OBIEE DevOps with Containers

How and Why

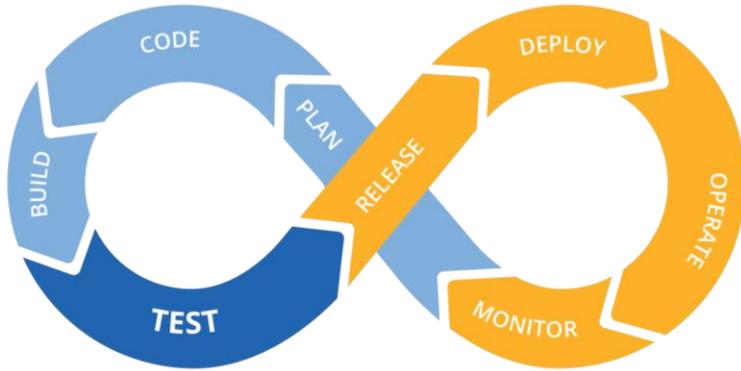ITOUG
ITALIAN ORACLE USER GROUP

Pimp your DevOps with Docker

An Oracle BI example

# The next 45 minutes …

This …

… for that …

ORACLE®
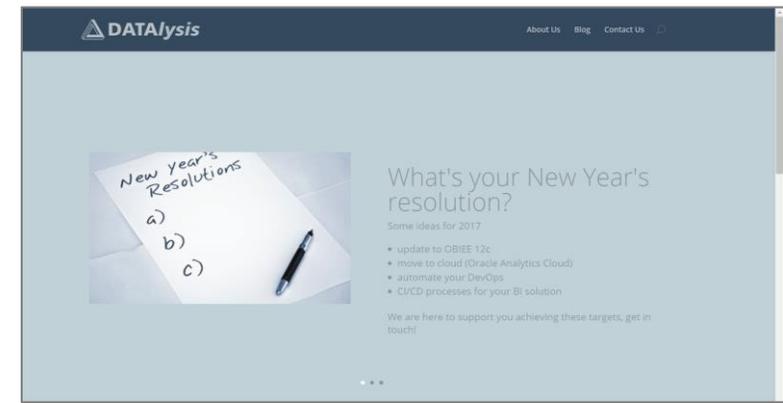**BUSINESS INTELLIGENCE**

… using this …

docker

Gianni Ceresa

- Managing Director of DATAlysis GmbH (Switzerland)
- Working with BI and EPM tools for about 10 years
- Part-time blogger on **gianniceresa.com**
- Full-time IRC (freenode | #obihackers) resident
  - Same group on Telegram **http://telegram.me/obihackers**
- OTN forums addict
- Technology geek (or just geek in general)
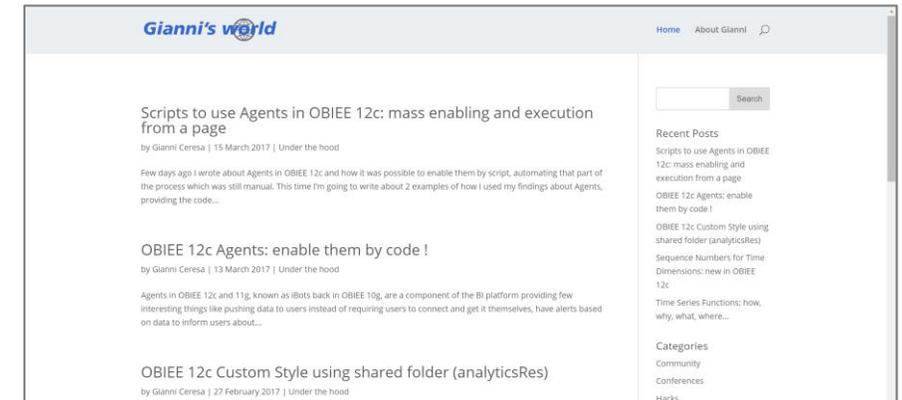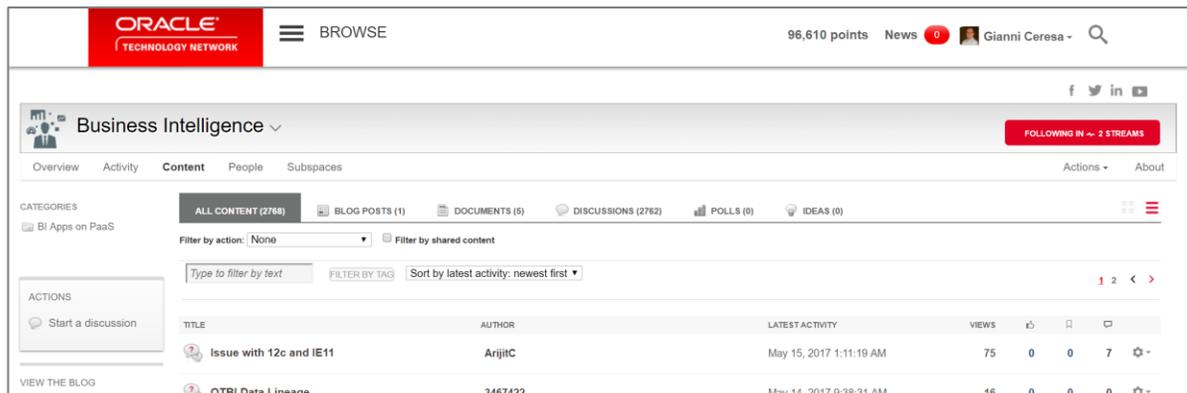
How and Why: the "how"

- Docker
- Docker
- … Docker again

- On Docker for the sample DevOps process used here:
  - OBIEE 12.2.1.2.0
  - Oracle DB 12.1.0.2 (from GitHub.com/oracle)
  - GitLab CE 9.2 (from Docker Hub)
    - GitLab Community Edition (CE) is free, self hosted application where you can get support from the Community. Feature rich: Git repository management, code reviews, issue tracking, activity feeds and wikis. It comes with GitLab CI for continuous integration and delivery.

In case you missed it …

- What is Docker?

