# CentOS 7 – MEAN Stack

| Version: | 1.0.0 |
|----------|-------|
| Created by: | cloudimg |

## Table of Contents

## 1.) Overview

This document is provided as a user guide for the CentOS 7 – MEAN Stack product offering on the Azure Marketplace. Please reach out to support@cloudimg.co.uk if any issues are encountered following this user guide for the chosen product offering.

## 2.) Access & Security

Please update the security group of the target instance to allow the below ports and protocols for access and connectivity.

| Protocol | Type | Port | Description |
|---|---|---|---|
| SSH | TCP | 22 | SSH connectivity |
| Custom TCP | TCP | 27017 | Default MongoDB database port for remote connectivity |
| Custom TCP | TCP | 3000 | Express sample application front end |
| Custom TCP | TCP | 8088 | Angular sample application front end |

## 3.) System Requirements

The minimum system requirements for the chosen product offering can be found below

| Minimum CPU | Minimum RAM | Required Disk Space |
|---|---|---|
| 1 | 1 GB | 20 GB |

## 4.) Connecting to the Instance

Once launched in the Azure Virtual Machines Service, please connect to the instance via an SSH client using the **azureuser** with the key pair associated at launch. Once connected as the **azureuser**, you will be able to **sudo** to the **root** user by issuing the below command.

Switch to the root user

```
sudo su -
```

## 5.) On Startup

An OS package update script has been configured to run on boot to ensure the image is fully up to date at first use. You can disable this feature by removing the script from /stage/scripts/ and deleting the entry in crontab for the root user.

Disable the OS update script from running on reboot

```
rm -f /stage/scripts/initial_boot_update.sh
```

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```
crontab -e

#DELETE THE BELOW LINE. SAVE AND EXIT THE FILE.
@reboot /stage/scripts/initial_boot_update.sh
```

## 6.) Filesystem Configuration

Please see below for a screenshot of the server disk configuration and specific mount point mappings for software locations.

```
Filesystem        Size  Used Avail Use% Mounted on
devtmpfs          971M     0  971M   0% /dev
tmpfs             981M     0  981M   0% /dev/shm
tmpfs             981M  8.5M  972M   1% /run
tmpfs             981M     0  981M   0% /sys/fs/cgroup
/dev/nvme0n1p2     38G  3.3G   33G  10% /
/dev/nvme1n1      9.8G  337M  8.9G   4% /var/lib/mongo
/dev/nvme0n1p1    2.0G   93M  1.8G   6% /boot
tmpfs             197M     0  197M   0% /run/user/1002
/dev/nvme2n1      9.8G  508M  8.8G   6% /apps
```

| Mount Point | Description |
|---|---|
| /boot | Operating System Kernel files |
| /var/lib/mongo | MongoDB data directory |
| /apps | Installation directory for sample Express & Angular application |

## 7.) Server Components

Please see below for a list of installed server components and their respective installation paths. The below versions are subject to change on initial boot based on the initial_boot_update.sh script finding new versions of the software in the systems package repositories.

| Component | Version | Software Home |
|---|---|---|
| Cloud-Init | 22.1 | /etc/cloud |

| | | |
|---|---|---|
| Mongo DB 5 Community | 5.0.9 | /var/lib/mongo |
| Express | 4.16.1 | /apps/app |
| NodeJS | 16.18.0 | /bin/node |
| AngularJS | 14.2.6 | /apps/angular-app |
| Azure CLI | 2.53.1 | /lib64/az |

## 8.) Scripts and Log Files

The below table provides a breakdown of any scripts & log files created to enhance the useability of the chosen offering.

| Script/Log | Path | Description |
|---|---|---|
| Initial_boot_update.sh | /stage/scripts | Update the Operating System with the latest updates available. |
| Initial_boot_update.log | /stage/scripts | Provides output for initial_boot_update.sh |
| mongo_db_admin_user_password.log | /stage/scripts | MongoDB admin database password file |
| start-angular-app.sh | /stage/scripts | Angular sample application |
| start-express-app.sh | /stage/scripts | Express sample application |
| start-angular-app.log | /stage/scripts | Angular sample application start log file |
| start-express-app.log | /stage/scripts | Express sample application start log file |

## 9.) Using System Components

Instructions can be found below for using each component of the server build mentioned in section 7 of this user guide document.

**Azure CLI**

Using Azure CLI – as any OS user.

```
az
```

**Cloud-Init**

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Edit the /etc/cloud/cloud.cfg file to reflect your desired configuration. A link to the cloud-init official documentation can be found below for referencing best practise for your use case.

https://cloudinit.readthedocs.io/en/latest/

```
vi /etc/cloud/cloud.cfg
```

**MongoDB 5**

The MongoDB Database service has been configured to start on boot, please use the below commands to start, stop and check the status of the service.

