How to Build a Zoneminder Docker Image (with MSMTP) using a Dockerfile & push to Docker Hub , (Ubuntu 19.10)

B.K.Jayasundera

In this tutorial ,we are going to use <u>"Docker: Enterprise Container Platform"</u> (docker.io) on Ubuntu 19.10.

First

Installation of Docker on Ubuntu 19.10

On the Ubuntu terminal

sudo apt install docker.io

Then a zoneminder-docker image is built using a Dockerfile and entrypoint.sh

Dockerfile contains the scripts to install free open-source software <u>Zoneminder</u> and entrypoint.sh has necessary commands to start Zoneminder ,Apache and other services and to keep the docker container running.

I have used my own Dockerfile and entrypoint.sh prepared by Andrew Bauer

The scripts in the Docker file are as shown in the following figure:- 1

```
FROM ubuntu:bionic
MAINTAINER B.K.Jayasundera
# Update base packages
RUN apt update \
   && apt upgrade --assume-yes
# Install pre-reqs
RUN apt install --assume-yes --no-install-recommends gnupg
# Configure Zoneminder PPA
RUN apt-key adv --keyserver keyserver.ubuntu.com --recv-keys ABE4C7F993453843F0AEB8154D0BF748776FF804
    88 echo deb http://ppa.launchpad.net/iconnor/zoneminder-1.32/ubuntu bionic main > /etc/apt/sources.list.d/zoneminder.list \
    && apt update
RUN apt update && apt install -y tzdata
RUN apt install -y msmtp
# Install zoneminder
RUN apt install --assume-yes zoneminder
# Set our volumes before we attempt to configure apache
VOLUME /var/cache/zoneminder/events /var/lib/mysql /var/log/zm
RUN chmod 740 /etc/zm/zm.conf
RUN chown root:www-data /etc/zm/zm.conf
RUN adduser www-data video
RUN a2enmod cgi
RUN a2enconf zoneminder
RUN a2enmod rewrite
RUN chown -R www-data:www-data /usr/share/zoneminder/
RUN ln -s /usr/bin/msmtp /usr/sbin/sendmail
# Expose http port
EXPOSE 80
COPY entrypoint.sh /entrypoint.sh
RUN chmod 777 /entrypoint.sh
ENTRYPOINT ["/entrypoint.sh"]
```

For the purpose of building the zoneminder- docker image the files Dockerfile and entrypoint.sh are saved on the Documents folder of the computer as shown in the following figure:- 2.



figure:- 2 Dockerfile and entrypoint.sh marked in green color saved in the Documents folder The Dockerfile and entrypoint.sh can be downloaded from this links

Dockerfile

entrypoint.sh

Building the Zoneminder-Docker image (tagged as "yourzoneminder")

Open the Ubuntu terminal

cd ~/Documents

sudo docker build -tag=yourzoneminder . # Dockerfile

(The process will take about 10-15 minutes)

After the image building process is finished ,you find the image by runng

sudo docker images

For the purpose of identifying the image in the Docker Hub , you will have to tag it with an appropriate name .

In our case ,I have name as "bkjaya1952/docker-zoneminder:v1.32.3."

sudo docker tag yourzoneminder bkjaya1952/docker-zoneminder:v1.32.3.

Then push the tagged image to the Docker Hub sudo docker login

Note : first you will have to signup & open a Docker Hub account at <u>https://hub.docker.com/</u>

sudo docker push bkjaya1952/docker-zoneminder:v1.32.3.