    It is the world's leading software container platform. Developers use Docker to eliminate "works on my machine" problems when collaborating on code with co-workers. Operators use Docker to run and manage apps side-by-side in isolated containers to get better compute density. Enterprises use Docker to build agile software delivery pipelines to ship new features faster, more securely and with confidence for both Linux and Windows Server apps.
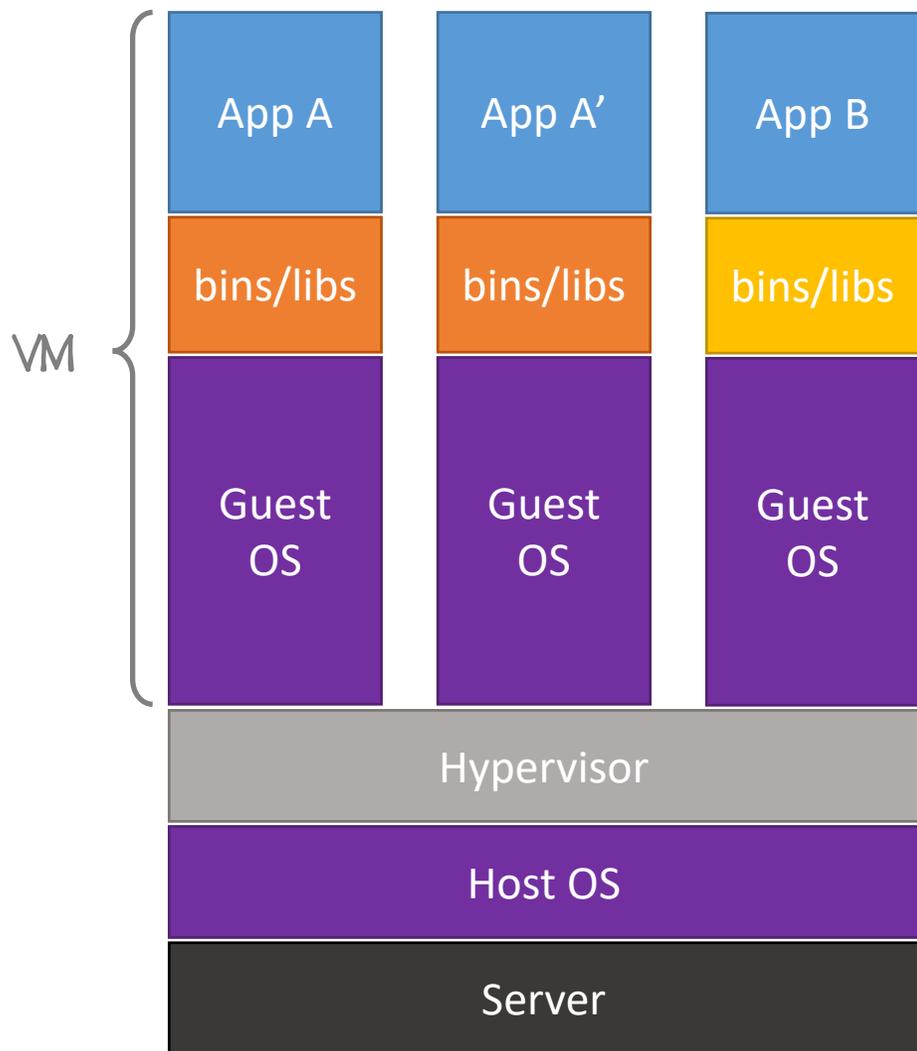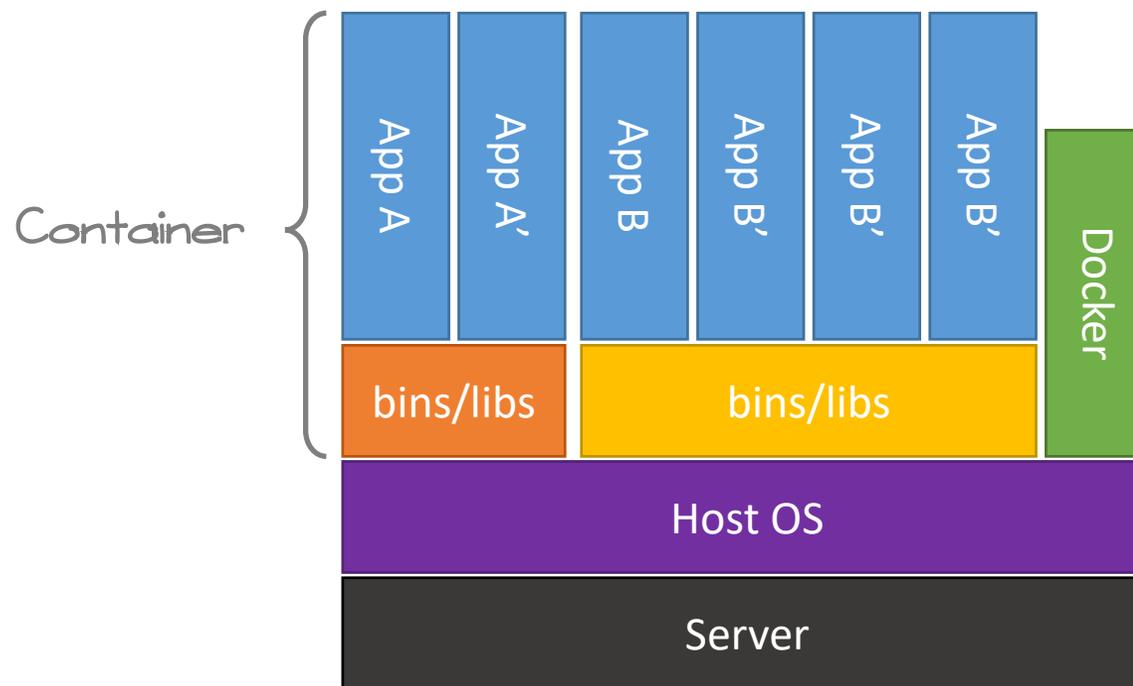
What is … OBIEE 12c

- An analytical and reporting enterprise solution able to use multiple kind of sources and based on a central common model…

- A bit(/big) monolithic "mess"

- Many components

- Many servers / services

- Requires a database

- RAM eater (8+ Gb)

Oracle BI 12c Architecture

Oracle BI Domain

| Node Manager | Admin Server | Managed Server | Oracle Platform Security Service |

BI System Components

| BI Server | BI Scheduler | BI Java Host |
| Essbase Studio | BI Presentation Server | Cluster Controller |

