

Yves Kemp et al., DESY IT Linux Admin Meeting DESY, 10.12.2019





When you're outside of DESY

- Central login host for "normal" DESY users: bastion.desy.de
 - Accessible via ssh on port 22
 - Web based client: https://bastion.desy.de/ssh/ for "internet cafe situations"
 - Use only your personal account ... D4 will email you if you use a functional account
 - Port forwarding through bastion is possible (and the recommended way for most situations when internal services need to be accessed from remote)
 - Not intended for larger workloads, hence little software installed
- Changing passwords from abroad:
 - passwd.desy.de
 - Accessible via ssh on port 22
 - Web based client: <u>https://passwd.desy.de/</u> for people without ssh client or console affinity

Welcome to the password changing service. Please enter your username / password accordingly... >> NOT your email address <<

To prove that you are a human please enter the sum of 15 and 19

When in need for a general Linux machine: the PAL family

- PAL (Public Access Linux) exists in different flavours, and always is a cluster
 - pal (points to pal-el7): EL7 (=CentOS 7) systems
 - pal-sld6: SL6 systems
 - paul: Ubuntu 18.04 (No cluster, but virtual machine, always the latest Ubuntu LTS version)
- Kind of always-on system, and reference systems
- Remember: This is a shared system, so do not abuse! Do not run many or larger jobs!
 - we will send you an email if we think you consume too much CPU or RAM

... If you need more CPU power:

The larger compute clusters a very short overview



- BIRD / NAF: ~500 servers, ~8000 CPU cores, some GPUs
 - The "normal" cluster, mainly used by HEP groups, plus some theory, M, Astro, FS, ...
 - Ask for the "batch" resources
 - We might need to create a small VM as "submit host" ... No big deal if there are more participants from your group
 - Contact: bird.service@desy.de
- Maxwell: ~500 servers, ~20000 CPU cores, some more GPUs
 - High-Performance-Cluster (with dedicated InfiniBand)
 - PhotonScience, XFEL, Machine R&D and operations, some HEP
 - You need to provide us with "proposal" (a two-line email justifying that you really need HPC=parallel resources)
 - Contact: maxwell.service@desy.de
- If you need large compute resources, and are in doubt, contact us!

MAXWELL Maxwell HPC resources at DESY Hamburg

Accessing these resources

- Usually:
 - ssh into a Workgroup-Server / Interactive machine / portal node / Display node / submit host
 - Prepare your work (e.g. prepare a script)
 - Submit the script (many times) to the batch system via HTCondor or SLURM mechanisms
 - Wait
 - Get the results
- A new, complementary way:
 - Point your browser to the JupyterHub (NAF or Maxwell)
 - You get a core / a node executing your Jupyter Notebook
- In some future
 - We are working on making this scalable, so you can do the heavy lifting from within your interactive Jupyter session





Deutsches Elektronen-Synchrotron DESY A Research Centre of the Helmholtz Association

Log in with DESY Account

Username:		
Password:		
Sign In		

Welcome to the JupyterHub for NAF Users

To login into the JupyterHub, use your regular DESY credentials. Note that you need to have the BATCH resource, since jupyter starts as a job on HTCondor. Contact your group admin to gain the rights to start jobs on BIRD.

In [

You may also be interested services on our supercomputer, Maxwell.

News



Useful Links

- Jupyter Notebook Documentation

Administration

- · If you encounter issues with the Jupyter!
- or open a ticket in the request tracker rt-

JupyterHub for NAF is powered by HTCondor a



	Track Resolution Studies Using 2012 J/psi -> mu mu Eve
1]:	import findspark
-	findspark.init()
	from pyspark import SparkContext, SparkConf
	from pyspark.sql import SQLContext, Row
	from pyspark.sql.types import *
	<pre>import matplotlib.mlab as mlab</pre>
	import matplotlib.pyplot as plt
	import numpy as np

In [2]: sc_conf = SparkConf().setMaster('spark://dcache-dot1.desy.de:2000') \ .set('spark.executor.memory','2G') \ .set('spark.driver.memory','2G') \ .set('spark.driver.maxResultSize','2G') \ .set('spark.network.timeout','20000s') \ .set('spark.executor.heartbeatInterval','10000s') sc = SparkContext(conf = sc_conf) sqlContext = SQLContext(sc) sqlContext.clearCache()

Some links

- <u>https://bastion.desy.de/</u>
- <u>https://it.desy.de/services/computing_infrastructure/index_eng.html</u>
- https://bird.desy.de/
- <u>https://maxwell.desy.de/ https://confluence.desy.de/display/IS/Maxwell</u>