```
#Check the MongoDB service is running

service mongod status


#Stop the MongoDB service

service mongod stop


#Start the MongoDB service

service mongod start
```

You can access the mongdb database server as the root user by referring to the instructions in the /stage/scripts/mongo_db_admin_user_password.log file.

```
mongo -u mdbadmin -p


#Enter the randomly generated password found in the
/stage/scripts/mongo_db_admin_user_password.log file
```

**Express**

A sample Express application has been created in the below directory. A cronjob has also been created to start the application on boot. You can remove this functionality by deleting the crontab entry from the **root** user. Please also refer to the .log file shown below to view the startup of the application.

```
# Installation Directory
/apps/app
```

```
#Check Express version
express --version


#Check Crontab entry for the autonomous start of the application on boot.
crontab -e


#Remove the below line to stop the application starting on boot if required.
@reboot /stage/scripts/start-express-app.sh >> /stage/scripts/start-express-app.log
```

On instance boot, you will be able to access the sample Express Application front end by navigating to the below URL exchanging the values between <> with that of your own instance.

<PUBLIC/PRIVATEIP>:3000



**AngularJS**

A sample AngularJS application has been created in the below directory. A cronjob has also been created to start the application on boot. You can remove this functionality by deleting the crontab entry from the **root** user. Please also refer to the .log file shown below to view the startup of the application.

```
# Installation Directory
/apps/angular-app
```

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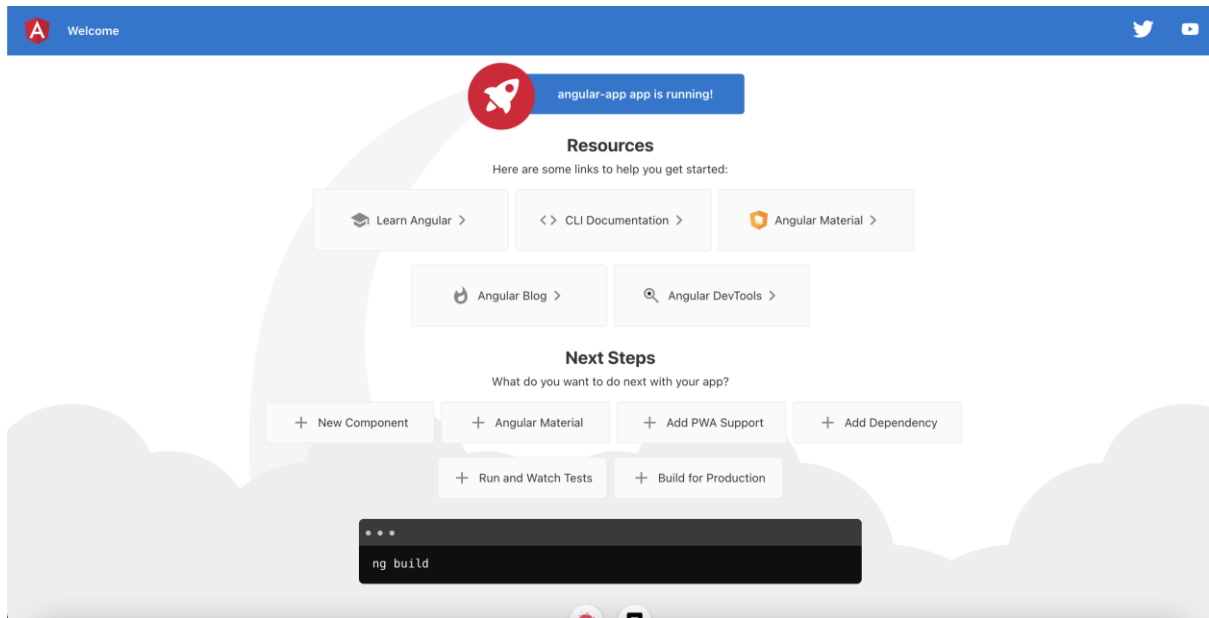
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```
#Check Angular version
ng version


#Check Crontab entry for the autonomous start of the application on boot.
crontab -e


#Remove the below line to stop the application starting on boot if required.
@reboot /stage/scripts/start-angular-app.sh >> /stage/scripts/start-angular-app.log
```

On instance boot, you will be able to access the sample Angular Application front end by navigating to the below URL exchanging the values between <> with that of your own instance.

<PUBLIC/PRIVATEIP>:8088



**NodeJS**

You can check the NodeJS version installation on the system by issuing the below command.

```
node -v
```