# DPM Setup

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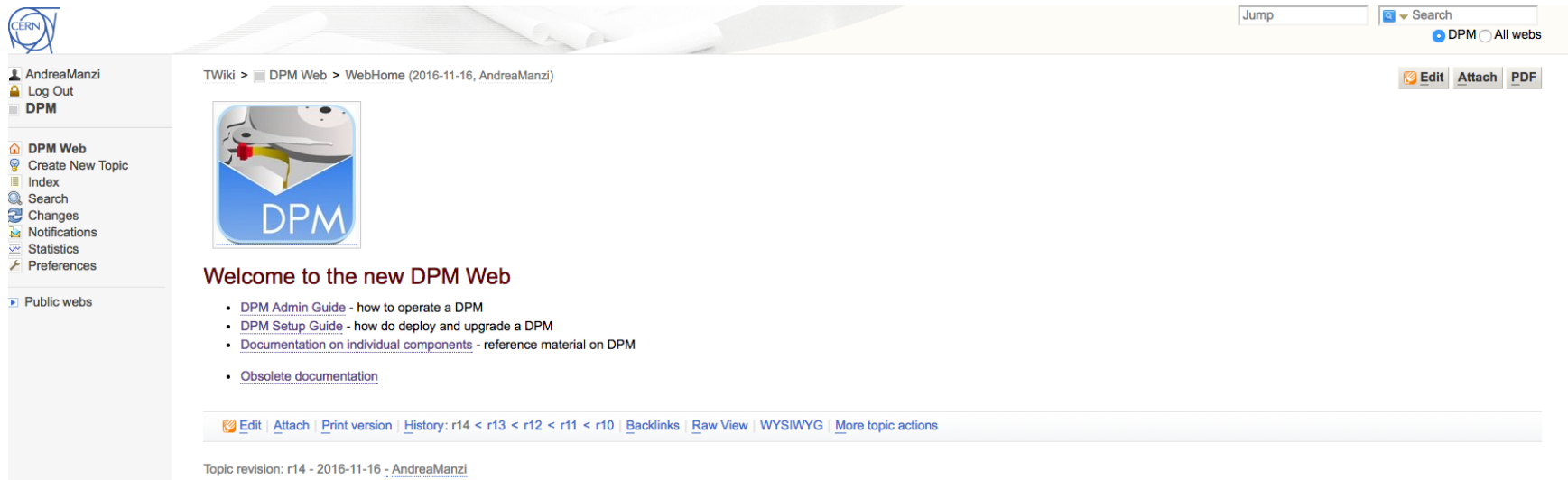CERN
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# DPM Configuration

- Yaim configuration is deprecated since a couple of years ☺

- Puppet is the supported configuration method

- Manual Installation guide is under update

- Support for DPM 1.9.0 via docker is ongoing

# New Documentation(ongoing work)

https://twiki.cern.ch/twiki/bin/view/DPM/

# Puppet modules

- "Our" modules:
  dpm, dmlite, gridftp, lcgdm, xrootd


- Other CERN modules used:
  bdii, fetch-crl, voms


- External modules:
  mysql, stdlib, memcached

# Contributions to the modules

- Our modules are available in github
  - https://github.com/cern-it-sdc-id
- As always we got enhancements and bug fixes during the year from the site managers, in particular for puppet 4 support
  - Thanks!!
- Part of HEP-Puppet organization:
  - https://github.com/HEP-Puppet

# Puppet Versions

- The version of Puppet shipped with SL6 is too old and already out of support (2.7)

- We suggest to use the latest 3.8 version from the puppetlabs repositories

  - ..but EOL for puppet 3.8E is this year

  - https://docs.puppet.com/guides/platforms.html#puppet-agent-and-operating-system-support-life-cycles

  - trying to understand what will happen to the open-source version

- Puppet 4 is also supported (see later)

# What's new

- puppet-dpm module released

- DOME Installation and configuration

- SL7/C7 support

- Puppet 4

- DPM-Argus & DPM accounting

# puppet-dpm

- puppet-dpm is a "meta-module" + wrapper to existing developed module

- developed initially by A. Sartirana
  - Includes all other module dependencies ( good to fix deps to specific module version)
  - Hides the modules inter-dependencies
  - Parameters configurable via hiera
- https://forge.puppet.com/lcgdm/dpm

# puppet-dpm

- It has been tested and put in production by Frascati, Napoli, Rome and Marseille recently AFAIK

- It's the recommended installation method, although everyone can compose the manifests as they like

- The latest version is 0.4.10
  - 0.5.0 is the one supporting DPM 1.9.0, will be released as soon as DPM 1.9.0 gets EPEL stable.

# puppet-dpm example

```
class{"dpm::headnode":
  configure_vos       => true,
  configure_gridmap   => true,
  disk_nodes          => "dpm-puppet02.cern.ch",
  localdomain         => "cern.ch",
  webdav_enabled      => true,
  …
}
```

- Same for disknode and head+disknode

# puppet-dpm & Hiera

- Parameters can be passed via Hiera ( locally or via puppet master)

```
---
dmlite::disk::log_level: 1
dpm::params::debug: true
dpm::params::headnode_fqdn: "dpmhead01.cern.ch"
dpm::params::disk_nodes:
  - "localhost"
dpm::params::localdomain: "cern.ch"
dpm::params::token_password: "TOKEN_PASSWORD"
dpm::params::xrootd_sharedkey:
"A32TO64CHARACTERKEYTESTTESTTESTTEST"
dpm::params::volist:
  - "dteam"
  - "lhcb"
dpm::params::dpmmgr_uid: 500
dpm::params::mountpoints:
  - "/data"
  - "/data/01"
```

