docker service create --name portainer --publish 9000:9000 --replicas=1 --constraint
'node.role == manager' --mount type=bind,src=//var/run/docker.sock,dst=/var/run/docker.sock --mo
unt type=bind,src=//opt/portainer,dst=/data portainer/portainer -H unix:///var/run/docker.sock
ncyg63vldai2ci3b9qzh83twt
overall progress: 1 out of 1 tasks
1/1: running   [==================================================>]
verify: Service converged
root@no:~#
```




Not Secure
pawld11.fyre.ibm.com:9000/#/init/admin
Apps
Bookmarks
https://w3-03.ibm....
E2E PAW
PA
IBM WebEx
Win2012 PAW Local
Box
SoftLayer Cust
portainer.io
Please create the initial administrator user.
Username
admin
Password
Confirm password
The password must be at least 8 characters long
Create user


portainer.io
ACTIVE ENDPOINT
primary
ENDPOINT ACTIONS
Dashboard
App Templates
Stacks
Services
Containers
Images
Networks
Volumes
Configs
Secrets
Swarm
PORTAINER SETTINGS
User management
Endpoints
Registries
Settings
portainer.io 1.16.5
Home
Dashboard
admin
my account
log out
Node info
Name
no
Docker version
18.03.0-ce
CPU
4
Memory
8.4 GB
Swarm info
This node is part of a Swarm cluster
Node role
Manager
Nodes in the cluster
3
Go to cluster visualizer
2
Stacks
51
Services
45
Containers
18 running
27 stopped
25
Images
9.2 GB
15
Volumes
14
Networks


Cluster visualizer
PAWLD21.fyre.ibm.com
manager
CPU: 4
Memory: 8.36 GB
ready
paw_bss
Image: 127.0.0.1:5000/planninganalytics/bss:1.0.233
Status: running
Update: 2018-04-11 14:01:37
paw_share-platform
Image: 127.0.0.1:5000/planninganalytics/share-platform:1.0.57
Status: running
Update: 2018-04-11 14:01:37
paw_glass
Image: 127.0.0.1:5000/planninganalytics/glass:1.0.354
Status: running
Update: 2018-04-11 14:01:37
paw_neo-provision
Image: 127.0.0.1:5000/planninganalytics/neo-provision:1.0.65
Status: running
Update: 2018-04-11 14:01:37
paw_couchdb2
Image: 127.0.0.1:5000/planninganalytics/couchdb:1.0.6
Status: running
Update: 2018-04-11 14:01:37
paw_mysql-server
Image: 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15
Status: running
Update: 2018-04-11 14:01:37
paw_mongo2
Image: 127.0.0.1:5000/planninganalytics/mongo:1.0.8
