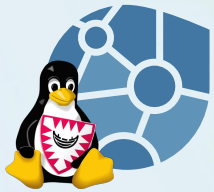


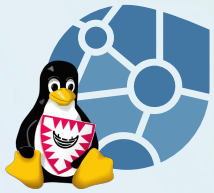
Docker for EGroupware

Why we use Docker as the basis for EGroupware installations

EGroupware

SMART ONLINE OFFICE

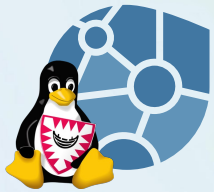
EGroupware GmbH



- EGroupware GmbH (Kaiserslautern, DC in Frankfurt/Karlsruhe) offers EGroupware as SaaS solution and On Premises
- Email server (with deep integration) included
- Collabora Online, Rocket.Chat **as SaaS**
- Reseller for: Collabora Online-Lizenzen, bbbserver.de, Outlook CalDAV Synchronizer, Placetel
- Partner of: Placetel, KiwiTalk., Univention

- Version with business function enhancements and support (EPL)
- Support (migration and update support, ...) also for community users!
- Organisational consulting
- Special programming, masks, functions, ...

New Logo, new Slogan



EGroupware has a new logo:

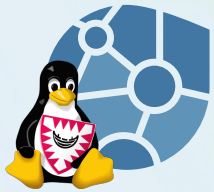
EGroupware
SMART ONLINE OFFICE

Smart Online Office

- **Smart** : Intelligent linking of information
- **Online** : Web application usable on all platforms
- **Office** : **(Almost) complete office in the web browser**

Our website is also new…

Topics

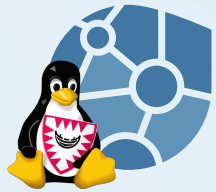


* Overview of EGroupware

* What is Docker?
* Why Docker?
* What is Docker used for/how in an EGroupware installation?
* The standard EGroupware installation

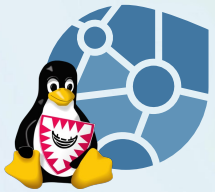
* Experience from 3 years of Docker in the field
* Useful Docker knowledge

* Questions/Answers
* Live(?)



Overview of EGroupware

Applications in EGroupware



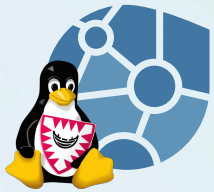
Email

InfoLog
(tasks, notes, telephone, e-mail, ...)

Calender

Contacts
CRM-Ansichten

Applications in EGroupware



Filemanager / **Filesharing**

Kanban

smallPART

Project Manager

Tracking System (**Ticket system**)

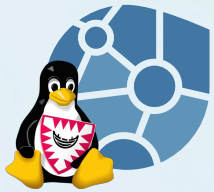
Bookmarks

Time recording
to projects, tickets, tasks, contacts

Resources

Knowledge Management

Applications in EGroupware



Video conference
(Jitsi)

Remote Desktop
(Guacamole)

PLACETEL
A PART OF CISCO

CTI/Telephony

Video conference
(BBB)

Chat
(Rocket.Chat)

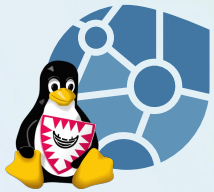
Discourse ?

Your
application?

Office
(Collabora Online)

Wiki.js ?

Operating possibilities?



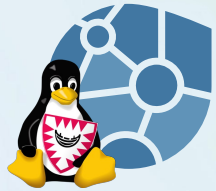
Community Edition (**CE**) as

- **On-premise**
- Own DC, colocation, …
- under the desk, on a NAS...

EPL as **SaaS** or **on-premise** (own DC, colocation, …)

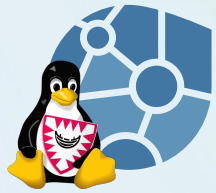
Comparison:
https://www.egroupware.org/de/egroupware-ce-vs-epl

Change between locations and versions always possible!
Open for migration! In all directions...



What is Docker

What is Docker?



Small history

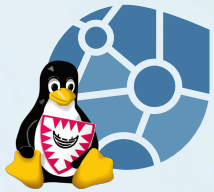
Docker (as a technology) is a container virtualisation solution. It is currently the most common virtualisation solution to deliver application containers.

The first Docker version was released in 2013.

Container virtualisation has a long history on Linux servers (vServer, OpenVZ, LXC) and is (now) also available for Windows (Docker).

DockerHub is the largest "registry".
RedHat offers another one with Quay.io (Which we also use).

What is Docker?



Docker <=> Full virtualisation

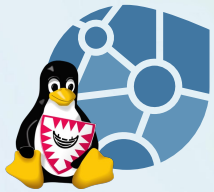
Full virtualisation solutions (XEN, KVM, Hyper-V, ...) provide the environment for an operating system and applications installed in it in a VM.

Docker containers can contain complete systems (OS + applications) or only individual components such as a web server, database, ...

EGroupware, for example, "consists" of three containers:

- **EGroupware** with PHP-FPM incl. sources
- **Nginx** web server on which EGroupware is run
- **PHP Swoole** for Push/Websocket

What is Docker?



Another layer?

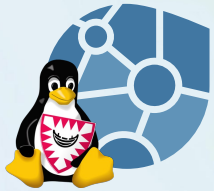
The Docker software is relatively lightweight and requires few resources (disk space/RAM/CPU) on the host.

The containers often contain the complete application including, for example, the web server. Nevertheless, the containers remain lean because only the most necessary things are installed.

The performance "losses" are negligible at ~1%.

The complexity increases slightly, but is manageable.
The advantages clearly outweigh the disadvantages!

