Alma Linux 8 – MEAN Stack

Version:	1.0.0
Created by:	cloudimg

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1.) Overview

This document is provided as a user guide for the Alma Linux 8 – 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

crontab -e

#DELETE THE BELOW LINE. SAVE AND EXIT THE FILE.
```

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```
@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

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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

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


#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
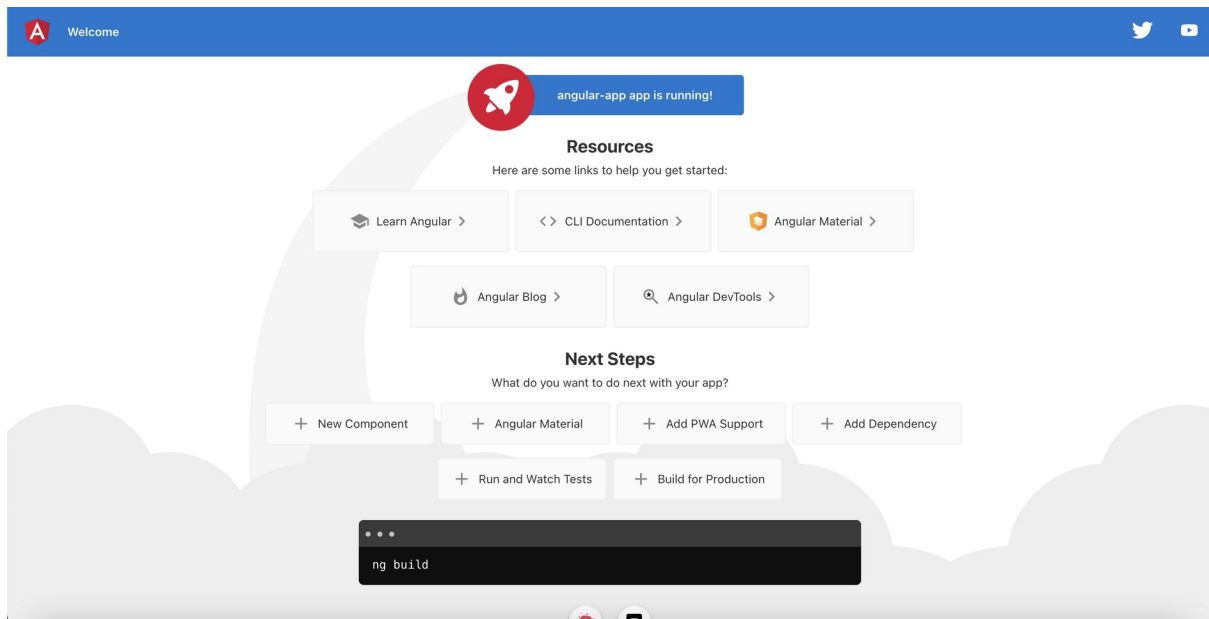
NodeJS

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

```
node -v
```