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Maas deployment system configuration



Owned by Paul Wilson ...

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Metal As A Service (MAAS) Deployment configuration

MAAS is a bare-metal deployment system that allows JUJU to deploy .yaml markup files to bare-metal spinning up clouds and software in clouds through automation instead of manual configuration. MAAS is also a bare-metal configuration and enrollment system. you can perform tests, burn-in, and verification of hardware resources pre-deployment.

Prepping for MAAS

You will need to generate and save SSH keys for MAAS. these will be used not just to access MAAS but additionally to access deployed hosts from MAAS.

Requirements for the production environment are as follows:

System	Memory	CPU (GHZ)	Disk (GB)
Region controller (minus PostgreSQL)	2048	2.0	5
PostgreSQL	2048	2.0	20
Rack controller	2048	2.0	20

So, based on the above, the approximate requirements for this scenario are:

1. A region controller (including PostgreSQL) installed on one host, with 4.5 GB memory, 4.5 GHz CPU, and 45 GB of disk space.
2. A duplicate region controller (including PostgreSQL) on a second host, also with 4.5 GB memory, 4.5 GHz CPU, and 45 GB of disk space.
3. A rack controller installed on a third host, with 2.5 GB memory, 2.5 GHz CPU, and 40 GB of disk space.
4. A duplicate rack controller on a fourth host, also with 2.5 GB memory, 2.5 GHz CPU, and 40 GB of disk space.

Network configuration

Setup MAAS with bonded links, this way you can connect it to many different VLANs that it will need to access for PXE and deployments of OpenStack.

First, install ifupdown

```
1 sudo apt -y install ifupdown
```

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then modify the /etc/network/interfaces file to allow bonds and the bond connections

Interfaces Example:

```
1 # interfaces(5) file used by ifup(8) and ifdown(8)
2 # Include files from /etc/network/interfaces.d:
3 #source-directory /etc/network/interfaces.d
4
5 #network bond
6 auto bond0
7 iface bond0 inet manual
8 bond-slaves none
9 bond-mode 6
10 bond-miimon 200
11 up ip link set dev $IFACE up
```

```
12  down ip link set dev $IFACE down
13
14  #bond1
15  auto %INTERFACE0%
16  iface %INTERFACE0% inet manual
17  bond-master bond0
18  bond-primary eno1
19
20  #bond2
21  auto %INTERFACE1%
22  iface %INTERFACE1% inet manual
23  bond-master bond0
24
25  #Add any additional interfaces to the bond above
26
27  #vlan 5 maint
28  #Subnet 5.0.5.0/24
29  auto bond0.12
30  iface bond0.12 inet manual
31  up ip link set dev $IFACE up
32  down ip link set dev $IFACE down
33
34  #vlan 6 PXE
35  #Subnet 10.0.6.0/24
36  auto bond0.6
37  iface bond0.6 inet static
38  address %STATIC-IP%
39  netmask 255.255.255.0
40  gateway 10.0.6.1
41  dns-nameservers 8.8.8.8 %SELF%
42
43  #vlan 7 MGMT
44  #Subnet 10.0.7.0/24
45  auto bond0.7
46  iface bond0.7 inet manual
47  up ip link set dev $IFACE up
48  down ip link set dev $IFACE down
49
50  #vlan 8 Prov
51  #Subnet 10.0.8.0/24
```

```
52 auto bond0.8
53 iface bond0.8 inet manual
54 up ip link set dev $IFACE up
55 down ip link set dev $IFACE down
```

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then configure Ifenslave:

```
1 sudo apt install ifenslave
2 sudo modprobe bonding
```

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add bonding to etc/modules

```
1 sudo nano /etc/modules
2 Append "bonding"
```

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Enable Ifupdown and /etc/network/interfaces config

```
1 sudo ifdown --force eno1 lo && ifup -a
2 sudo systemctl unmask networking
3 sudo systemctl enable networking
4 sudo systemctl restart networking
```

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Remove [Netplan.io](https://netplan.io)

```
1 sudo apt -y purge netplan.io
```

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Configure DNS in resolved.conf

```
1 sudo nano /etc/systemd/resolved.conf
```

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Add the DNS search zone and DNS servers

```
1 DNS=%STATIC-IP% 8.8.8.8 (if you want for google)
```

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Setup Postgres

Postgres clustering is simplified in Juju deployment, for this model we will install Postgres on MAAS initially and convert it to HA Postgres after the JUJU controllers are bootstrapped.

Initial installation of Postgres:

```
1 sudo apt update -y
2 sudo apt install -y postgresql
```

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Make the Postgres user:

```
1 sudo -u postgres psql -c "CREATE USER \"\$MAAS_DBUSER\" WITH ENCRYPT
```



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Create the DB:

```
1 sudo -u postgres createdb -O \"\$MAAS_DBUSER\" \"\$MAAS_DBNAME\"
```

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you will need to edit the config file located at: /etc/postgresql/10/main/pg_hba.conf

Add the following:

```
1 host    $MAAS_DBNAME    $MAAS_DBUSER    0/0    md5
```

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Terminology

Region: Used to create a new region controller

Rack: Used to locate the region controller

Installing MAAS

Check for the proper version of MAAS this is important when rolling another MAAS server later for HA cluster Redundancy

check available versions:

```
1 sudo snap info maas
```

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Once you determine the required version change the version number in the below command to the one you want. or leave the --channel part off to install latest.