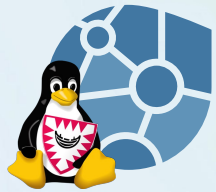
What is Docker?



Docker, Docker CE, Docker Desktop, ...

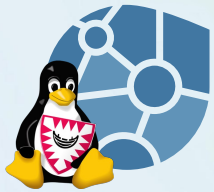
- There are different versions and designs of Docker
- We install Docker or Docker CE, depending on the distro.
- Docker is not Docker Desktop!

More about Docker?
See the last slides for good links on Docker.



Why Docker?

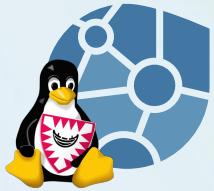
Why Docker?



Reasons:

- Enables an optimally configured installation (performance/security).
- Further applications can be integrated easily(er).
- Existing components can be used
- ~~Rocket.Chat and Collabora Online/CODE are delivered with 19.1~~
- It can be quickly/easily reverted to an older version
- It can be easily locked to a specific version
- Entire systems can be installed in one go
- ...

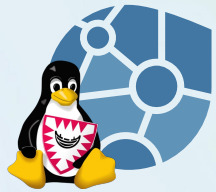
Why Docker?



Reasons:

- Avoid version and dependency conflicts!!!
- Nobody really wants to install Rocket.Chat, CODE (Collabora Online), watchtower, ... "on foot" and solve all dependencies. In the long run, again and again...!
- Some things are only available as containers.

Why Docker?

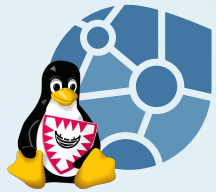


Beyond the EGroupware horizon...

Univention Corporate Server
EGroupware was/is immediately available on UCS 5. Because: is Docker based...

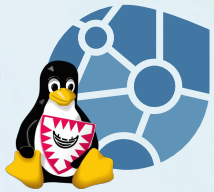
NAS
Some NAS offer to install / run applications via Docker.

Own services (on the EGroupware server)
Docker and reverse proxy are already there!



What is Docker used for/how in an EGroupware installation?

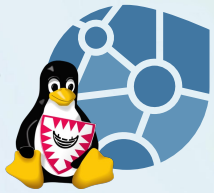
What for/how Docker in EGroupware?



What for?

- Avoiding version and dependency conflicts!!!
- Use of existing solutions (watchtower, applications, ...)
- **Development of EGroupware on specific versions (of the DB, PHP, ...)**

What for/how Docker in EGroupware?

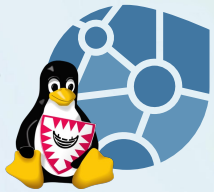


How?

The EGroupware standard installation via installation package
`apt install egroupware-docker`
installs Docker (CE), sets up the containers via **docker compose**, arranges the network between the components and starts everything.
The whole thing takes 5-10 minutes. Demonstration in the talk(svideo) at the end.

The installation package also sets up the **reverse proxy** for external communication.

What for/how Docker in EGroupware?



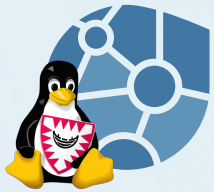
Docker compose?

Arranges the containers, networks, mounts based on a configuration file (YML). Starts the containers with configured parameters and, if necessary, provides parameters for the application in the container.

Reverse proxy?

Provides the applications at a common point to the outside.
SSL encryption takes place centrally (for all applications) in the reverse proxy.

What for/how Docker in EGroupware?



Automatic updates

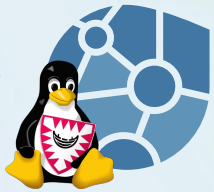
A container "watchtower" is also installed/configured.

Watchtower carries out a check for updated containers and performs the container updates on its own.

The configuration can be found in `/etc/egroupware-docker/egroupware-compose.override.yml` in the section `watchtower`

Configurations (time, email notifications, ...) are possible and documented in YML.

What for/how Docker in EGroupware?

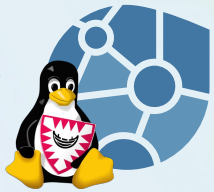


What happens during a container update?

- (watchtower checks at night whether a new container is ready).
- The new container is downloaded
- The old container is discarded
- The new container is started
- (The old container images are deleted by watchtower)

- Manual updates are of course possible.
  But: You have to clean up yourself!

What for/how Docker in EGroupware?