Status: running
Update: 2018-04-11 14:01:37
paw_welcome
Image: 127.0.0.1:5000/planninganalytics/welcome:1.0.190
Status: running
Update: 2018-04-11 14:01:37
paw_prism-proxy
Image: 127.0.0.1:5000/planninganalytics/prism-proxy:1.0.4141
Status: running
Update: 2018-04-11 14:01:37
paw_sentinel2
Image: 127.0.0.1:5000/planninganalytics/redis:1.0.8
Status: running
Update: 2018-04-11 14:01:37
paw_social
Image: 127.0.0.1:5000/planninganalytics/social:1.0.55
Status: running
Update: 2018-04-11 14:01:37
PAWLD31.fyre.ibm.com
manager
CPU: 4
Memory: 8.36 GB
ready
paw_redis3
Image: 127.0.0.1:5000/planninganalytics/redis:1.0.8
Status: running
Update: 2018-04-11 14:01:37
paw_mysql-data2
Image: 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15
Status: running
Update: 2018-04-11 14:01:37
paw_cdn3p
Image: 127.0.0.1:5000/planninganalytics/cdn3p:1.0.61
Status: running
Update: 2018-04-11 14:01:37
paw_sentinel3
Image: 127.0.0.1:5000/planninganalytics/redis:1.0.8
Status: running
Update: 2018-04-11 14:01:37
paw_welcome
Image: 127.0.0.1:5000/planninganalytics/welcome:1.0.190
Status: running
Update: 2018-04-11 14:01:37
paw_share-platform
Image: 127.0.0.1:5000/planninganalytics/share-platform:1.0.57
Status: running
Update: 2018-04-11 14:01:37
paw_glass
Image: 127.0.0.1:5000/planninganalytics/glass:1.0.354
Status: running
Update: 2018-04-11 14:01:37
paw_wa-proxy
Image: 127.0.0.1:5000/planninganalytics/wa-proxy:1.0.247
Status: running
Update: 2018-04-11 14:01:37
paw_prism-platform
Image: 127.0.0.1:5000/planninganalytics/prism-platform:1.0.906
Status: running
Update: 2018-04-11 14:01:37
paw_user-admin
Image: 127.0.0.1:5000/planninganalytics/user-admin:1.0.134
Status: running
Update: 2018-04-11 14:01:37
paw_mongo3
Image: 127.0.0.1:5000/planninganalytics/mongo:1.0.8
Status: running
Update: 2018-04-11 14:01:37
no
manager
CPU: 4
Memory: 8.36 GB
ready
paw_neo-provision
Image: 127.0.0.1:5000/planninganalytics/neo-provision:1.0.65
Status: running
Update: 2018-04-11 14:01:39
paw_registry_registry
Image: registry:2
Status: running
Update: 2018-04-11 14:01:39
paw_mysql-mgmt
Image: 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15