bkjaya1952@bandula:~\$ sudo doc	ker images			
REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
bkjaya1952/docker-zoneminder	v1.32.3.	16aeda79b3e1	19 minutes ago	950MB
yourzoneminder	latest	16aeda79b3e1	19 minutes ago	950MB
ubuntu	bionic	549b9b86cb8d	14 hours ago	64.2MB
bkjaya1952@bandula:~\$ sudo dock	er images			
REPOSITORY TAG	IMAGE ID	CREATED	SIZE	
yourzoneminder latest	16aeda79b3e1	13 minutes a	go 950MB	
ubuntu bionic	549b9b86cb8d	14 hours ago	64.2MB	
bkjaya1952@bandula:-\$ docker ta	g yourzoneminder bkja	ya1952/docker-zonemi	nder:v1.32.3.	
bkjaya1952@bandula:~\$ docker pu	sh bkjaya1952/docker-	zoneminder:v1.32.3.		
The push refers to repository [docker.io/bkjaya1952/	docker-zoneminder]		
e99c944dfe5e: Pushed				
d83dee437c6e: Pushed				
f6004136490b: Pushed				
f935ba2aa769: Pushed				
f3fa75f30af2: Pushed				
34613ef446e9: Pushed				
2160c114468b: Pushed				
4fbe39cbeff2: Pushed				
205e4363400e: Pushed				
2650a06aa060: Pushed				
8f1bacf485ed: Pushed				
6ef10571e193: Pushed				
fa0c50810462: Pushed				
020328660c6f: Pushed				
78cc22ece37e: Pushed				
918efb8f161b: Mounted from libr	arv/ubuntu			
27dd43ea46a8: Mounted from libr	arv/ubuntu			
9f3bfcc4a1a8: Mounted from libr	ary/ubuntu			
2dc9f76fb25b: Mounted from libr	arv/ubuntu			
v1.32.3.: digest: sha256:67ab5f	d33ffbc437aff075dd964	ea9083ea70b63df209ed	2cc3a85f690373a09	size: 4289

Figure:- 3 Tagging and pushing the image to the Docker Hub

Now you can see my pushed image at

https://hub.docker.com/repository/docker/bkjaya1952/docker-zoneminder

Activities	🕴 Firefox Web Browser 🔻		ωςαι 20 10:55 •			÷	Δ.0	، ال
6		bkjaya1952/docker-	zoneminder - Docker H	lub - Mozilla Firefox				8
	<u>File Edit View History Bookma</u>	rks <u>T</u> ools <u>H</u> elp						
	🛞 Edit Post « Jayas 🗙 🔋 🖺 Dockerfile - G	ioo 🗙 🛛 🜀 opensource soft 🗙 📄	Jayasundera's 🗄 🗙	👘 Docker ZoneMir 🗙 📄	Docker Hub X	🛞 bkjaya	1952/doc)	× +
	<> > C @ ■	https://hub.docker.com/r/bkjaya19	52/docker-zoneminder	∨ … ⊠ ☆	± ₩		s 👰 1	₩ =
	💊 Get Firefox 🌣 Most Visited 📱 Path	thara 📑 FB 🗹 Yahoo 🖷 MyB	log 🐨 MyWeb 🔤 AOI	L 🔣 ZM 🚯 Sam 🗊 Driv	HQ 📱 BKJ's golsib	e 🔀 Motion	n	>>
		Try the two-facto	r authentication beta. <u>Lea</u>	arn more >				×
	Hocker hub 🔍 Search for gr			Repositories Organizat	ions Get Help 🔫		952 - (
Â						_		
۹	By bkjaya1952 • Up Zoneminder .v1.32.:	ated 11 hours ago	nder 🌣			Manage	Repositor	y IIs 5
~	Container	an statut de 🖉 de participation						
	Overview Tags							
	licenter			Dock	er Pull Command			
-	sudo docker create -t -p 8085:80sh bkjaya1952/docker-zoneminder:v1.3	n-size=4096m -e TZ=Asia/Colombo - 2.3.	name myzmprivileged	doc doc	ker pull bkjaya19	52/docker	-zor 🖸	
_	Note :- use your timezone instead of	"TZ=Asia/Colombo"						
	sudo docker start myzm			Own	er			
Va	Configuring MSMTP for emailing zone	eminder motion detection events		and the second	bkjaya1952			
	Make the following file in the home for created by above mentioned comma	older of your computer and copy in t nds	o the zm container that y	you have				
	Open the Ubuntu terminal and run							
::::	sudo gedit msmtprc							
	Then copy the following scripts with	nodifications to suit your gmail addr	ess and save					

Figure:- 4 Pushed image at the Docker Hub

The instructions to use the image has been entered at the Docker Hub, after the pushing is completed .