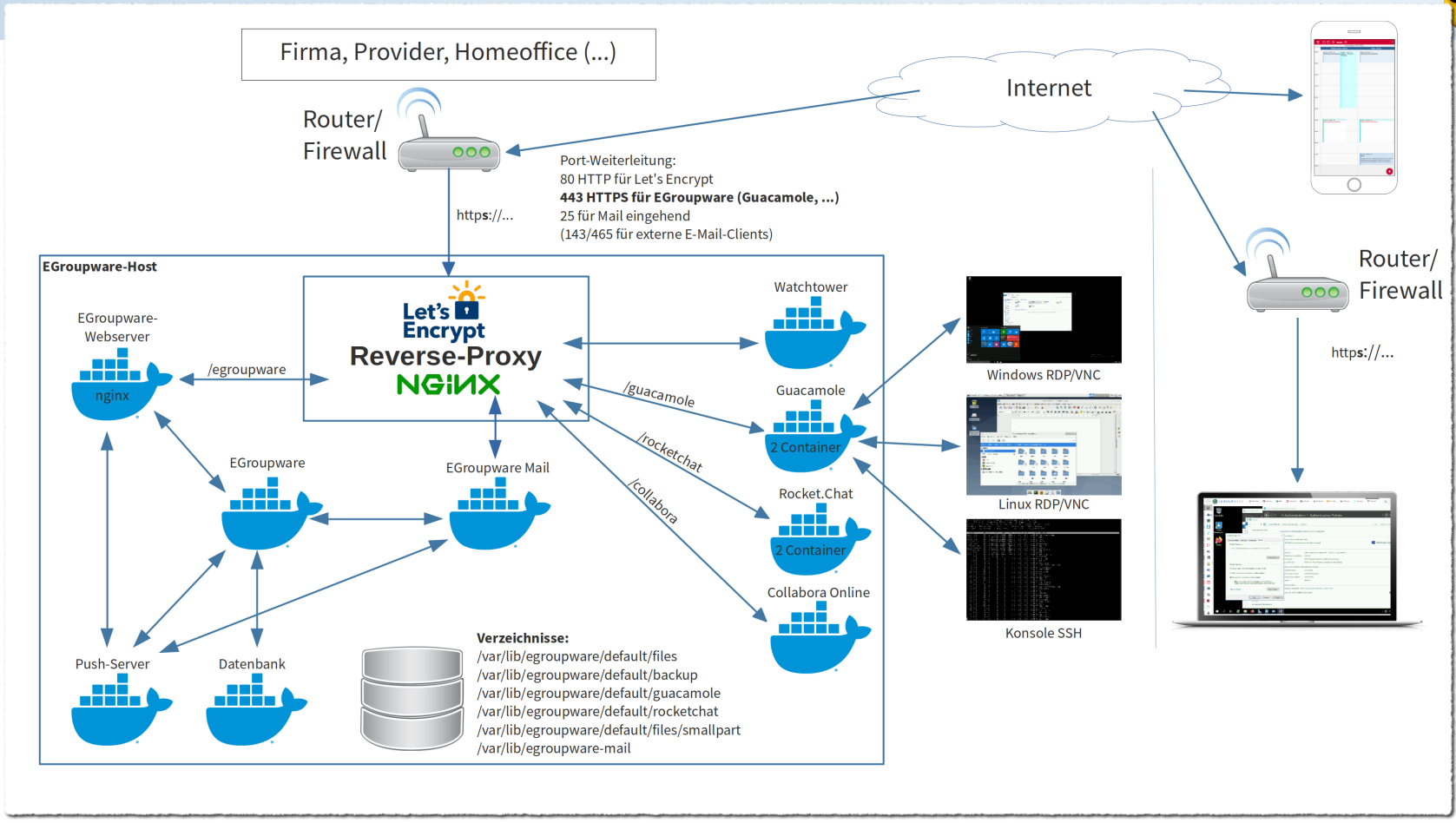
Installation packages vs. Docker container updates

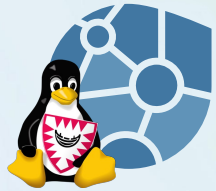
Depending on the need/situation, we offer package updates or (mostly) only container updates.

Package updates deliver configuration changes, sometimes trigger a container update or change the version number for a later automated container update.

Most updates come as container updates, as "only" changes to the EGroupware code.
We mark this in the respective release notes in the forum.

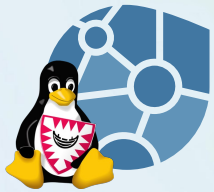
What for/how Docker in EGroupware?





The standard EGroupware installation

Standard EGroupware-Installation

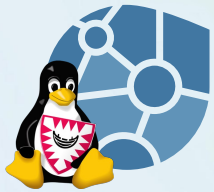


Why standard?

- Avoiding version and dependency conflicts!!!
- Use of existing solutions (watchtower, applications, ...)
- Development of EGroupware on specific versions (of the DB, PHP, ...)

- **To keep everything maintainable and supportable!**

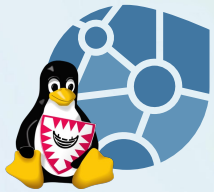
Standard EGroupware-Installation



- **Procedure**
- (Installation in a VM, on a vServer or Bare Metal)
- Install OS minimal!
- Include repo
- `apt install egroupware-docker`
- --- EGroupware executable with Collabora Online ---

- SSL configuration, DNS
- Post-installation Rocket.Chat, Guacamole, ...
  `HTTP_HOST=example.org apt install egroupware-guacamole`
- Post-installation e-mail server
  `apt install egroupware-mail`

Standard EGroupware-Installation



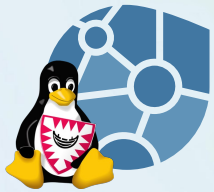
Configuration docker compose

- What is installed and how it is started can be set in the respective yml file.
- yml files are located under

```
/etc/egroupware-collabora-key
/etc/egroupware-docker
/etc/egroupware-guacamole
/etc/egroupware/rocketchat
/etc/egroupware/egroupware-mail
```

- Own changes => xxx.override.yml !!!

Standard EGroupware-Installation



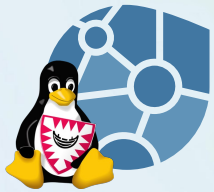
Example: EGroupware version

```
services:
  egroupware:
    image: egroupware/egroupware:21.1
    # EPL image can be set in docker-compose.override.yml: download.egroupware.org/egroupware/epl:latest
```

This way the latest 21.1 is installed/updated.
When changing to the EPL version, a different image is configured here.
A 21.1.20210723 pinned the version.
A 21.1.20210723-8.0 installs a PHP8 version (testing!).

https://hub.docker.com/r/egroupware/egroupware/tags?page=1&ordering=last_updated

Standard EGroupware-Installation

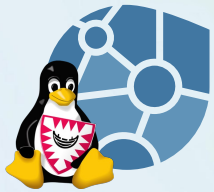


Example: session-timout, memory-limit, APC-SHM-size, ...

```
services:
  egroupware:
...
    # other php.ini values to set in the container and their current defaults
    #- EGW_SESSION_TIMEOUT=14000
    #- EGW_APC_SHM_SIZE=128M
    #- EGW_MEMORY_LIMIT=128M
    #- EGW_MAX_EXECUTION_TIME=90
```

We pass several relevant parameters from the YML to the container when it is started.
The parameters shown above usually only need to be changed if the number of users is really large.
The default parameters are empirical values for up to ~ 100 simultaneous users.