Status: running
Update: 2018-04-11 14:01:39
paw_sentinel1
Image: 127.0.0.1:5000/planninganalytics/redis:1.0.8
Status: running
Update: 2018-04-11 14:01:39
paw_share-proxy
Image: 127.0.0.1:5000/planninganalytics/share-proxy:1.0.125
Status: running
Update: 2018-04-11 14:01:39
paw_couchdb1
Image: 127.0.0.1:5000/planninganalytics/couchdb:1.0.6
Status: running
Update: 2018-04-11 14:01:39
paw_mongo1
Image: 127.0.0.1:5000/planninganalytics/mongo:1.0.8
Status: running
Update: 2018-04-11 14:01:39
paw_user-admin
Image: 127.0.0.1:5000/planninganalytics/user-admin:1.0.134
Status: running
Update: 2018-04-11 14:01:39
paw_bss
Image: 127.0.0.1:5000/planninganalytics/bss:1.0.233
Status: running
Update: 2018-04-11 14:01:39
paw_redis1
Image: 127.0.0.1:5000/planninganalytics/redis:1.0.8
Status: running
Update: 2018-04-11 14:01:39
paw_mysql-server
Image: 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15
Status: running
Update: 2018-04-11 14:01:39

Cluster overview

Swarm

admin

my account | log out

Cluster status

Nodes	3
Docker API version	1.37
Total CPU	12
Total memory	25.09 GB

Go to cluster visualizer

Nodes

Search

Name	Role	CPU	Memory	Engine	IP Address	Status
no	manager	4	8.4 GB	18.03.0-ce	172.16.209.217	ready
PAWLD21.fyre.ibm.com	manager	4	8.4 GB	18.03.0-ce	172.16.212.171	ready
PAWLD31.fyre.ibm.com	manager	4	8.4 GB	18.03.0-ce	0.0.0.0	ready

Items per page 10

Secrets list

Secrets

admin

my account log out

Secrets

Search

Remove + Add secret

Name	Creation Date	Ownership
pa_couchdb_admin_pwd	2018-04-11 12:48:29	public
pa_couchdb_pauser_pwd	2018-04-11 12:48:29	public
pa_gateway_pem	2018-04-11 12:48:29	public
pa_mongo_keyfile	2018-04-11 12:48:30	public
pa_mongo_paw	2018-04-11 12:48:30	public
pa_mongo_root	2018-04-11 12:48:30	public
pa_mysql_pauser_pwd	2018-04-11 12:48:31	public
pa_mysql_root_pwd	2018-04-11 12:48:30	public
pa_paw_cookie_secret_key	2018-04-11 12:48:31	public
pa_paw_credential_store_key	2018-04-11 12:48:31	public
pa_redis_pwd	2018-04-11 12:48:31	public

Items per page 50

Network list
Networks

admin
my account log out

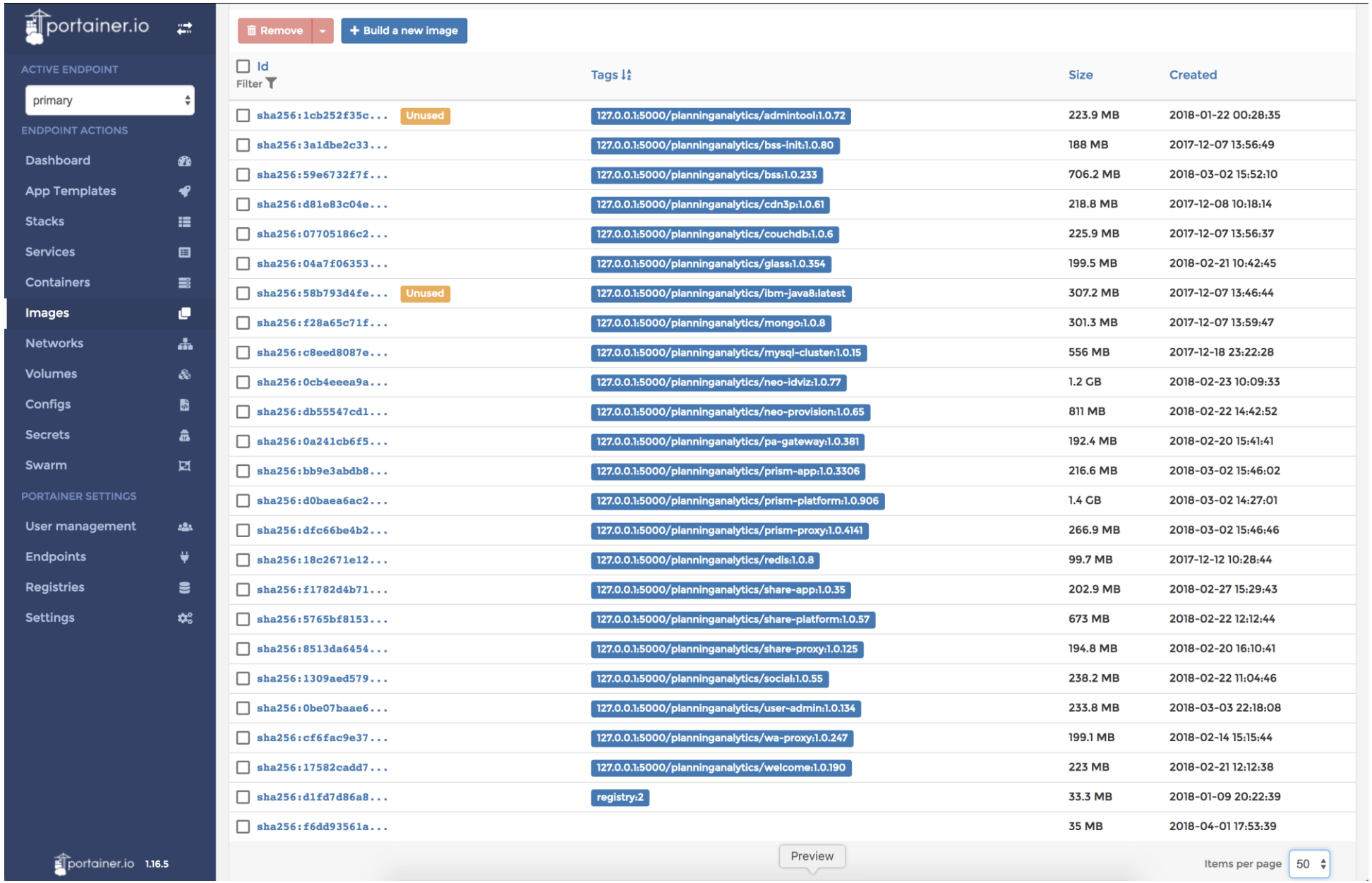
Networks

Search

Remove + Add network