End Point Registry

ODL | DMS

Identity Store

WLST

Configuration | Metadata

Service Instance

Database: RCU Schemas
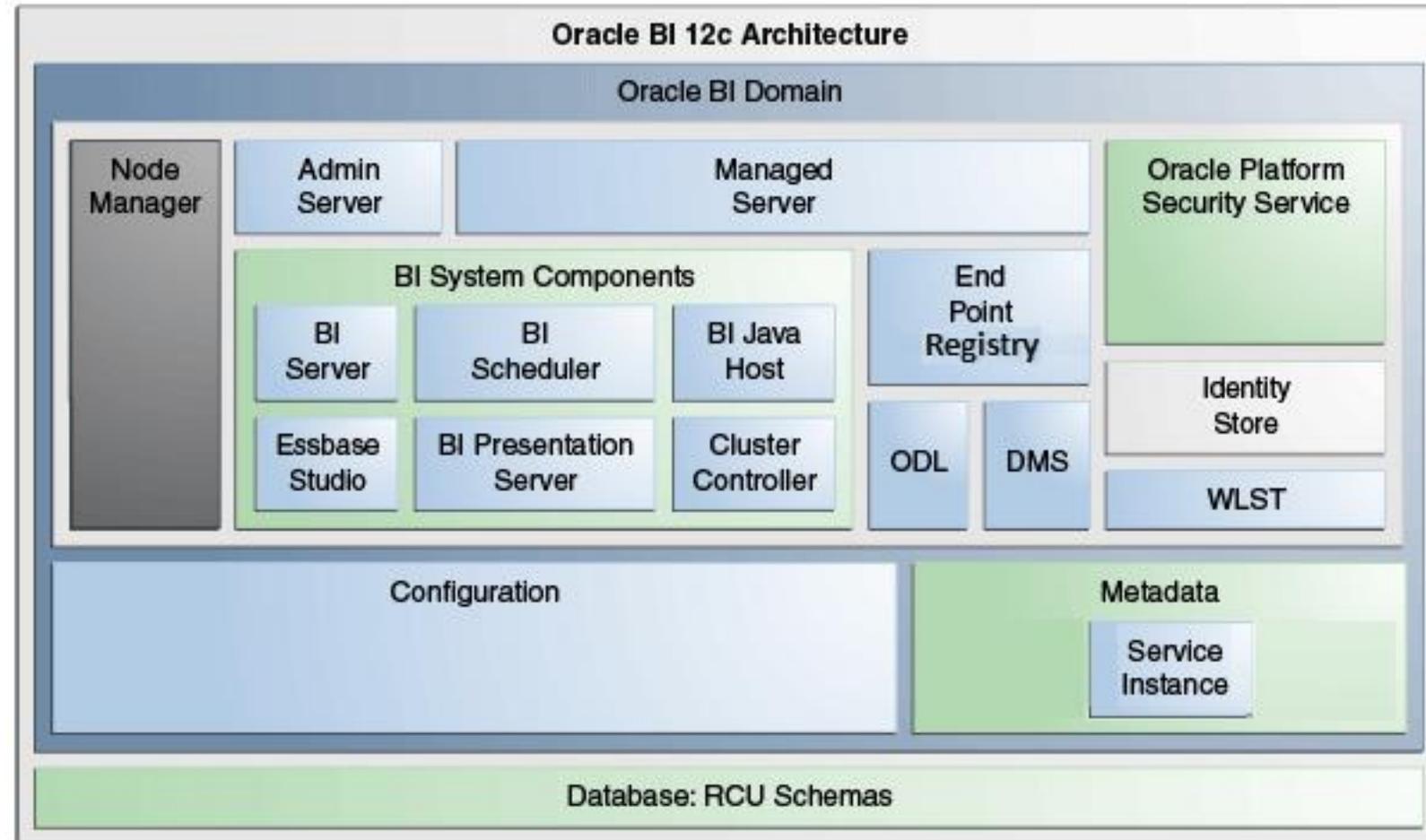
How to fit OBIEE 12c in a container?

- Docker is first targeted to "one service = one container" architecture, microservices, ephemerals processes

- OBIEE is everything but a Docker-friendly application

- But …
  - Docker can build images automatically by reading the instructions from a Dockerfile
  - A Dockerfile is a text document containing all the commands a user could call by command line to assemble an image
  - Using "docker build" users can create an automated build that executes several command-line instructions in succession
  - OBIEE can be installed by command line silently using response files

- The conclusion?
  - A Dockerfile can execute all the required commands to perform a silent OBIEE installation
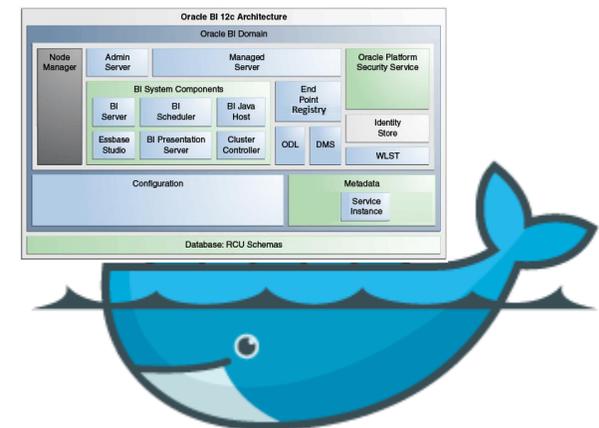
Available Dockerfile for OBIEE 12c and Oracle Database

- Oracle Database Dockerfile
  - https://github.com/oracle/docker-images/tree/master/OracleDatabase
- Oracle BIEE 12c Dockerfile
  - https://github.com/gianniceresa/docker-images/tree/master/OracleBIEE

- The steps performed for OBIEE 12c:
  - Start from an Oracle Linux 7 image (pulled automatically from Docker Hub)
  - Copy install files inside the image
  - Add an "oracle" user (by default only root)
  - Install required packages & Java with YUM
  - Replace some variables/placeholders with values
  - Install Weblogic, install OBIEE
  - Clean up a bit, set default dir, expose ports, define default command to execute on start

Dockerfile example

- A set of commands

- Each command will be a layer (representing the filesystem differences)

- More layers = bigger image

Docker commands

Commands you would run in your console

```
1   FROM oraclelinux:latest
2
3   MAINTAINER Gianni Ceresa <gianni.ceresa@datalysis.ch>
4
5   ENV INSTALL_FILE_JDK="jdk-8u101-linux-x64.rpm"                              \
6       INSTALL_FILE_WLS="fmw_12.2.1.2.0_infrastructure_Disk1_1of1.zip"        \
7       INSTALL_FILE_BI_1="fmw_12.2.1.2.0_bi_linux64_Disk1_1of2.zip"           \
8       INSTALL_FILE_BI_2="fmw_12.2.1.2.0_bi_linux64_Disk1_2of2.zip"           \
9       INSTALL_FILE_RSP_WLS="weblogic.rsp"                                    \
10      INSTALL_FILE_RSP_BI="obiee.rsp"                                        \
11      INSTALL_FILE_RSP_CONFIG="bi_config.rsp"                                \
12      RUN_FILE="runOBIEE.sh"                                                 \
13      ORACLE_BASE=/opt/oracle                                                \
14      ORACLE_HOME=/opt/oracle/biee
15
16  ENV INSTALL_DIR=$ORACLE_BASE/install
17
18  COPY $INSTALL_FILE_JDK $INSTALL_FILE_WLS $INSTALL_FILE_BI_1 $INSTALL_FILE_BI_2 $INSTALL_DIR/
19  COPY $INSTALL_FILE_RSP_WLS $INSTALL_FILE_RSP_BI $INSTALL_FILE_RSP_CONFIG $RUN_FILE $ORACLE_BASE/
20
21  RUN chmod ug+x $INSTALL_DIR/$INSTALL_FILE_JDK                              && \
22      groupadd -g 500 dba                                                   && \
23      groupadd -g 501 oinstall                                              && \
24      useradd -d /home/oracle -g dba -G oinstall,dba -m -s /bin/bash oracle && \
25      echo oracle:oracle | chpasswd                                        && \
26      yum -y install oracle-rdbms-server-12cR1-preinstall unzip wget tar openssl && \
27      yum -y remove java-openjdk java-openjdk-headless                      && \
28      yum -y install $INSTALL_DIR/$INSTALL_FILE_JDK                         && \
29      yum clean all                                                        && \
30      rm $INSTALL_DIR/$INSTALL_FILE_JDK                                     && \
```