Standard EGroupware-Installation



Example: Collabora Online <=> CODE

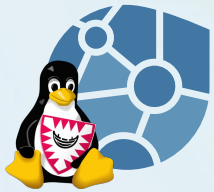
```
services:
  collabora-key:
    image: "quay.io/egroupware/collabora-key:stable"
    #image: "collabora/code:latest"
```

We provide Collabora online containers and install them as standard.
By changing `image:` and

```
cd /etc/egroupware-collabora-key
docker-compose pull
docker-compose up -d
```

you can switch between versions and COOL/CODE.

Standard EGroupware-Installation



Provisioning Collabora Online

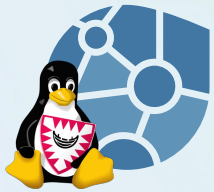
We deploy Collabora Online containers with a slight delay.

New versions are built and deployed as version/latest. After basic testing, the image is tagged as stable.
By default, the staple version is then installed the following night.
See also:
https://quay.io/repository/egroupware/collabora-key?tag=latest&tab=tags

Release notes are published in our forum.

For community support there is a Collabora Online category in the forum.
Through a "good connection" to Collabora we can forward requests and bugs.

Standard EGroupware-Installation



- **Mount directories => container**

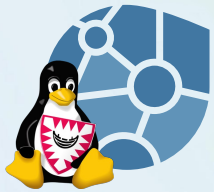
`/var/lib/egroupware` --> `/var/lib/egroupware`
All EGroupware files and DB backups (if enabled!)
`/usr/share/egroupware` -- copied to --> `/usr/share/egroupware`

- **Old/own applications**

Can be installed under `/usr/share/egroupware` on the host (!),
the starting container integrates (copies) them.
Example old/discontinued Wiki:

```
cd /usr/share/egroupware
git clone https://github.com/EGroupware/wiki.git
docker restart egroupware
```

Standard EGroupware-Installation

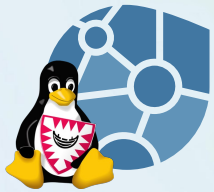


Configuration Docker compose

- phpMyAdmin
  The installation of phpMyAdmin is **prepared**.

Documentation for activation under:
/etc/egroupware-docker/phpmyadmin.yml
or
https://github.com/EGroupware/build.opensuse.org/blob/master/server:eGroupWare/egroupware-docker-21.1/egroupware-docker/phpmyadmin.yml

Standard EGroupware-Installation

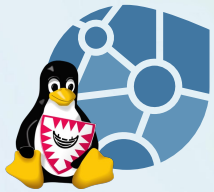


Paths

- Configurations Packages/docker compose
  `/etc/egroupware-docker`
  `/etc/egroupware-collabora-key`
  `/etc/egroupware-guacamole`
  `/etc/egroupware-rocketchat`
  `/etc/egroupware-mail`

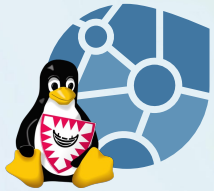
- Install-Log, header.inc.php
  `/var/lib/egroupware` **=> backup!!!**

- Backup, files, Collabora online config
  `/var/lib/egroupware/default`



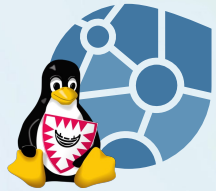
Experiences
from 3 years of Docker in the field

Experiences



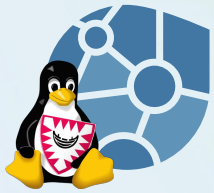
- Much fewer questions/problems about PHP in the forum/among users.
- Updates fast and (almost always) smoothly (EGw, webserver, DB, ...)