Usage of the pushed image bkjaya1952/docker-zoneminder

sudo docker create -t -p 8085:80 --shm-size=4096m -e TZ=Asia/Colombo --name myzm
--privileged=true bkjaya1952/docker-zoneminder:v1.32.3.

Note :- use your timezone instead of "TZ=Asia/Colombo"

sudo docker start myzm

Configuring MSMTP for emailing zoneminder motion detection events

Make the following file in the home folder of your computer and copy in to the zm container that you have created by above mentioned commands

Open the Ubuntu terminal and run

sudo gedit msmtprc

Then copy the following scripts with modifications to suit your gmail address and save

Set default values for all following accounts.
defaults
auth on
tls on
tls_trust_file /etc/ssl/certs/ca-certificates.crt
logfile ~/.msmtp.log
Gmail
account gmail
host smtp.gmail.com
port 587
from youer gmail address
user youer gmail address
password your gmail password

Set a default account account default : gmail

Then copy the created msmtpru file to the folder /etc/ of the zm container as follows sudo docker cp msmtprc myzm:/etc/msmtprc

Open http://localhost:8085/zm/ and add the camera monitors

Activities	Firefox Web	Browser 🔻		φçα _t	20 11:16 •		Ŷ	~	4) U	*
-				ZM - Console	- Mozilla Firefo					
<u> </u>	<u>F</u> ile <u>E</u> dit ⊻iew	History <u>B</u> ookmarks	Tools Help							
	🚯 Edit Post « Jayasu	ndera's 🗙 🛛 📲 Docker Z	oneMinder Tuto 🗙 🔀	ZM - Console	× +					
	(←) → ୯ @	0 O loca	lhost:8085/zm/index.php			··· 🖂 🕁	± II\ □ 0 ·	N 👳	ŵ	=
0	Get Firefox Q N	Most Visited 🚺 Paththar	a 🖪 FB M Yahoo 🖿	MyBlog W M	yweb 🔛 AOL	ZM 🔘 Sam 🗊 DriveHQ	BKJ's goisite C Motio	n		77
		Console Options			ycle Monta	ige Montage Review	Audit Events Report			
									RUNNI	NG
<u> </u>			2 Load: 0.54	DB:12/151	Storage: Defau	#: 23% /dev/shm: 0%			v1.32	3
	Name text or re	gular expression	Function All	Status All		Source text or regular e	xpression Monitor	All		
A	Capturing 100%									
0	Name	Function	¢ Source	Total	Hour D	av Week Month	Archived Zo	ones		Č.
×_	Adaptives 1	Monitor	/dev/video0 (0)	0		ZM - Monitor-1 - Feed - Moz	illa Firefox 💷 🙁	1		
	Motifiol-1	Capturing		ов	<u>F</u> ile <u>E</u> dit <u>1</u>	View History Bookmarks	Tools Help			
		8.33 fps 2.44MB/s			ZM - Monito	or-1-Feed X +				
A		2.44MB/S		OB	← → C Get Firefox	Co Most Visited III Paththa	৺ মি ⊻ ≫ 🏗 = ra 🖪 FB 🕅 Yahoo ≫	1		
-					ZopeMind	ar				
M							2/151 v1.32.3			
-							shm: 046			
-12					Monitor-1	Settings Scale:	Actual -			
-					Noná	ter=1 = 20/12/19 11+16+58	1000			
						A STORE	GT_			
1/0					~					
VC					-	and and	THE OWNER OF THE OWNER OWNER OF THE OWNER OWNE			
							All -			
-						1 4 13 15	and			

Figure:- 5 Added USB camera to Zoneminder

And fill up email details under the Optons/email of the ZM-Panel

Create appropriate zm-filter to send email alerts of motion detection events

For entering e mail details and creating zm-filter please refer my following blog (After the Figure:- 3 in the blog)

How to install Zoneminder 1.32 (with MSMTP email support) in Docker on Ubuntu 19.10



Figure:- 5 Received motion detection email alerts from Zoneminder

Acknowledgements : Based on <u>Isaac Connor's</u> <u>Zoneminder</u> and Andrew Bauer's <u>zonexpertconsulting@outlook.com</u> entrypoint script

at https://raw.githubusercontent.com/ZoneMinder/zmdockerfiles/master/utils/entrypoint.sh