Name	Stack	Scope	Driver	IPAM Driver	IPAM Subnet	IPAM Gateway	Ownership
bridge	-	local	bridge	default	172.17.0.0/16	-	public
docker_gwbridge	-	local	bridge	default	172.18.0.0/16	172.18.0.1	public
host	-	local	host	default	-	-	public
ingress	-	swarm	overlay		10.255.0.0/16	10.255.0.1	public
none	-	local	null	default	-	-	public
paw_admintool	-	local	bridge	default	172.19.0.0/16	172.19.0.1	public
paw_app	paw	swarm	overlay		-	-	public
paw_couchdb	paw	swarm	overlay		-	-	public
paw_mongo	paw	swarm	overlay		-	-	public
paw_mysql	paw	swarm	overlay		-	-	public
paw_mysql_ndb	paw	swarm	overlay		-	-	public
paw_redis	paw	swarm	overlay		-	-	public
paw_registry_default	paw_registry	swarm	overlay		-	-	public
paw_web	paw	swarm	overlay		-	-	public

Items per page 25


portainer.io
ACTIVE ENDPOINT
primary
ENDPOINT ACTIONS
Dashboard
App Templates
Stacks
Services
Containers
Images
Networks
Volumes
Configs
Secrets
Swarm
PORTAINER SETTINGS
User management
Endpoints
Registries
Settings
portainer.io 1.16.5
Remove
+ Build a new image
Id
Filter
Tags
Size
Created
sha256:1cb252f35c... Unused 127.0.0.1:5000/planninganalytics/admintool:1.0.72 223.9 MB 2018-01-22 00:28:35
sha256:3a1dbe2c33... 127.0.0.1:5000/planninganalytics/bss-init:1.0.80 188 MB 2017-12-07 13:56:49
sha256:59e6732f7f... 127.0.0.1:5000/planninganalytics/bss:1.0.233 706.2 MB 2018-03-02 15:52:10
sha256:d81e83c04e... 127.0.0.1:5000/planninganalytics/cdn3p:1.0.61 218.8 MB 2017-12-08 10:18:14
sha256:07705186c2... 127.0.0.1:5000/planninganalytics/couchdb:1.0.6 225.9 MB 2017-12-07 13:56:37
sha256:04a7f06353... 127.0.0.1:5000/planninganalytics/glass:1.0.354 199.5 MB 2018-02-21 10:42:45
sha256:58b793d4fe... Unused 127.0.0.1:5000/planninganalytics/ibm-java8:latest 307.2 MB 2017-12-07 13:46:44
sha256:f28a65c71f... 127.0.0.1:5000/planninganalytics/mongo:1.0.8 301.3 MB 2017-12-07 13:59:47
sha256:c8eed8087e... 127.0.0.1:5000/planninganalytics/mysql-cluster:1.0.15 556 MB 2017-12-18 23:22:28
sha256:0cb4eeea9a... 127.0.0.1:5000/planninganalytics/neo-idviz:1.0.77 1.2 GB 2018-02-23 10:09:33
sha256:db55547cd1... 127.0.0.1:5000/planninganalytics/neo-provision:1.0.65 811 MB 2018-02-22 14:42:52