Building the image

- Each command of the Dockerfile is a "Step"
- Each step is executed in a Docker container removed at the end ("Removing intermediate container") and saved as a slice of the image

Steps run in a
temp container

#ref of the slice

```
[gianni@brix01 OracleBIEE]$ ./buildDockerImage.sh -v 12.2.1.2.0
Checking if required packages are present and valid...
fmw_12.2.1.2.0_infrastructure_Disk1_1of1.zip: OK
fmw_12.2.1.2.0_bi_linux64_Disk1_1of2.zip: OK
fmw_12.2.1.2.0_bi_linux64_Disk1_2of2.zip: OK
jdk-8u101-linux-x64.rpm: OK
====================
Building image 'oracle/obiee:12.2.1.2.0' ...
Sending build context to Docker daemon  4.832GB
Step 1/14 : FROM oraclelinux:latest
 ---> b76977ffda62
Step 2/14 : MAINTAINER Gianni Ceresa <gianni.ceresa@datalysis.ch>
 ---> Running in dcf6904e7d4b
 ---> 1c4a5b6fe1e0
Removing intermediate container dcf6904e7d4b
Step 3/14 : ENV INSTALL_FILE_JDK "jdk-8u101-linux-x64.rpm" INSTALL_FILE_WLS "fmw_12.2.1.2.0_infrastructure_Disk1_1of1.zip" INSTALL_F
ILE_BI_1 "fmw_12.2.1.2.0_bi_linux64_Disk1_1of2.zip" INSTALL_FILE_BI_2 "fmw_12.2.1.2.0_bi_linux64_Disk1_2of2.zip" INSTALL_FILE_RSP_WL
S "weblogic.rsp" INSTALL_FILE_RSP_BI "obiee.rsp" INSTALL_FILE_RSP_CONFIG "bi_config.rsp" RUN_FILE "runOBIEE.sh" ORACLE_BASE /opt/ora
cle ORACLE_HOME /opt/oracle/biee
 ---> Running in 92cb44f32275
 ---> 2eb28d052cff
Removing intermediate container 92cb44f32275
Step 4/14 : ENV INSTALL_DIR $ORACLE_BASE/install
 ---> Running in 4663e0b6399a
 ---> a70712bc90ad
Removing intermediate container 4663e0b6399a
Step 5/14 : COPY $INSTALL_FILE_JDK $INSTALL_FILE_WLS $INSTALL_FILE_BI_1 $INSTALL_FILE_BI_2 $INSTALL_DIR/
```

The final image: a set of layers

- The final image is 18.6 Gb, bigger than a normal clean OBIEE install (~9-10Gb)

```
[gianni@brix01 ~]$ docker history oracle/obiee:12.2.1.2.0
IMAGE               CREATED             CREATED BY                                      SIZE
81624f294a4c        7 minutes ago       /bin/sh -c #(nop)  CMD ["/bin/sh" "-c" "$O...   0B
d91e87330892        7 minutes ago       /bin/sh -c #(nop)  EXPOSE 9500/tcp 9501/tc...   0B
a42575af701d        8 minutes ago       /bin/sh -c #(nop) WORKDIR /opt/oracle/biee      0B
cfe387bf3c50        8 minutes ago       /bin/sh -c sed -i -e "s|source=file:/dev/r...   26.2kB
103b1d5ee841        8 minutes ago       /bin/sh -c cd $INSTALL_DIR                 ...   8.44GB
cdf596998f4f        16 minutes ago      /bin/sh -c #(nop)  USER [oracle]                0B
02623bdfb6a8        16 minutes ago      /bin/sh -c sed -i -e "s|###ORACLE_HOME###|...   35.1kB
2610fd8115ac        16 minutes ago      /bin/sh -c chmod ug+x $INSTALL_DIR/$INSTAL...   5.13GB
39a546021779        18 minutes ago      /bin/sh -c #(nop) COPY multi:1f1c423407ec3...   8.9kB
9329af34e0ad        18 minutes ago      /bin/sh -c #(nop) COPY multi:ddbfe64b08943...   4.83GB
a70712bc90ad        19 minutes ago      /bin/sh -c #(nop)  ENV INSTALL_DIR=/opt/or...   0B
2eb28d052cff        19 minutes ago      /bin/sh -c #(nop)  ENV INSTALL_FILE_JDK=jd...   0B
1c4a5b6fe1e0        19 minutes ago      /bin/sh -c #(nop)  MAINTAINER Gianni Ceres...   0B
b76977ffda62        3 weeks ago         /bin/sh -c #(nop)  CMD ["/bin/bash"]            0B
<missing>           3 weeks ago         /bin/sh -c #(nop) ADD file:69a906858a9efc2...   225MB
<missing>           8 months ago        /bin/sh -c #(nop)  MAINTAINER Oracle Linux...   0B
```

The various steps of my Dockerfile

Oraclelinux image

Readability & maintainability vs. Docker image size

- It's possible to reduce the size by squashing the image
  - Google for "Docker squash"
- Alternative way: less steps in the Dockerfile & download binaries while installing instead of "COPY"
  - Harder to maintain and read, require a source for the binaries (a docker based web server?)

Single "RUN", download binaries "on the fly"

YUM install required packages

```
[gianni@brix01 ~]$ docker history oracle/obiee:12.2.1.2.0_slim
IMAGE              CREATED          CREATED BY                                      SIZE
b938259d059e       6 days ago       /bin/sh -c #(nop)  CMD ["/bin/sh" "-c" "$O...   0B
26decf7f0518       6 days ago       /bin/sh -c #(nop)  EXPOSE 9500/tcp 9501/tc...   0B
73430fd271bf       6 days ago       /bin/sh -c #(nop) WORKDIR /opt/oracle           0B
35fe6c9a43ea       6 days ago       /bin/sh -c #(nop)  USER [oracle]                0B
4ca6adb1497c       6 days ago       /bin/sh -c mkdir -p $ORACLE_HOME        ...     8.8GB
88fa70807434       6 days ago       /bin/sh -c #(nop) COPY multi:f539e9017bfff...   20.3kB
906d031fbd82       6 days ago       /bin/sh -c #(nop) COPY file:cf2094ee52b135...   654B
2d5c2026ba61       6 days ago       /bin/sh -c #(nop)  ENV INSTALL_FILE_JDK=jd...   0B
02a4c0f5cd85       6 days ago       /bin/sh -c #(nop)  MAINTAINER Gianni Ceres...   0B
4262d41ea22b       6 days ago       /bin/sh -c #(nop)  CMD ["/bin/sh" "-c" "/b...   0B
8a11ad4aba58       6 days ago       /bin/sh -c #(nop) WORKDIR /opt/oracle           0B
f7cde77cd464       6 days ago       /bin/sh -c mkdir -p $INSTALL_DIR        ...     264MB
65bc7def4c76       6 days ago       /bin/sh -c #(nop)  ENV INSTALL_DIR=/opt/or...   0B
2d08c2c87a47       6 days ago       /bin/sh -c #(nop)  ENV ORACLE_BASE=/opt/or...   0B
ed4915749e7e       6 days ago       /bin/sh -c #(nop)  MAINTAINER Gianni Ceres...   0B
f005b5220b05       2 months ago     /bin/sh -c #(nop)  CMD ["/bin/bash"]            0B
<missing>          2 months ago     /bin/sh -c #(nop) ADD file:8244748e854470f...   114MB
<missing>          8 months ago     /bin/sh -c #(nop)  MAINTAINER Oracle Linux...   0B
```

