

checkmk as Docker Container

CHECKMK CONFERENCE #5 – MUNICH, APRIL 29, 2019

Agenda

1. **BASIC THEORY**
2. PRACTICE
3. A FEW ADVANCED TOPICS



What is Docker (vs. a VM)?

Different levels of abstraction...

Docker Containers



- Isolate individual applications
- Run by a single OS kernel
- More lightweight than VM
- Created from image specifying content

Virtual Machines



- Isolate entire systems
- Own OS
- Virtualized server hardware
- Need a hypervisor

Why use checkmk as a Docker container?



- Is a must for „container-only“ infrastructures
- Allows you to test things extremely quickly
→ no need to set up a virtual machine

Good to know: What's inside?



- Docker Container details
 - OS: Debian 9
 - Size (packed): ≈ 450 MB
 - Size (unpacked): ≈ 1.1 GB

Good to know: Volumes and ports

Named Volumes



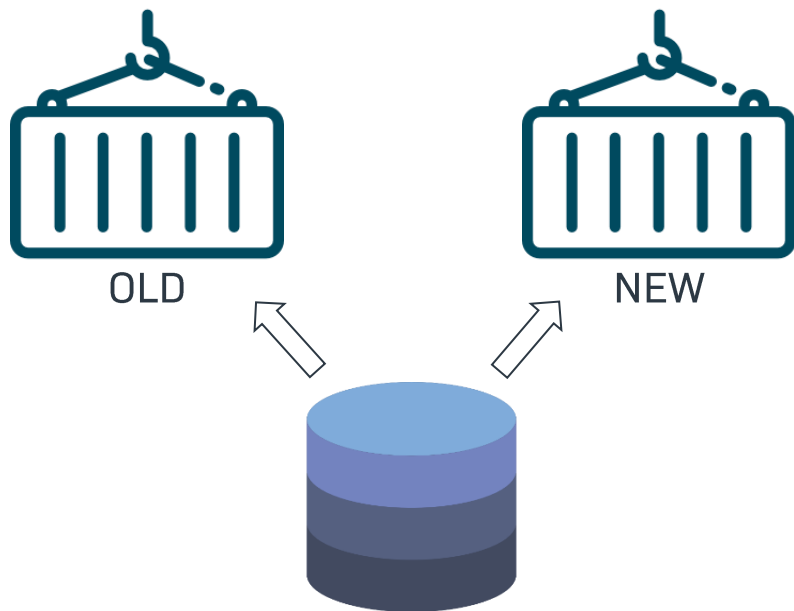
- Data should be stored in named volume
- If not, config is lost once container dies

Port Mapping



- Docker requires mapping from internal to external ports (-p 8080:5000)
- In practice usually abstracted by adding a proxy

Good to know: Update Procedure in 1.6



- Run-time data of the old container is persisted in the named volume
- During an update, a second container with new software is created
- The second container ,takes over' the volume of the ,old' container
- Old container is removed

Where do I find it?



Sie sind hier: [User-Portal](#) > [Downloads](#) > [Check_MK Enterprise Edition \(CEE\) 1.5.0p14](#)

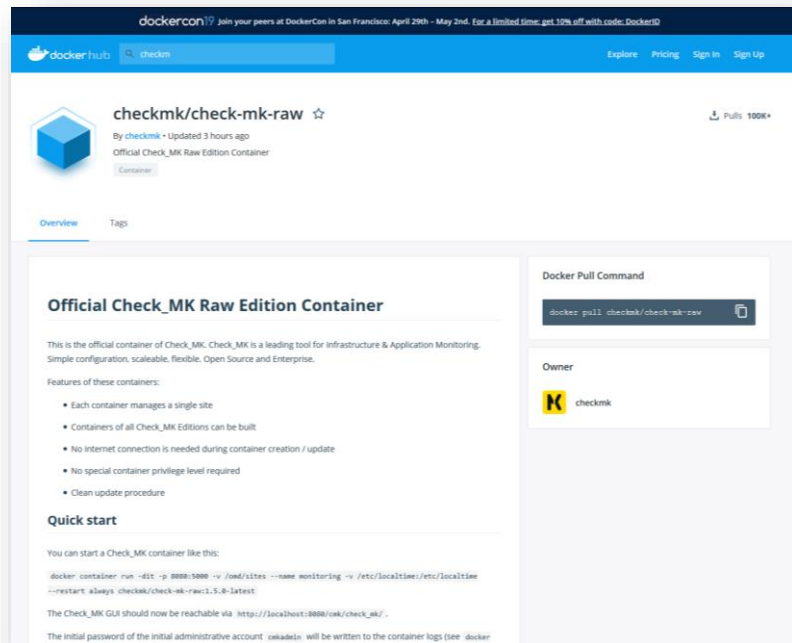
Check_MK Enterprise Edition (CEE) 1.5.0p14

Bitte wählen das zu Ihrer Linux-Distribution passende Paket. Unsere CentOS-/RedHat-Pakete können Sie auf all der jeweiligen Major-Version passen, einsetzen. Bei CentOS 5 werden alle Versionen ab 5.5 unterstützt. Für die Version 1.3.0 benötigen Sie die 64-bit-Pakete von Check_MK. Für Appliances mit einer älteren Firmware-Version bit-Pakete.