sha256:0a241cb6f5... 127.0.0.1:5000/planninganalytics/pa-gateway:1.0.381 192.4 MB 2018-02-20 15:41:41
sha256:bb9e3abdb8... 127.0.0.1:5000/planninganalytics/prism-app:1.0.3306 216.6 MB 2018-03-02 15:46:02
sha256:d0baea6ac2... 127.0.0.1:5000/planninganalytics/prism-platform:1.0.906 1.4 GB 2018-03-02 14:27:01
sha256:dfc66be4b2... 127.0.0.1:5000/planninganalytics/prism-proxy:1.0.4141 266.9 MB 2018-03-02 15:46:46
sha256:18c2671e12... 127.0.0.1:5000/planninganalytics/redis:1.0.8 99.7 MB 2017-12-12 10:28:44
sha256:f1782d4b71... 127.0.0.1:5000/planninganalytics/share-app:1.0.35 202.9 MB 2018-02-27 15:29:43
sha256:5765bf8153... 127.0.0.1:5000/planninganalytics/share-platform:1.0.57 673 MB 2018-02-22 12:12:44
sha256:8513da6454... 127.0.0.1:5000/planninganalytics/share-proxy:1.0.125 194.8 MB 2018-02-20 16:10:41
sha256:1309aed579... 127.0.0.1:5000/planninganalytics/social:1.0.55 238.2 MB 2018-02-22 11:04:46
sha256:0be07baae6... 127.0.0.1:5000/planninganalytics/user-admin:1.0.134 233.8 MB 2018-03-03 22:18:08
sha256:cf6fac9e37... 127.0.0.1:5000/planninganalytics/wa-proxy:1.0.247 199.1 MB 2018-02-14 15:15:44
sha256:17582cadd7... 127.0.0.1:5000/planninganalytics/welcome:1.0.190 223 MB 2018-02-21 12:12:38
sha256:d1fd7d86a8... registry:2 33.3 MB 2018-01-09 20:22:39
sha256:f6dd93561a... 35 MB 2018-04-01 17:53:39
Preview
Items per page 50

IBM Planning Analytics Workspace Local Databases

Databases

PAW uses several different databases to store assets. Each database is automatically configured for replication.

Redis

Redis is an in-memory key/value store used by PAW to persist user settings, favorites and bookmarks. Redis Sentinel instances elect a master from amongst the three Redis instances. Sentinels monitor the health of the Redis servers and promote one to master in event of failure.

MongoDB

MongoDB is a document-oriented database. Assets such as PAW books, views, and Web sheets are stored here. PAW deploys a three-member replica set to survive most system failures.

CouchDB

CouchDB is a highly available document-centric database used to store user chats. PAW configures only two nodes. Because CouchDB supports master-master replication, this is sufficient to tolerate single node failure.