My OBIEE image

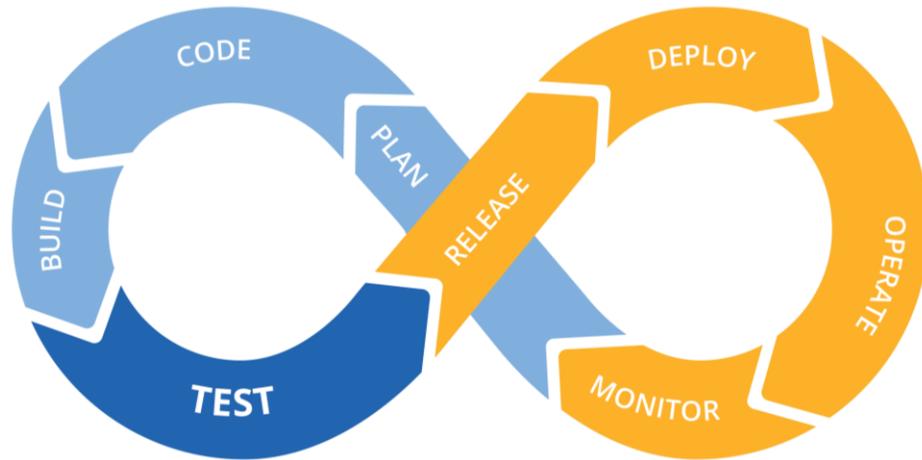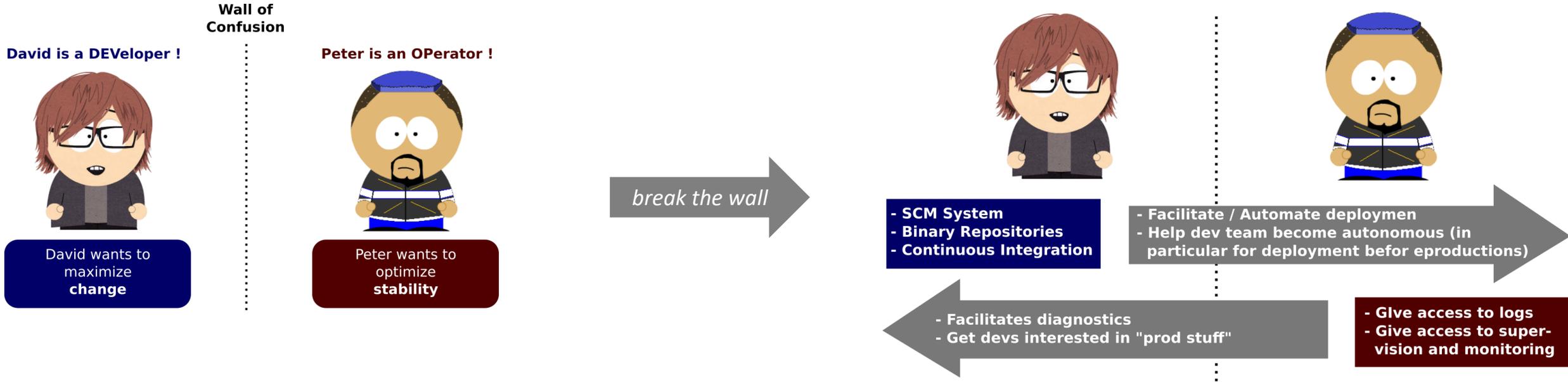My Oraclelinux "BI" image

Oraclelinux "slim" image

Jumping back to the topic ... DevOps

DevOps

- An extremely "trendy" word recently
- Is a methodology proposing a set of principles and practices
- Is not a set of tools
  - Even if so far I talked about Docker and GitLab …
  - You can use tools to help you implementing DevOps
- Like "best practices" it is a possible methodology that can be freely adapted and customised to everyone's needs
  - Must integrate with your current methods and processes, replacing things where needed
  - Not supposed to be applied randomly "just because it's good to say you did it" !

DevOps: what it wants to solve

Wall of Confusion

David is a DEVeloper !

David wants to maximize **change**

Peter is an OPerator !

Peter wants to optimize **stability**

break the wall

- SCM System
- Binary Repositories
- Continuous Integration

- Facilitate / Automate deploymen
- Help dev team become autonomous (in particular for deployment befor eproductions)

- Facilitates diagnostics
- Get devs interested in "prod stuff"

- GIve access to logs
- Give access to super-vision and monitoring

... Extend Agility
to Production ...

A refresher on how OBIEE development works …

Typical OBIEE dev process

- A developer model something in the RPD
- One or many developers (same or others) develop front-end objects
  - Analysis, dashboards etc.
- The result is tested and if validated (on the dev side) pushed to users for approval/test
  - RPD without front-end makes little sense but doesn't give errors
  - Front-end without RPD makes no sense and gives errors
  - The RPD and frond-end will need to be promoted to a new environment together to avoid issues, security must follow in the same time
- The problems are:
  - Deploy RPD is an independent process than deploying front-end
  - The 2 deployments are done with different tools
  - RPD is a single binary file with limited concurrent development on it
  - By default absolutely no versioning of anything (no source control nowhere OOTB)

RPD concurrent development: solutions exist ...

@rmoff

So which methods sucks the least?

	Multiple developers	Integration with source control	Feature driven development	Ease of use	Overall
Source control + Binary RPD	Yes	Yes	Yes	Medium	Not perfect, but the best option
MUD	Yes	Manual	No	Medium	Could be worse
Source control + MDS XML RPD	Yes	Yes	Only if objects fully isolated	Medium	Requires too much process to mitigate against RPD corruption and unnecessary merge conflicts
Online editing	Not really	No	No	Easy	Not viable

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https://speakerdeck.com/rmoff/source-control-code-deployment-and-concurrent-development-for-obiee-12c

Is DevOps needed/possible with OBIEE?