- Many more current installations than before

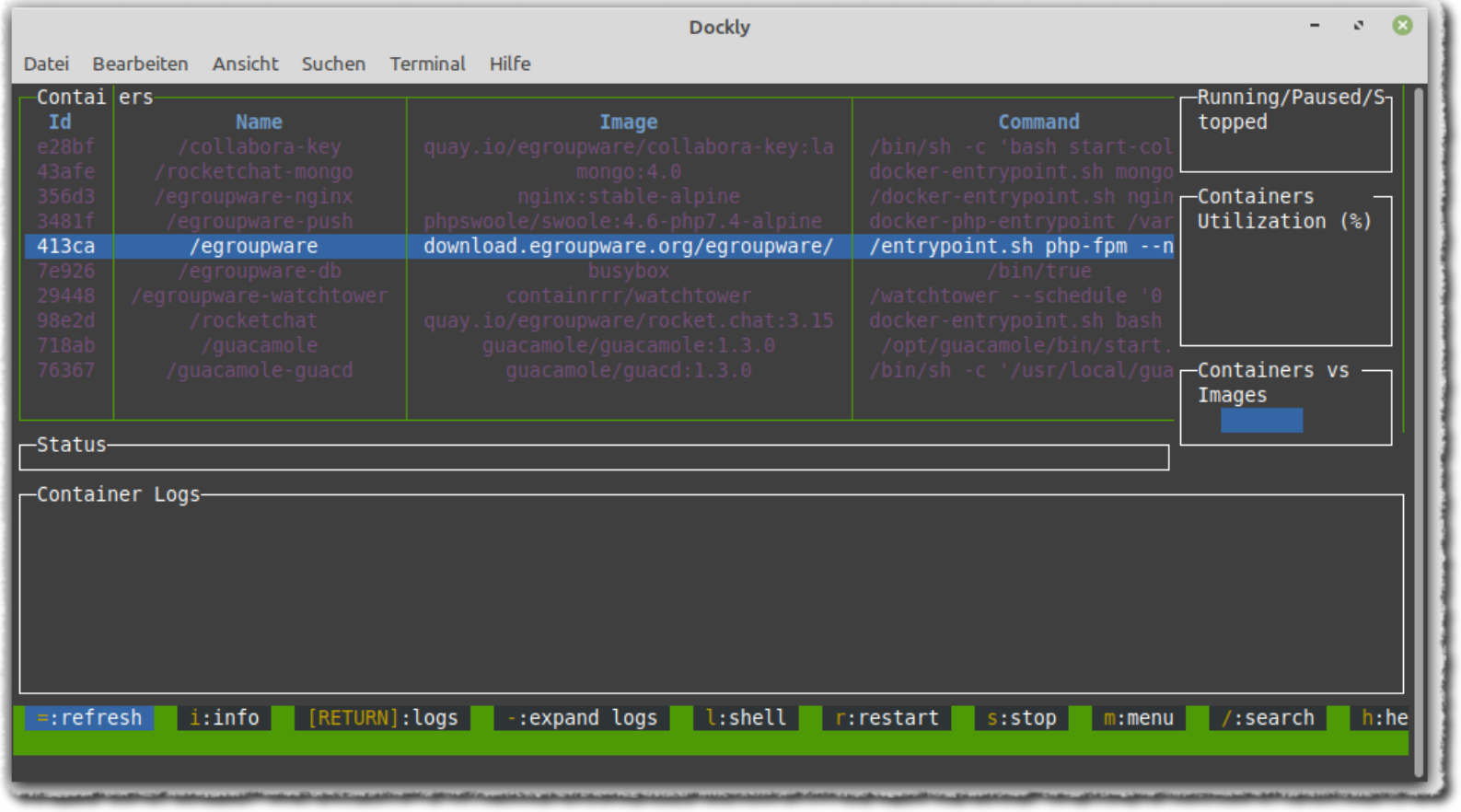


Useful Docker knowledge

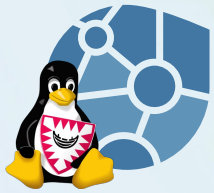
Useful Docker knowledge



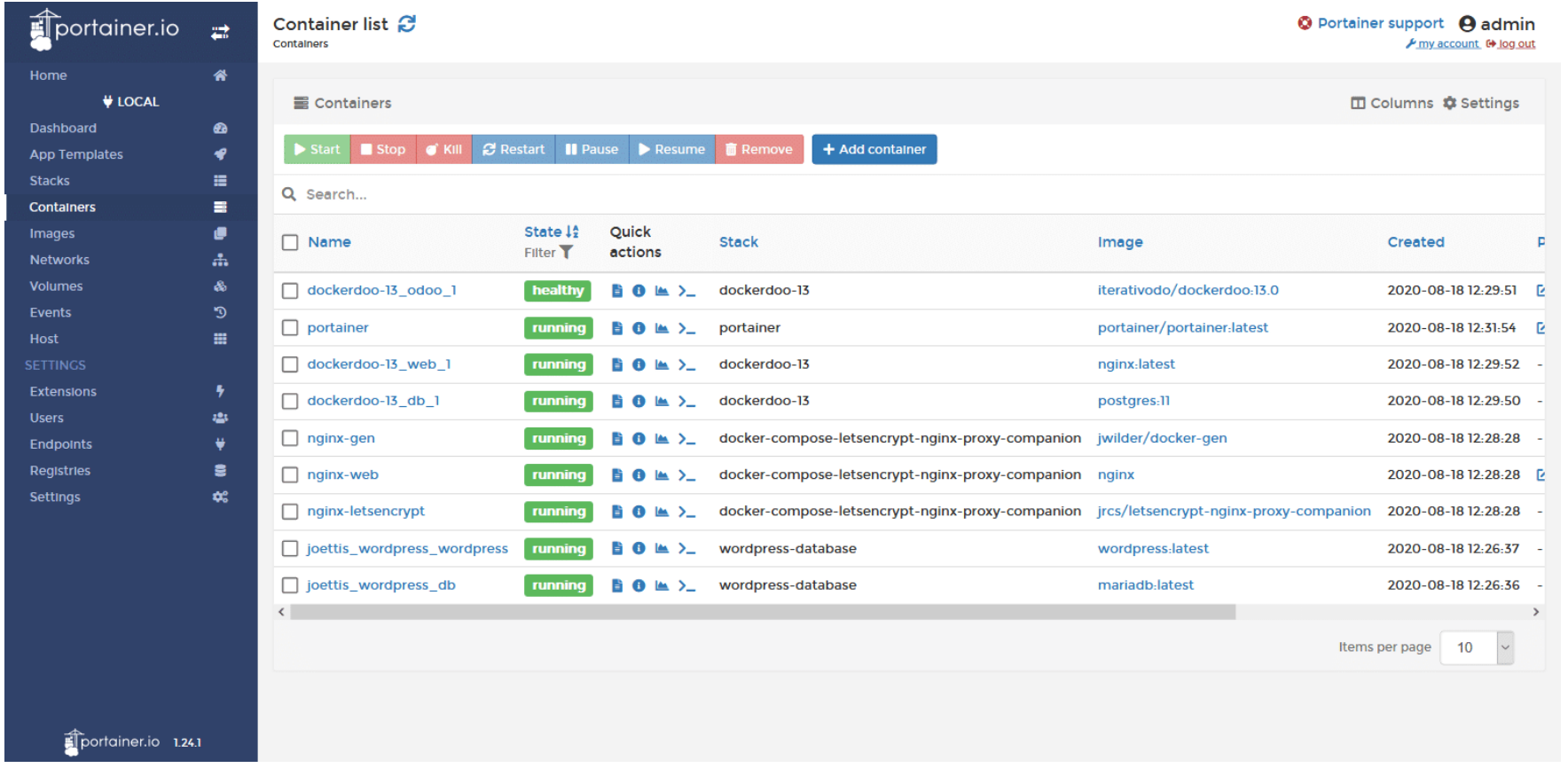
Tools:
Dockly



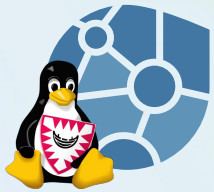
Useful Docker knowledge



Tools:
Portainer



Useful Docker knowledge



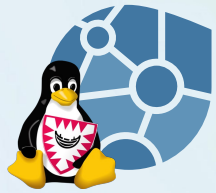
Commands

- **docker ps** -a
  Lists (also the not running) containers, status, networks, ...

- **docker exec** -it egroupware bash
  Enters the container egroupware. You are "in" the container on the command line.

- **docker logs** egroupware-nginx
  Shows the log of the EGroupware web server. Also as script:
  `/etc/egroupware-docker/egroupware-logs.sh`

Useful Docker knowledge



Resources on Docker in EGroupware

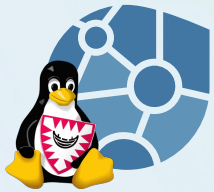
- Docker (in EGroupware 19.1)?
  https://help.egroupware.org/t/uk-docker-in-egroupware-19-1/73811

- Docker tools
  https://help.egroupware.org/t/uk-docker-tools/74121

- Manual (container) update in a Docker installation
  https://help.egroupware.org/t/manual-container-update-in-a-docker-installation/74880

- Installation of group administration in EGw 19.1 (Docker)
  https://help.egroupware.org/t/installation-of-group-administration-in-egw-19-1-docker/74194

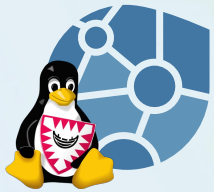
Useful Docker knowledge



Resources on Docker in EGroupware

- Installing a patch from GitHub
  https://help.egroupware.org/t/installing-a-patch-from-github/74033
- Mounting directories/shares in the EGroupware file manager
  https://help.egroupware.org/t/mounting-directories-shares-in-the-egroupware-file-manager/75722
- Backup of EGroupware
  https://help.egroupware.org/t/backup-of-egroupware/76071
- Docker-Compose-Installation: Linux, Windows, Mac, Synology, QNAP
  https://github.com/EGroupware/egroupware/wiki/Docker-compose-installation

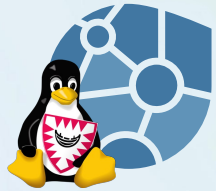
Useful Docker knowledge



Links to Docker

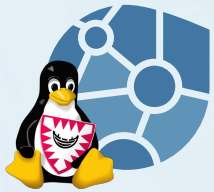
- RedHat: What is Docker?
  https://www.redhat.com/en/topics/containers/what-is-docker

- Microsoft: What is Docker?
  https://docs.microsoft.com/en-us/dotnet/architecture/microservices/container-docker-introduction/docker-defined



