EPICS in a Container

PANDA Collaboration Meeting 19/2

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Motivation

- Large diversity in used operating systems within PANDA groups
- Large diversity in "programming skills" of people working on DCS
- Need easy mechanism to deploy software and distribute updates

$\Rightarrow$ Container virtualization

Current Status

Started creating Docker Images

```
~ > docker image ls
REPOSITORY          TAG          IMAGE ID          CREATED             SIZE
archive-engine      latest       b5fb616259e6      17 hours ago        497MB
ca-gateway          7.0.2        f815ae6e9a7f      19 hours ago        601MB
panda-ioc           7.0.2        3844ee8b6682      19 hours ago        641MB
epics-base          7.0.2        f5b84d90777b      19 hours ago        587MB
```

Archive Engine

- RDB Archiver from Phoebus project (successor of CS-Studio)
- Based on openjdk:11-slim image
- Tested container in "isolated bridge" network
- First tests were successfull
- UDP Broadcasts not forwarded from virtual to physical network

$\Rightarrow$ Need to configure CA address list manually

PANDA IOC

EPICS IOC based on debian:stretch-slim image

- base (7.0.2.2)
- asyn (4.35)
- autosave (master branch)
- calc (master branch)
- modbus (2.11)
- snmp (1.0.0.1) (newest mib file from WIENER)
- stream (2.8.9)
- `https://panda-repo.gsi.de/pandadcs/epics-files`

Still to be tested:

- Access to CAN-bus
- Running multiple IOC containers on same host

Demonstration with HAMEG HMP40xx Power Supply

```
~ > docker run --rm -itP \
      --device /dev/tty...:/dev/ttyHameg \
      -v /home/florian/epics-docker/test/config:/home/panda-dcs/config \
      panda-ioc:7.0.2 ./hameg_demo.cmd
```