- OOTB no real "Agile DevOps" (CI/CD) possible
- Concurrent development on RPD not possible OOTB but … can be done with source control (implementing your own processes)

For "Agile DevOps" (CI/CD) in OBIEE the solution must be somewhere around source control and be driven by it
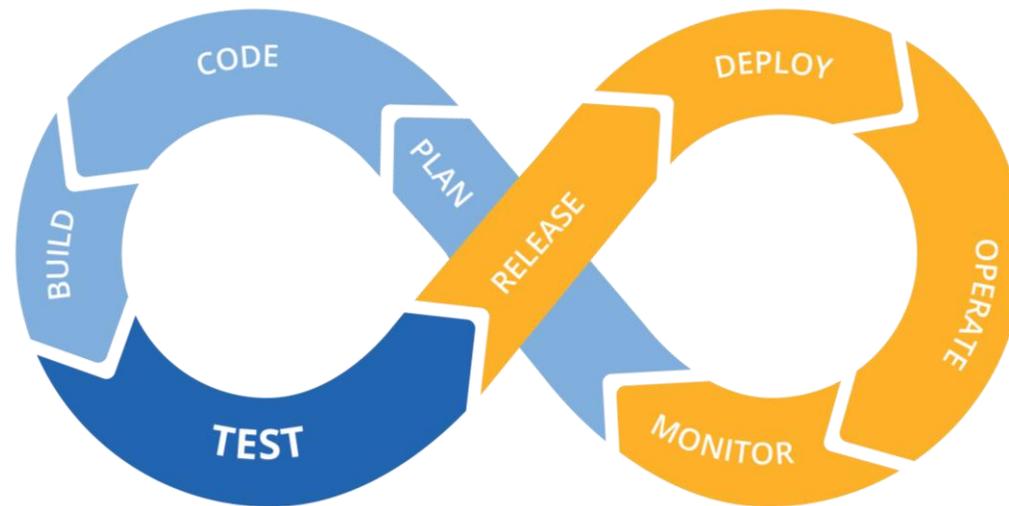
Source control for OBIEE: GIT

- By adopting a GIT-flow "like" approach (GitLab flow) you can make CI/CD possible

- A "master" branch being the mainline base of all the OBIEE contents developments (RPD and front-end, security etc.)

- New developments or hot-fixes done on branches merges back into "master"

- A production branch can be used to keep track of "releases"
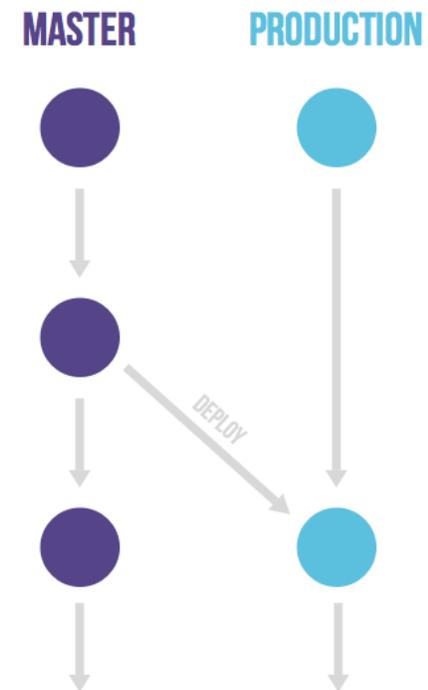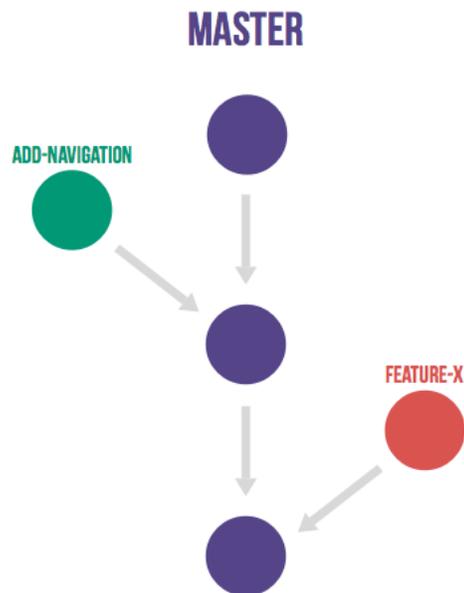
CI: what kind of tests can be done on OBIEE ?

- RPD consistency check : prevent mistakes or "bad" practices at the RPD level (purely check of syntax and model)

- BVT (Baseline Validation Tool) : automated tests of OBIEE output
  - LSQL comparison (OBIEE internal logical query)
  - Data retrieved from sources
  - Export of analysis in Excel, CSV, PDF
  - Look & feel by comparing screenshots

- These two are mainly the only available out of the box testing tools

BVT : this helpful stranger …

- A bit unknown and not well developed by Oracle (still first release, inconsistent formats across various plugins outputs)
  - First released to support 11g to 12c upgrades automating regression tests

- A BVT test requires an OBIEE server

- RPD must be deployed on the server

- Front-end objects must be deployed on the server

- BVT must be setup on the server or a different location
  - A browser is required for the visual analysis and taking screenshots

- BVT requires a config file and a place where to store the results

- BVT Compare:
  - To compare 2 sets of results they are both needed as well as the config file and BVT itself
  - The result is a bunch of files (xml, html, csv etc.) in multiple directories

Possible OBIEE CI/CD plan

- At each commit to a "work" branch (under development things)
  - (CI) Run a RPD check
  - (CI) Run a BVT test
  - (CI) Compare BVT result to MASTER latest BVT (so the main dev branch)
  - (CI) Generate a simple documentation of the changes of the RPD and attach it to the commit
  - (CI) Generate a simple documentation of the changes of the front-end and attach it to the commit
  - (CD) Offer the ability to have a review environment where to test the code before merging into the main MASTER branch
- At each commit to MASTER branch (main dev branch)
  - (CI) Run a RPD check
  - (CI) Run a BVT test
  - (CI) Generate a simple documentation of the changes of the RPD and attach it to the commit
  - (CI) Generate a simple documentation of the changes of the front-end and attach it to the commit
  - (CD) Deploy the code to the central TEST server
- At each commit to the PRODUCTION branch
  - (CD) Deploy the code to the production server (or offer the ability to do it at a later time)

- Output of tests stored as artifacts, accessible by developers

Possible OBIEE CI/CD plan

Dev/yy

Deploy this version to TEST environment

Master

Dev/xx

Compare BVT results with the latest one of Master

This branch is developed in an OBIEE sandbox running on Docker to make provisioning simple and fast

Practical example

- Commit a new change to a dev branch to add a new dimension to the model
  - In the RPD a new table for the new dimension is loaded and mapped in the model
  - In the front-end a new analysis is created using the newly created attributes and the analysis is added to an existing dashboard

- Expected result:
  - A CI pipeline is started running all the tests of a new feature development
    - BVT
    - RPD check
    - Self documentation
    - Option to spin-up a review environment based on this code

Commit to a work branch: the CI pipeline is executed

GitLab example: a commit to a work branch

A CI pipeline is running

☰ | 🦊 | This project | Search 🔍 | 🔧 ➕ # ⑃ ✅ 👤▾

Project　Repository　Registry　Issues ⓪　Merge Requests ⓪　**Pipelines**　Wiki　Snippets　Settings

Pipelines　Jobs　Environments　Charts

🌀 running　**Pipeline #163** triggered about a minute ago by 👤 **Gianni Ceresa**　**Cancel running**

Added the Channels dimension and a new analysis using it. Analysis added to main dashboard.