Distribution	Codename	64 Bit
Check_MK Appliance 1.4+	cma-stretch	Download
Docker-Image *		Download
Quellen		Download
Prüfsummen (SHA256)		Download

- For the Enterprise Edition, Docker Image can be downloaded from the checkmk download portal

Where do I find it if I am using the Raw Edition?



- Standard: Docker Hub
- <https://hub.docker.com/r/checkmk/check-mk-raw>
- Alternative: checkmk download portal

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Structure of the Demo

- Structure of the demo:
 - Install check**mk** Enterprise Edition in a Docker container
 - Operate the check**mk** Docker container
 - Interact with container
 - Integrate container in Distributed Monitoring
 - Monitor Docker container
 - Update of check**mk** Docker container



DEMO

Installation

DEMO

Installation

- Getting the container
 - Download tar archive
 - Import into Docker
- Starting the container
 - Docker run
 - Only one checkmk version per container
- Good practice: Immediately change password



DEMO
Operation

DEMO

Operation

- Using bash inside checkmk container
- Container in distributed setup
- Monitoring of distributed site



DEMO
Update

DEMO Update

- Load new image
- Stop existing container
- Start new container
- Delete old container



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Sending mails from a container setting

Images contain postfix MTA

Not configured per default

Need to configure mail relay host

Use option `-e MAIL_RELAY_HOST='mailrelay.mydomain.com'`

Add `--hostname 'mymonitoring.mydomain.com'` for specific mail server name

Using the Event Console

Container: Need to take into account required ports before container creation

-p 162:162/udp	→ SNMP trap
-p 514:514/udp	→ syslog UDP
-p 514:514/tcp	→ syslog TCP

Then:

As usual, call omd config, select protocols (SNMP traps, syslog UDP/TCP)

Troubleshooting: Slow config reloads

Problem

- Config activation takes longer in containers (up to x15-30)
- Inherent problem with Python 2 in Docker containers

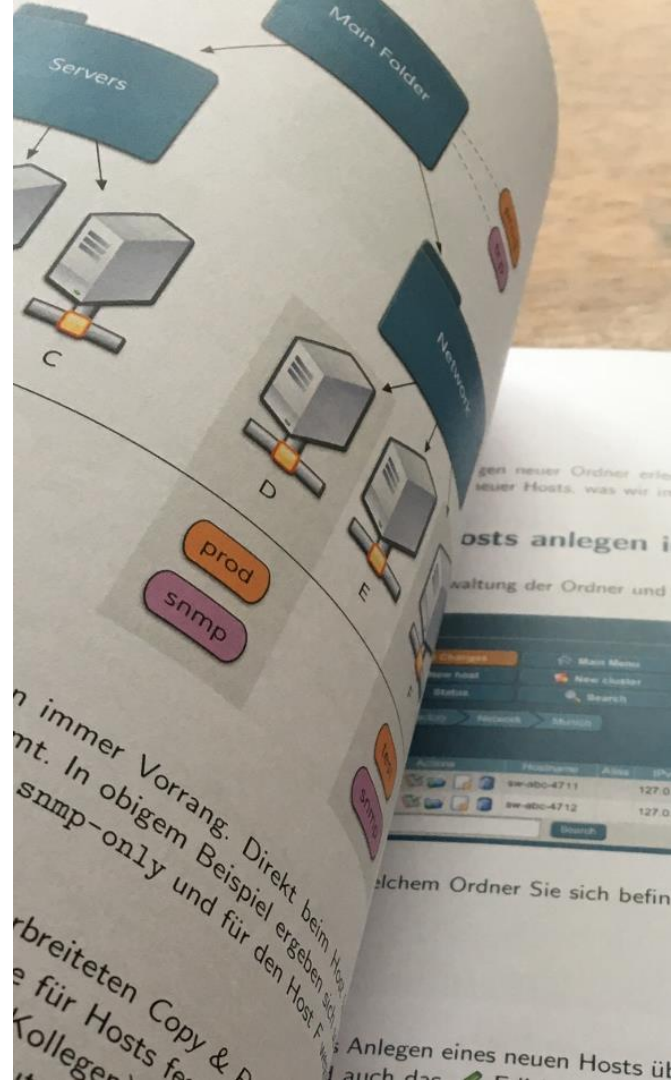
Solutions

- Workaround: Set file limit:
`--ulimit nofile=1024:1024`
- Reduces max. number of open files

DEMO

For more information...

- Please refer to the articles in the official ckeckmk handbook
 - https://mathias-kettner.de/cms_introduction_docker.html
 - https://mathias-kettner.de/cms_managing_docker.html



Thank you!



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