MySQL

MySQL relational database is used to store accounts, tenants, users, roles, capabilities, etc. MySQL is configured to use the NDB Cluster storage back end. This is a high-availability, high-redundancy version of MySQL.

IBM Planning Analytics Workspace Local Micro Services

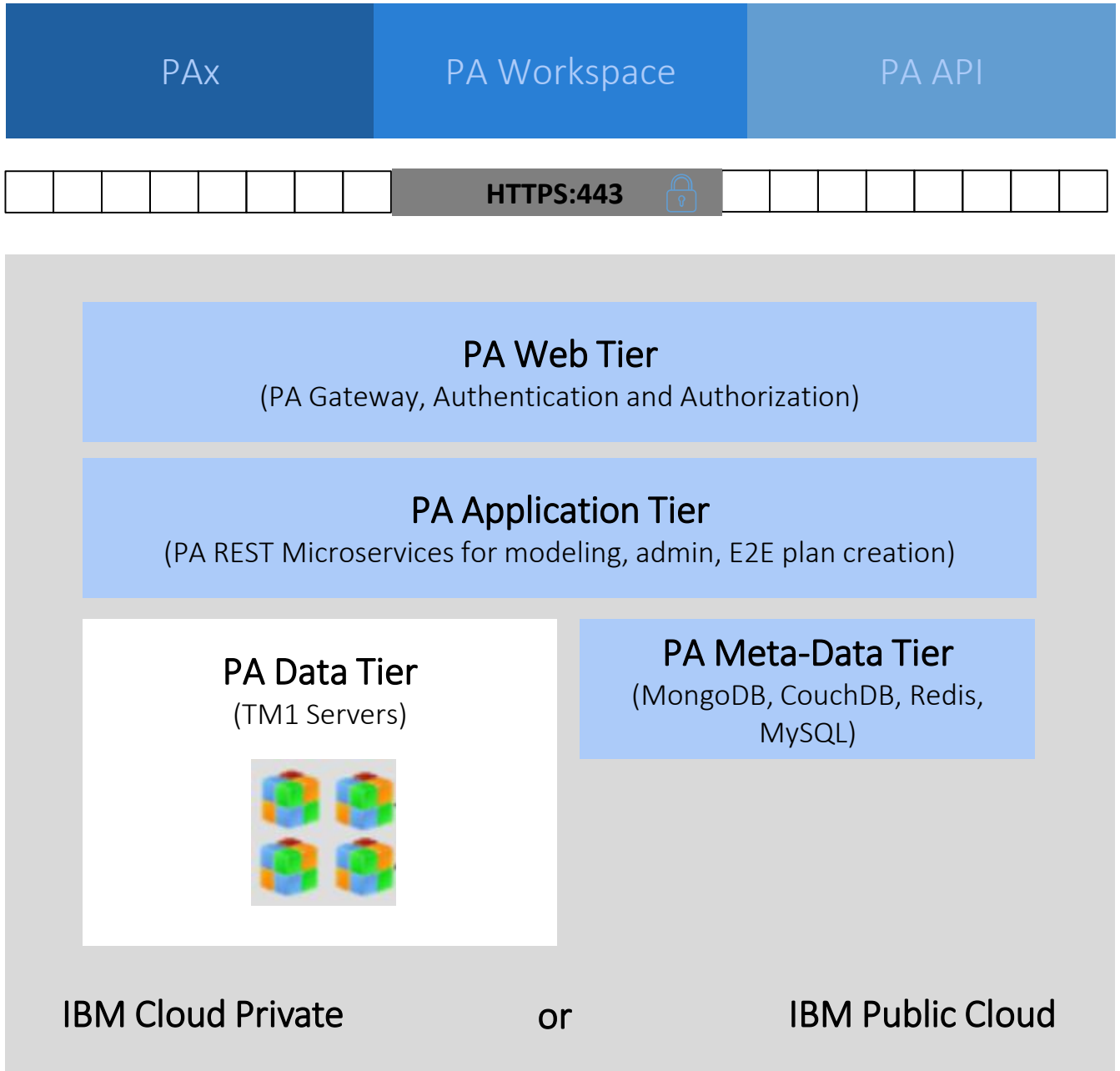
Service name	Description
paw_bss	**Manages accounts, tenants, users, groups, roles, capabilities**
paw_bss-init	Provides initial configuration of BSS
paw_cdn3p	Apache proxy serves up static files to browser clients
paw_couchdb1/2	Instances of CouchDB replicated database
paw_glass	Manages components in the PAW UX
paw_mongo1/2/3	Instances of MongoDB replicated database
paw_mysql-data1/2	Instances of MySQL NDB Cluster Data Nodes
paw_mysql-mgmt	MySQL NDB Cluster Management Server
paw_mysql-server	MySQL Server instances
paw_neo-idviz	PAW Content Store to store books, views, etc.
paw_neo-provision	PAW Content Store configuration agent
paw_pa-gateway	Main Apache gateway into PAW
paw_pa-login	Authentication service
paw_prism-app	**Dashboard service**
paw_prism-platform	**Query engine, Contribution, Analysis, Modelling and ancillary services**
paw_prism-proxy	Apache proxy in front of paw_prism-app and paw_prism-platform
paw_redis1/2/3	Instances of Redis replicated database
paw_sentinel1/2/3	Instances of Redis sentinels to manage fail-over
paw_share-app	Share UX service
paw_share-platform	Share core service
paw_share-proxy	Apache proxy in front of paw_share-app and paw_share-platform
paw_social	Chat service
paw_user-admin	**Administration service**
paw_wa-proxy	PAW proxy
paw_welcome	Welcome page service

IBM Planning Analytics Architecture Roadmap

Secure, Scalable, Highly Available PA System with:

- Non-disruptive operations
- Automated Rollouts and Rollbacks
- Elastic horizontal scaling
- Self-healing
- Service discovery & load balancing
- Secret and configuration mgt
- Intelligent scheduling

PA with ICP is game changing! bringing cloud operation efficiency and reliability to your data center.



Thank You

IBM **Planning** Analytics