🕐 10 jobs from `dev/Add_channels_dimension` (queued for 1 second)

⦾ 164a8fa9　...　📋

Pipeline　Jobs 10

Different stages

Each stage has one or many jobs

Test	**Validate**	**Self Doc**	**Deploy**
⏸ compare_rpd ⊘	⦿ compare_bvt	⦿ catalog_changes..	⦿ deploy_review_e...
🌀 run_bvt ⊘		⦿ compare_bvt_co...	⦿ stop_review_env
⏸ validate_rpd ⊘		⦿ rpd_changes_co...	
		⦿ validate_rpd_co...	

GitLab example: a commit to a work branch

GitLab example: CI self-documentation

GitLab CI @gitlabci commented 2 weeks ago

BVT results (compared to master ef33e0fc)

Exportreportstoexcel2007	
Pass Count	2
Missing Count	0
Load Failure Count	0
Fail Count	0
Unprocessed Count	0
New Item Count	1
Total Count	3

Ui	
Pass Count	2
Failed To Compare Count	0
Missing Count	0
Fail Count	0
Not Loaded Count	0
New Item Count	1
Total Count	3

Exportreportstopdf	
Pass Count	2
Missing Count	0

GitLab CI @gitlabci commented 2 weeks ago

RPD changes compared to ef33e0fc

Modified

Subject Area	
"Sales - Fact Sales"	Tables

Database	
"orcl"	Features

Created

Logical Table Source
"Sales"."Dim Channels"."CHANNELS"

Physical Table
"orcl".."SH"."CHANNELS"

Logical Column
"Sales"."Dim Channels"."Channel class"
"Sales"."Dim Channels"."Channel"

GitLab CI @gitlabci commented 13 minutes ago

RPD Consistency check

WARNINGS:

GLOBAL: [39028] The features in Database 'orcl' do not match the defaults. This can cause query problems.

Pipeline #171 | Job #777

GitLab example: Run tests in Docker

```
Repository Creation Utility - Checking Prerequisites
Checking Component Prerequisites
Repository Creation Utility - Validating Tablespaces
Check tablespace requirements for selected components
Validation Completed
RCU exiting with status 0
$ $ORACLE_BASE/_configureOBIEE.sh
BI_CONFIG_ADMIN_USER not defined, default: weblogic
BI_CONFIG_ADMIN_PWD not defined, default: Admin123
BI_CONFIG_RCU_USER not defined, default: sys
BI_CONFIG_RCU_NEW_DB_PWD not defined, default: Admin123
Starting Fusion Middleware Configuration Wizard for BIEE
ORACLE_HOME set as /opt/oracle/product/12.2.1.2.0
BI_PRODUCT_HOME set as /opt/oracle/product/12.2.1.2.0/bi
PATH set as /opt/oracle/product/12.2.1.2.0/bi/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin
LD_LIBRARY_PATH set as /opt/oracle/product/12.2.1.2.0/bi/lib
INSTALL_PROPERTIES /opt/oracle/product/12.2.1.2.0/bi/../oui/mw/bi/metadata/config.properties
INSTALL_INVOCATION /opt/oracle/product/12.2.1.2.0/bi/bin/../../oui/bin/launch.sh -clone ORACLE_HOME=/opt/oracle/product/12.2.1.2.0 -invPtrLoc /
opt/oracle/product/12.2.1.2.0/oraInst.loc -silent -responseFile /opt/oracle/bi_config.rsp -invPtrLoc /opt/oracle/oraInst.loc -J-Doracle.as.inst
all.engine.weblogic.config.mode=true -J-Doracle.config.mode=true -J-Doracle.as.install.engine.install.properties.location=/opt/oracle/product/1
2.2.1.2.0/bi/../oui/mw/bi/metadata/config.properties -J-DSHIPHOME_STAGE_DIR=/opt/oracle/product/12.2.1.2.0/bi/../oui/mw/bi
Launcher log file is /tmp/OraInstall2017-06-02_10-27-01AM/launcher2017-06-02_10-27-01AM.log.
Checking swap space: must be greater than 500 MB.   Actual 16063 MB     Passed
Checking if this platform requires a 64-bit JVM.   Actual 64     Passed


Log: /opt/oracle/oraInventory/logs/install2017-06-02_10-27-01AM.log
Copyright (c) 1999, 2016, Oracle and/or its affiliates. All rights reserved.
Reading response file..
Starting check : CertifiedVersions
Prerequisite Check was skipped and did not execute.
Warning: Check:CertifiedVersions completed with warnings.


Starting check : Packages
Prerequisite Check was skipped and did not execute.
Warning: Check:Packages completed with warnings.
```

The CI steps use Docker to execute OBIEE.
First thing is to create a new OBIEE environment, that's why the container start by configuring OBIEE (RCU, create domain, start components)