- https://docs.puppet.com/hiera/1/index.html

# Manifest templates

- For the sites that are using the manifest templates distributed by us will continue to support them for DPM 1.9.0 legacy

- We suggest to move to puppet-dpm for future migrations ( DOME flavour ) as this will require quite some changes ( hidden by puppet-dpm)

# Dome Installation and configuration

- Some changes are expected when moving to DPM 1.9.0 Legacy Flavour

  - DOME deployment

  - DB schema change ( done in puppet too)

- DPM 1.9.0 DOME Flavour has more changes ( hidden by puppet-dpm)

  - N.B. GridFTP redirection is needed, so Head+ Disk deployments will no longer be supported

# Dome Installation and configuration

- Configuration changes both on Headnode and Disknode classes needed for DPM 1.9.0 Legacy

  - *enable_dome => true*

- For the Dome Flavour deployment

  - *enable_domeadapter => true*

  - this will enable GridFTP redirection as well

# SL7/C7 support

- Some changes needed in order to add support for SL7/C7
  - Enable DPM legacy daemon systemd unit file
  - Apache 2.4 configuration


- Some changes due to Xrootd systemd support
  - Prefix dpm added to the log folder
    - E.g. /var/log/xrootd/dpmredir instead of /var/log/xrootd/redir in xrootd
  - Starting up all services using the initd way (*service xrootd start)* is not working
    - Use **systemctl start xrootd@*** instead

# Puppet 4 support

- Some effort has been spent on testing Puppet 4 compatibility

- A lot of contributions from F. Schaer and L. Kreczko, thanks!

- AFAIK GRIF-IRFU, Bristol & Melbourne are already using Puppet 4 in production also for the DPM modules

# Puppet 4 support

- In order to get ready @ CERN for Puppet 4, centrally we are providing an automatic way to test puppet modules syntax at each commit via gitlab-ci:

- https://gitlab.cern.ch/ai/it-puppet-module-dpm/commit/f97e2f35b337d0021cf3f8e5095febfa92bb2477/builds

- Both Puppet 3 and 4 syntaxes are checked.

# DPM Argus

- Argus integration in DPM is done via a script (DPM-ARGUS) which is distributed via UMD (some of the deps are not available in EPEL)

```
class{'lcgdm::argus':
    argus_url   => 'https://argus_test.cern.ch:8154/authz',
}
```

- This will install the cron which polls Argus to get the banned users and populates the DPM DB.

- https://github.com/cern-it-sdc-id/puppet-lcgdm/blob/master/manifests/argus.pp

# DPM Space Accounting

- Space accounting for WLCG/EGI is implemented as well as a script installed as cron

```
class{'dmlite::accounting':
  site_name => 'your site',
}
```

- This will install the needed packages ( APEL-SSM and deps) and install the cron

- https://github.com/cern-it-sdc-id/puppet-dmlite/blob/develop/manifests/accounting.pp

# Known Issues

- Puppetlabs-mysql changes since v 3.5.0 broke DPM installation with external DB

  - We need to adapt our code to the changes, puppetlabs-mysql v 3.4.0 is recommended now

- Dmlite configuration changes does not restart DOME services ( to be added ASAP)

# Known Issues

- The CERNOps-fetchrl module has been renamed to puppet-fetchcrl

  - When upgrading to a new version of puppet-dpm you should remove first the CERNOps-fetchcrl module otherwise there is a clash


- DPM-HDFS cannot be configured with DOME now

  - But the integration is missing at the code level too☺

# Future works

- Puppet modules packages as RPMs to be released together with the software
  - Under evaluation, what do you think about this?

- Remove dpm/dpns calls inside puppet
  - this prevents the deployment of a pure Dome installation without Legacy daemons at the moment

# Manual Configuration

- The Manual Installation & Configuration guide was not updated since ages. We are working on it

  - https://twiki.cern.ch/twiki/bin/view/DPM/DpmSetupManualInstallation

- It has several sections explaining the Legacy and Dome installations differences, plus SL6 vs C7 changes

# Manual Configuration Guide

TWiki > ■ DPM Web > DpmSetup > DpmSetupPuppetInstallation (2016-11-17, AndreaManzi)

## Installation and Configuration Guide via Puppet

This guide explains the installation and configuration procedure of DPM with puppet

### Sidebar

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Log Out
DPM

**DPM Web**
Create New Topic
Index
Search
Changes
Notifications
Statistics
Preferences

▶ Public webs

# DPM Docker

- We waited for the Dome implementation in order to start the Docker support
  - Mainly to avoid installation and configuration of the Legacy stack via Docker
- The first version of the Docker Images for DPM 1.9.0 Dome flavour are available at
  - https://gitlab.cern.ch/lcgdm/dpm-docker/container_registry
  - Plan to have full support beginning of 2017
- Images can be rebuilt from the Docker files at
  - https://gitlab.cern.ch/lcgdm/dpm-docker

# DPM Docker

- 3 images available for C7
  - Head, Head+Disk, Disk
- The following services are available
  - Dome, DPM-gsiftp and LCGDM-DAV + Memcached only on the Headnode Image ( DPM-Xrootd still to be added)
- /etc/grid-security needs to be already set up
- MySQL/MariaDB are supposed to be installed remotely
- The containers use the "host" network, so max 1 container per host
  - But I guess this is the way to go..

# DPM Docker

- https://twiki.cern.ch/twiki/bin/view/DPM/DpmSetupDocker

- We have also docker-compose files so each container can be easily start/stop via:
  - docker-compose up –d
  - docker-compose down

- DEMO

# Ansible

- Some site managers ( in particular Raul from Brunel) are pushing for a Ansible configuration for DPM
  - Already discussed during the last workshop

- Contributions are welcomed but we don't have plan to support it

- Hopefully the new Manual Installation Guide will help this task

# Questions?