Info

Try EGroupware



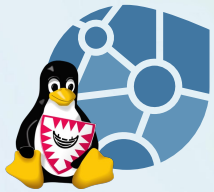
- Live-Demo

- 30-day test system in the EGroupware DC (including Rocket.Chat, Collabora Online, smallPART, ~~Guacamole~~ and email)
  More time is available on request, possible transfer of data to productive system if interested.

- UCS installation (from App-Center or as Appliance)

- Self installation (GitHub-Wiki)
- NAS (QNAP/Synology with Docker or as VM (better))

EGroupware informationen

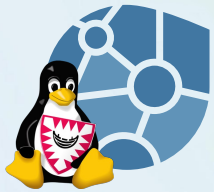


- **Forum (Announcements, extended Release Notes!)**

- Webseite
- GitHub (Wiki)
- Twitter, Facebook, Linkedin, XING, Mastodon
- Flyers on EGroupware and various integrations always up to date at: https://www.egroupware.org/community
- Reviews Admin Magazin

- info@egroupware.org: (customised) offers, licensing issues, Collabora online licences, ...

EGroupware informationen

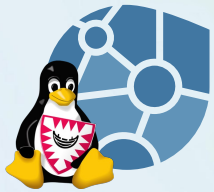


Join our community forum (and get the latest announcements)
https://help.egroupware.org/

Follow us on
Twitter, Facebook, Linkedin, XING, Mastodon

Give us a star on
GitHub

EGroupware Lectures



Everything in German!

- LibreOffice Online in EGroupware FrOSCon 2019, CLT 2019
- **Jitsi und Guacamole in EGroupware Kielux 2020**

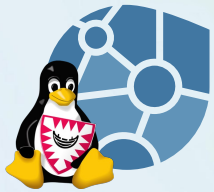
- EGroupware als Anwender und Admin Tux-Tage 2020

- More Videos on Youtube/EGroupware

- Webinar: Vorstellung der smallPART Anwendung in EGroupware
- Webinar: Neue Kanban Anwendung in EGroupware

- Webinars CTI in EGroupware
  Neuerungen EGroupware 21.1

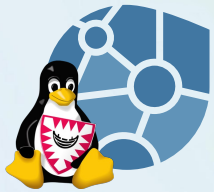
EGroupware Lectures



- Grazer Linux Tage 2021: Neues in EGroupware 21.1
- Chemnitzer Linux Tage 2021:
  EGroupware im Homeoffice und in Bildungseinrichtungen

- Flyer: EGroupware Community Flyer (German and English)

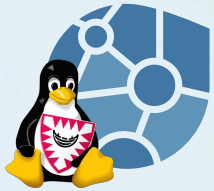
EGroupware



Contact: su@egroupware.org

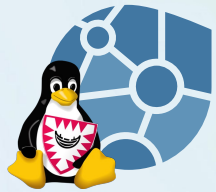
Forum: help.egroupware.org

Questions/answers from lecture



Various questions were asked during the lecture, some of which could not be answered or explained in sufficient detail.
On the following pages you will find the detailed answers.