GitLab example: Run tests in Docker

```
$ $DOMAIN_HOME/$BI_CONFIG_DOMAINE_NAME/bitools/bin/runcat.sh -cmd unarchive -inputFile $CI_PROJECT_DIR/shared.catalog -folder / -online http://
localhost:9502/analytics/saw.dll -credentials $CI_PROJECT_DIR/gitlab-automation/credentials.txt
Instance Name is missing. Using default Instance Name: obips1
Using Oracle BI Home: /opt/oracle/product/12.2.1.2.0/bi
env:
INSTANCE_NAME: obips1
ORACLE_HOME: /opt/oracle/product/12.2.1.2.0
ORACLE_INSTANCE: /opt/oracle/config/domains/bi/config/instances/i1
BI_PRODUCT_HOME: /opt/oracle/product/12.2.1.2.0/bi
DOMAIN_HOME: /opt/oracle/config/domains/bi
ORACLE_BI_APPLICATION:
COMPONENT_TYPE:
COMPONENT_NAME:
ORACLE_BIPS_INSTANCE_CONFIGDIR: /opt/oracle/config/domains/bi/config/fmwconfig/biconfig/OBIPS
ORACLE_BIPS_INSTANCE_DIAGNOSTICSDIR: /opt/oracle/config/domains/bi/servers/obips1
ORACLE_BIPS_INSTANCE_TEMPDIR: /opt/oracle/config/domains/bi/servers/obips1/tmp
JAVA_HOME: /usr/java/jdk1.8.0_101
LD_LIBRARY_PATH: :/opt/oracle/product/12.2.1.2.0/bi/modules/oracle.bi.datadirect.odbc/8.0.1/lib:/opt/oracle/product/12.2.1.2.0/bi/modules/oracl
e.bi.datadirect.odbc/7.1.5/lib:/opt/oracle/product/12.2.1.2.0/bi/modules/oracle.bi.datadirect.odbc/7.1.4/lib:/opt/oracle/product/12.2.1.2.0/bi/
modules/oracle.bi.datadirect.odbc/5.3/lib:/opt/oracle/product/12.2.1.2.0/oracle_common/jdk/jre/lib/amd64/server:/opt/oracle/product/12.2.1.2.0/
oracle_common/jdk/jre/lib/amd64//://://:/opt/oracle/product/12.2.1.2.0/bi/bifoundation/server/bin:/opt/oracle/product/12.2.1.2.0/bi/bifoundatio
n/web/bin:/opt/oracle/product/12.2.1.2.0/bi/clients/epm/Essbase/EssbaseRTC/bin:/opt/oracle/product/12.2.1.2.0/bi/bifoundation/odbc/lib:/opt/ora
cle/product/12.2.1.2.0/bi/bifoundation/lib:/opt/oracle/product/12.2.1.2.0/bi/lib:/opt/oracle/product/12.2.1.2.0/lib:/opt/oracle/product/12.2.1.
2.0/oracle_common/adr:/opt/oracle/product/12.2.1.2.0/oracle_common/lib:
BIFNDN_LABEL =${VIEW_LABEL}
# Command : -cmd unarchive -inputFile /builds/DATAlysis/obiee/shared.catalog -folder / -online http://localhost:9502/analytics/saw.dll -credent
ials /builds/DATAlysis/obiee/gitlab-automation/credentials.txt
Making SOAP connection to : http://localhost:9502/analytics/saw.dll
Command 'unarchive' completed successfully.
$ cd $CI_PROJECT_DIR
$ echo "# Run BVT ..."
# Run BVT ...
$ cd $ORACLE_BASE/BVT
$ xvfb-run ./bin/obibvt -config $CI_PROJECT_DIR/bvt/config.xml -deployment Current
  INFO: Result folder: Results/Current
  INFO: CatalogPlugin: Initialized
  INFO: CatalogPlugin: Set Up for Test Run
  INFO: Starting [com.oracle.biee.bvt.plugin.catalog.CatalogPlugin]:[GetCatalogTest]
  INFO: CatalogPlugin: GetCatalogTest()

Catalog Items: 1
Catalog Items: 2
```

When OBIEE is running (inside the Docker container) the RPD and catalog from GIT are deployed.
Finally BVT is executed.

GitLab example: Run tests in Docker

```
Percent Complete: 83
Percent Complete: 95
Percent Complete: 97
Percent Complete: 100


Repository Creation Utility: Drop - Completion Summary


Database details:
----------------------------
Host Name                                    : 192.168.120.80
Port                                         : 1521
Service Name                                 : ORCLPDB1
Connected As                                 : sys
Prefix for (prefixable) Schema Owners        : CIJOB775
RCU Logfile                                  : /tmp/RCU2017-06-02_10-43_1288051351/logs/rcu.log


Component schemas dropped:
----------------------------
Component                       Status       Logfile

Common Infrastructure Services  Success      /tmp/RCU2017-06-02_10-43_1288051351/logs/stb.log
Oracle Platform Security Services Success    /tmp/RCU2017-06-02_10-43_1288051351/logs/opss.log
Business Intelligence Platform  Success      /tmp/RCU2017-06-02_10-43_1288051351/logs/biplatform.log
Audit Services                  Success      /tmp/RCU2017-06-02_10-43_1288051351/logs/iau.log
Audit Services Append           Success      /tmp/RCU2017-06-02_10-43_1288051351/logs/iau_append.log
Audit Services Viewer           Success      /tmp/RCU2017-06-02_10-43_1288051351/logs/iau_viewer.log
Metadata Services               Success      /tmp/RCU2017-06-02_10-43_1288051351/logs/mds.log
WebLogic Services               Success      /tmp/RCU2017-06-02_10-43_1288051351/logs/wls.log


Repository Creation Utility - Drop : Operation Completed
Uploading artifacts...
bvt_results/*: found 100 matching files
Uploading artifacts to coordinator... ok           id=775 responseStatus=201 Created token=rfeJs_7K
Job succeeded
```
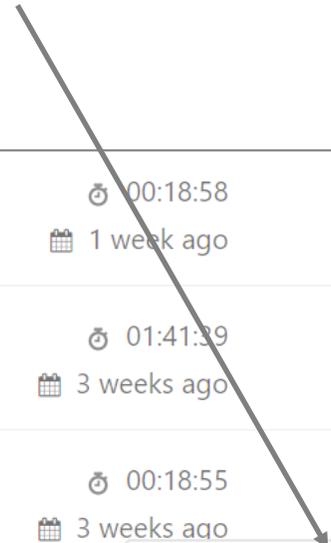
At the end time to cleanup: RCU schemas are dropped from the database, results of tests (artifacts) are saved in GitLab before to drop the container.
There is nothing left from this OBIEE instance, like if it never existed...

GitLab example: Pipeline Artifacts

All the results of automated tests have been stored as "artifacts" and can be download for detailed analysis

✓ passed	#169 by	⌥ **master** -○- c3681e1d ⊛ Merge branch 'dev/Add_chan...	✓ ✓ ✓	⏱ 00:18:58 📅 1 week ago	⬇ ▾
⊗ failed	#164 by	⌥ **master** -○- c3681e1d ⊛ Merge branch 'dev/Add_chan...	⊗ → →	⏱ 01:41:39 📅 3 weeks ago	⬇ ▾ ↻
✓ passed	#163 by	⌥ **dev/Add_channels…** -○- 164a8fa9 ⊛ Added the Channels dimensio...	✓ ✓ ✓ →	⏱ 00:18:55 📅 3 weeks ago	▶ ▾ ⬇ ▾ ✕
✓ passed	#162 by	⌥ **master** -○- ef33e0fc ⊛ Merge branch 'dev/build_revi...	✓ ✓ ✓	⏱ 📅 3 we	▾
⊘ canceled	#161 by	⌥ **dev/build_review…** -○- c7cfbda9 ⊛ Fix pipeline syntax	⊘ ⊘ ⊘ →	⏱ 📅 3 weeks ago	↻

Artifacts

⬇ Download compare_bvt artif...

⬇ Download run_bvt artifacts

⬇ Download validate_rpd artifa...

⬇ Download compare_rpd artif...

The conclusion?

- Wasn't looking good when thinking at DevOps for OBIEE (with or without Docker) but you see it can be done !

- DevOps isn't a tool but more a methodology
  - The tool is relative, what I did with GitLab can be done with Jenkins etc.

- Explore command line interfaces of your current tools

- Document things
  - Even things like what changed between 2 commits inside the binary RPD file …

- Define your own processes: you can inspire yourself to something but just don't copy/paste hoping your needs are exactly the same as somebody else

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Could we start a thread on email please so I can find out more?
I'm at xxx.yyy@oracle.com thanks.
We're currently working on officially supporting OBI on docker

(early May 2017)

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