Install MAAS with required version:

```
1 sudo snap install --channel=3.1/stable maas
```

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Setting up MAAS after MAAS and Postgre and configured:

```
1 sudo maas init region+rack --database-uri "postgres://$MAAS_DBUSER:
```




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MAAS will give a URL for access:

```
1 http://${API_HOST}:5240/MAAS
```

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Follow the instructions to configure MAAS on the initial login

A screenshot of the MAAS web UI login form. The form is titled "Login" in a large, bold, black font. Below the title, there are two input fields. The first is labeled "Username *" in a smaller black font, with a red asterisk indicating it is required. The second is labeled "Password *" in a smaller black font, also with a red asterisk. Both fields are empty text boxes. Below the password field is a green rectangular button with the word "Login" in white text.

Log in at the prompts, with the login information you created when initializing MAAS.


Configuration

After a fresh MAAS installation, the web UI presents a couple of welcome screens. From these screens, you can set many system-wide options, including connectivity, image downloads, and authentication keys.

 **Welcome to MAAS**

Region name

maas-2-7-apt-temp

 **Connectivity**

DNS forwarder

e.g: 8.8.8.8 8.8.4.4

A space-separated list of upstream DNS servers to which MAAS should forward requests for domains not managed by MAAS directly.

Ubuntu archive


http://archive.ubuntu.com/ubuntu

The server where machines retrieve packages for Intel architectures.

Ubuntu extra architectures


http://ports.ubuntu.com/ubuntu-ports

Your main concerns for this experiment are the DNS forwarder, the Ubuntu image import section, and the SSH public key, though you might want to set the region name to something memorable since this text will appear at the bottom of every MAAS screen in this install domain. Set the DNS forwarder to something obvious, e.g., 8.8.8.8, Google's DNS server. Set this to your own internal DNS server if you know the IP address.

 **Welcome to MAAS**

Region name

Metaphorical General Hospital

 **Connectivity**

DNS forwarder

8.8.8.8

A space-separated list of upstream DNS servers to which MAAS should forward requests for domains not managed by MAAS directly.

Ubuntu archive

http://archive.ubuntu.com/ubuntu

Select an Ubuntu image to import, noting that you may be required to select at least one LTS version, depending upon the version of MAAS that snap installed. In this example, we've already chosen an image, and downloading is partially complete.

Ubuntu

Select images and architecture to be imported and kept in sync daily. Images will be available for deploying to machines managed by MAAS.

Choose source

☒ maas.io
 ☐ Custom

Images

☐ 20.04 LTS
 ☒ 18.04 LTS
 ☐ 16.04 LTS
 ☐ 14.04 LTS
 ☐ 12.04 LTS

☐ 19.10
 ☐ 19.04
 ☐ 18.10
 ☐ 17.10
 ☐ 17.04
 ☐ 16.10

Architectures

☒ amd64
 ☐ arm64
 ☐ armhf

RELEASE	ARCHITECTURE	SIZE	STATUS
<input checked="" type="radio"/> 18.04 LTS	amd64	625.2 MB	Downloading 53%

When you click on "Continue," the screen will shift to a screen labeled, "SSH keys for admin:"

If you want to use your existing public key from your home directory, you can select "Upload" and then copy your entire public key from `.ssh/id_rsa.pub` (or wherever you may have stored the key):

```

stormrider@stormrider-yoga: ~/.ssh
stormrider@stormrider-yoga:~/.ssh$ ls
id_rsa id_rsa.pub id_rsa.pub.o known_hosts
stormrider@stormrider-yoga:~/.ssh$ cat id_rsa.pub
ssh-rsa djgharioer9erhgdbher932jKHgKffaerhgerkghadkghakr89/gbhadfKAAGadAg3KHgjfk
e/KLrFv04mRrcLQIg0ajtmeLC0dnQY/UbPKylCQPPcGyuPrcZTGA0j9kj+Q8a1vzz2+FrN357fy7RSgJ
SzCdx7C4+xmsbKI0k5ZvcvdgY0gheIU7r97bkAHNEaAg48wTDHi+nkTLJk0rHZmnCp4vKx/4JPKjEcfx
0+vRPxRjIn9nzfF95TTAeTB/YZeC9KxU5IBbYBxdh41f2zEzPx5tVnSrbAIWCNGFhUn/CCs3UPB4rK6/
uhd9nIIaslGenlUBYmbZoi3I7Yjae3Jiz1l7sVR131JFaoYc7huEHLb4L52X3xer24JECpLYnw7/Cn/D
rjYYNuEgDnZ/T59AMaVv9DtUri1ZrcHIakTq32ukg1D8sAiaYf0qzCcZ3kjo03jyJBbFE9Sc4rfUheH
80mMd7LksnRshnYJMavrZXDPLMjFERu5gx/yJ88QSBig4xc5U4ZPhg/xEjM9dCf7zg6jswM= stormri
der@stormrider-yoga
stormrider@stormrider-yoga:~/.ssh$

```

and paste it into the block labeled "Public key." Finally, press the "Import" button to import this key:

<https://maplewoodsoftware.atlassian.net/wiki/spaces/IT/pages/36012037/Maas+deployment+system+configuration>

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SSH keys for admin

Add multiple keys from Launchpad and Github or enter them manually.

Keys

Source

Upload

Public key

ssh-rsa

digharioer9erhgdbher932iKHgKffa

erhgerkghadkghakr89/gbhadfkAAG

adAg3KHgjfke/KLrFv04mRrcIQlgOa

itmELC0dnQY/UbPKylCOPPCGvuPrc


ZTGA0j9ki+Q8a1vzz2+FrN357fy7RS

gJSzCdx7C4+xmsbKIOk5ZvcvdgY0

Import

With this complete, you'll see that MAAS has been successfully set up. Click 'Go to the Dashboard' to proceed.

+ Add label

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