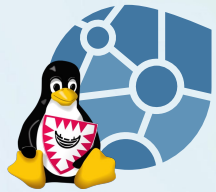
Questions/answers from lecture



```
[15:31] Uli : what are the hardware requirements for a V-Server ?
[15:31] Uli : standard installation
[15:31] Ralf [EGroupware] : It depends a lot on the number of
concurrent users
[15:31] Uli : 10 users
[15:32] Uli : ok thanks
```

The requirements start at 2GB RAM/1CPU/10GB disk for an EGroupware with Collabora Online installed.
The resource requirements during runtime always depend on what the users are doing, how many at a time and how intensively they work in EGroupware.

Questions/answers from lecture



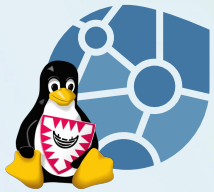
Additional services such as Guacamole, Rocket.Chat or an e-mail server can be installed/operated.

The e-mail server in particular naturally has an impact on the hard disk requirements. Collabora Online in particular requires RAM for the open files.

When choosing the installation system, one should keep the possibility of flexibly adapting the resources free.

We want to create/publish an article in the forum in which we try to break down the resource requirements better and give a few examples.

Questions/answers from lecture

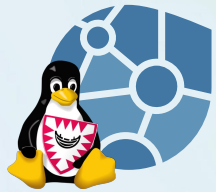


Further example:
70 concurrent users EGroupware, mainly email, calendar, remote RDP for HomeOffice and file storage IT department, mail server disconnected.

Configured:
4 CPU / 6 GB RAM / 37 GB storage

System used:
~ 25% CPU (1 CPU)
~ 50% RAM (3 GB RAM)
~ 32 GB storage (some files)

Questions/answers from lecture

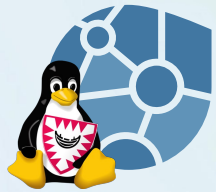


```
[15:48] Niclas : So ultimately you have to encapsulate your Docker
setup in a VM, otherwise you go to hell? ^^
[15:49] Stefan [EGroupware.org] : The installtion wants its own
system. I would have hell if natively install.
```

Short answer:
Yes, the "default install" should be done on a separate system (VM, bare metal, ...).

The "standard installation" is meant for and allows practically anyone to install/run an EGroupware with all its parts.
The installation expects a system on its own.
The reasons for this are explained extensively in the lecture.

Questions/answers from lecture



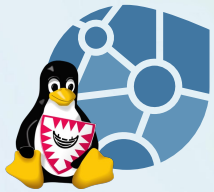
Under no circumstances should you "install over" an existing installation. It is highly recommended to read the release notes and make backups!

With the necessary know-how, the containers offered can be used everywhere where Docker is available.

An installation on a UCS server is an alternative. In this case, the 3 necessary containers are also installed/operated.

Professional support for operation in your own Docker environment is also possible (in certain cases) via our support:
https://www.egroupware.org/professional-support

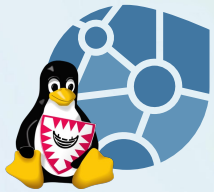
Questions/answers from lecture



```
[15:48] Niclas : What if I already have 400 containers running and
want to add yours? ^^
[15:49] Stefan [EGroupware.org] : Of course you can integrate the
containers into an existing installation with know-how.
```

As described in the lecture/slides, EGroupware consists of 3 containers which have to be integrated.
The necessary information can be found in:
https://github.com/EGroupware/build.opensuse.org/blob/master/server:eGroupWare/egroupware-docker-21.1/egroupware-docker/docker-compose.yml

Questions/answers from lecture



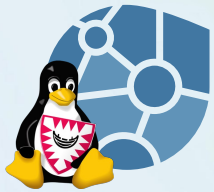
[15:50] Wolle : Can I run egroupware with an existing reverse proxy in the subdirectory?

Yes. That's where we do with
/egroupware
/rocketchat
/...

See also the graphic above in the slides.

In a standard installation, a reverse proxy is also set up that offers the services as a subdirectory.
This makes it possible to address Rocket.Chat directly in the web browser or from mobile clients, for example. In addition to integration as an iFrame in EGroupware.

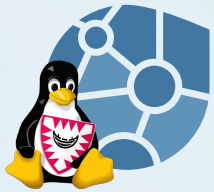
Questions/answers from lecture



```
[15:49] Niclas : Can you say something more about the consequences of
a package update or what happens with a dist-upgrade? Surely you have
to muddle through the configuration that has been adapted in the
meantime, right? Where can I find the...?
[15:50] Niclas : (Question for a buddy who does a lot with Debian.
*cough*)
[15:51] Stefan [EGroupware.org] : You write the custom installation
into your override.yml.
```

A package update that changes configuration files first shows during the installation that a configuration file is being changed. You can then display the changes, decide or rework them. This is nothing different from other packages (postfix, ...).

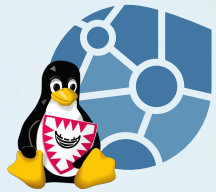
Questions/answers from lecture



In the end, it is like with every package update (of a server service): You have to be careful what you do and a backup is mandatory.

Own configurations should be written in the *.override.yml. These are not exchanged by an update.

Questions/answers from lecture



[15:51] H. Rohde : Watchtower all well & good - how do you ensure that the services & libraries used in your own containers do not contain security vulnerabilities in the versions you use?

The containers we use are either based on established Linux distributions (Ubuntu, Alpine) or on official images from Docker Hub or use them directly.

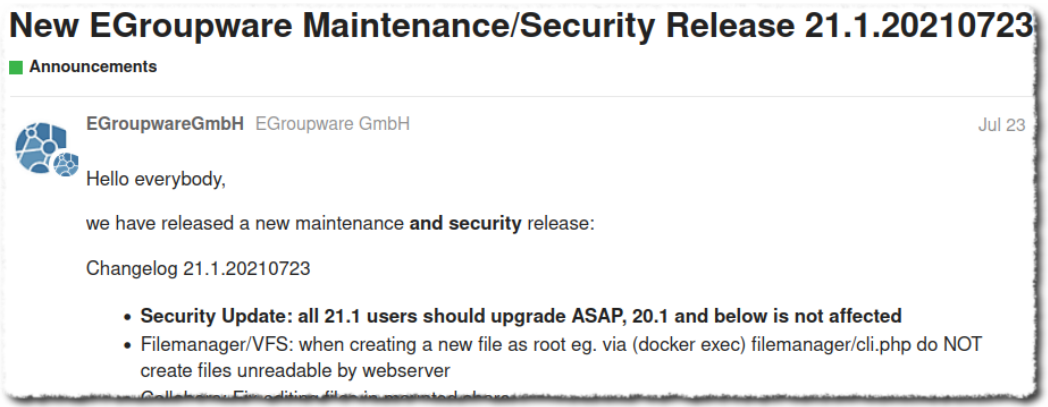
Our own images are constantly scanned for new security vulnerabilities on quay.io and we are subscribed to their mailing lists for our critical components (PHP, Nginx, Dovecot).

GitHub also checks dependencies and informs us:
https://github.com/EGroupware/egroupware/commit/2893d9c07f7d77aec082a644dd995efb8ed4622b

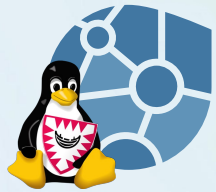
Questions/answers from lecture

If security updates are pending, we evaluate them and provide new images on a regular basis (~10-12 updates per year) or immediately.
In this way, we react promptly to known vulnerabilities and (hopefully) deliver the updates via autoupdate.

We explicitly inform in the forum and our social media channels when a security update is due:



Questions/answers from lecture



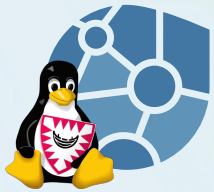
In our opinion, this has significantly improved the security situation of EGroupware installations in recent years, because many more installations are up to date.

Furthermore, the containers can only be accessed via the reverse proxy on the host. This terminates the TLS connection and also serves as an application level firewall for HTTP.

Whether you see this as an advantage or disadvantage depends on whether you have more confidence that your own admin has automated all updates (or does them promptly), or whether you trust us to rebuild the containers promptly in the event of security problems. In the past, we were always very fast, i.e. as soon as PHP updates were available, the containers were rebuilt.

For the "inexperienced" operator, our standard solution is certainly better. Anyone with know-how can of course operate EGroupware in all conceivable constellations.

Questions/answers from lecture



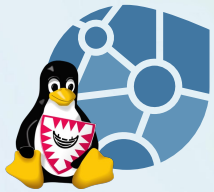
If someone is very paranoid, they can also enable automatic security updates in our containers, or do them manually:

docker exec -it egroupware bash -c "apt update && apt upgrade"

Example for Security Update:

https://help.egroupware.org/t/new-egroupware-maintenance-security-release-21-1-20210723/76082

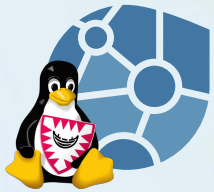
Questions/answers from lecture



We "build" the **Collabora online container** ourselves. This is provided for by Collabora.
If updates are published by Collabora, we are notified promptly, usually days in advance. We then build the container as latest and test its function ourselves. Afterwards, we release the container as stable and also update our hosting.
All this usually happens within a few days. If security updates are pending, they have an even higher priority.

We place the Rocket.Chat container at
https://quay.io/repository/egroupware/rocket.chat?tag=latest&tab=tags
each time in a version tested by us.
The update frequency of Rocket.Chat is so high that there have been one or two problems in the past. Now we are releasing a few necessary versions at a time.
Rocket.Chat will also be made available as an LTS version in the future.

Questions/answers from lecture



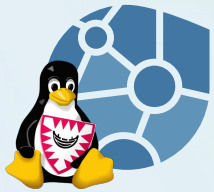
We obtain other containers "directly":

Nginx Webserver for EGroupware
We use the "standard" container nginx:stable-alpine:
https://hub.docker.com/layers/nginx/library/nginx/stable-alpine/images/sha256-1a14d20c4f6513f0a01eba9ba76d17281275e88bcf465b8f634b78e4e9737fee?context=explore
Thus, the container updates itself when NGINX makes a new stable container available.

The same applies to the other application containers.

The reverse proxy used on the host is updated via the package management of the host. This is the responsibility of the system administrator.

Questions/answers from lecture



```
[15:51] Niclas : Following on from Wolle's question: Does the system
deliver https links even if it is connected behind a reverse proxy
via http? :)
[15:54] Niclas : Nice
```

Short answer:
Yes.