F.A.Q.

Institute for Theoretical Biology
2018: We had to leave Inv 43
And found some treasures
And found some treasures
Abbildung 25: Präsentation text.ppt

WordArt-Objekte gestalten

WordArt-Objekte können Sie über die Schaltfläche der Symbole der WordArt verändern und gestalten. Lesen Sie dazu den nachfolgenden Schnitt „Was ist was“. Am Beispiel der zuletzt erstellten Folie können Sie den Umgang mit der Leiste gleich praktisch ausprobieren.
Some boring numbers

~ 70 Workstations
~ 20 ‘Servers’
~ 200 cores in cluster
~ 40% of the clients run Debian 9, 50% Debian 8

hopefully this will change soon
On all workstations you’ll find

/home
/groups
/extra

your own storage
bigger files
research related

intermediate
data
no backup
Our network (physical machines)

Private network 172.30.0.0/16

- gate.biologie.hu-berlin.de
- itbssh.itb.pri
- compute1.itb.pri
- compute2.itb.pri
- compute3.itb.pri
- weierstrass.itb.pri
- apps.itb.pri
- bpps.itb.pri
- cpps.itb.pri
- dpps.itb.pri
- itb1.itb.pri
- dataserver.itb.pri
- tapelibrary.itb.pri

Virtualisation

GPU
Our servers in Grimm Zentrum
Virtual machines

- puppet.itb.pri
- monitoring.itb.pri
- cluster01.itb.pri
- cluster02.itb.pri
- cluster03.itb.pri
- cluster04.itb.pri
- itb.biologie.hu-berlin.de
- itbgit.biologie.hu-berlin.de

Orchestration, monitoring, statistics

Computing

- webserver
- gitlab

No one knows where
Our setup for new machines:
- A simple Debian bootstrap
- A three line puppet declaration
- 60 Minutes waiting

Puppet Role

Puppet \textit{?}

```
[root@puppet puppetenvironments (beta)]# cat data/nodes/workstations/franklin.itb.pri.yaml
---
node::role: role::workstation
profile::cups::default: H18-color-kitchen203a
node::description: 'Rosalind Elsie Franklin (1920–1958), British biophysicist and X-ray crystallographer'
node::person_id: '07474'
[root@puppet puppetenvironments (beta)]#
```
Definition of a Puppet role

```
class role::workstation inherits role {
  include profile::puppet

  include profile::nobeep
  include profile::userfacing
  include profile::userlogin
  include profile::userwritable

  include profile::postfix
  include profile::cups_client

  include profile::sensu_client

  include profile::motd
  include profile::ssh_known_hosts
  include profile::autohosts

  include profile::apt_backports

  include profile::locales
  include profile::keyboard
  include profile::systemd_autofs
  include profile::systemd_cron
  include itb_branding

  include profile::desktop_minimal
  include profile::desktop
  include profile::i3
  include profile::bootup
  include profile::console_setup

  include profile::sysops
  include profile::basetools

  include profile::elixir
  include profile::golang
  include profile::haskell
  include profile::java
  include profile::julia
  include profile::neurodebian_repo
  include profile::python
  include profile::r
  include profile::r_repo
  include profile::scala
  include profile::generic_library_support

  include profile::mathematica
  include profile::matlab
  include profile::neuron

  include profile::mendeley
  include profile::libreoffice
  include profile::vscode
  include profile::atom
  include profile::text

  include profile::virtualbox

  include profile::skype
  include profile::spotify
```
This server has Python 3.6 and R 3.5.2.
Number of GPUs: 0.

Services running on this machine:

ssh 22
JupyterHub http://cluster01:8000
RStudio Server http://cluster01:7676
cockpit http://cluster01:9090
ITB technical infrastructure (beta)

Hi, new and old members of the ITB. Find everything you need to know about the ITB infrastructure on this documentation website.

Contents:

- Linux basics
  - The command line
  - The Gnome graphical user interface
- SSH Access
  - SSH basics
  - SSH from inside the ITB
  - SSH from outside the ITB
- Editors
- VPN

Useful tools

- tmux
- git

For science

- Python
  - General information
  - Anaconda
- MATLAB
- R

*really!*
Q. Ok, thanks for telling me the address of the JupyterHub. But how can I get there from ~home~?

A1. Quick and dirty port forwarding:

```
ssh -L 8000:cluster01:8000 schuppner@gate.biologie.hu-berlin.de
```

A2. Use our OpenVPN:

```
https://itbgit.biologie.hu-berlin.de/itbadmin/OpenVPN-client
```

Bonus tip for ssh proxying:

```
alias itbssh='ssh -o ProxyCommand ssh -q -A -x schuppner@gate.biologie.hu-berlin.de -W %h:22'
```

```
$ itbssh schuppner@cluster01
```
rike: Questions for tomorrow
rike: maybe some suggestions on spring cleaning your github repo
we are using that a lot also with students and some just use a lot of `git add *` and
hence unnecessary large files end up in the repo
: whew. I can mention it
question 2: What Is the Airspeed Velocity of an Unladen Swallow?
what is the airspeed velocity of an unladen swallow

Assuming estimated average cruising airspeed of an unladen European swallow | Use estimated average cruising airspeed of an unladen African swallow instead

Input interpretation:

estimated average cruising airspeed of an unladen European swallow

Result:

11 m/s (meters per second)
(asked, but not answered, about a general swallow in the 1975 film Monty Python and the Holy Grail)
Estimating the Airspeed Velocity of an Unladen Swallow

By Jonathan Corum  
Nov. 17, 2003

After spending some time last month trying to develop alternate graphic presentations for kinematic ratios in winged flight, I decided to try to answer one of the timeless questions of science: just what is the airspeed velocity of an unladen swallow?

What do you mean, an African or European Swallow?

To begin with, I needed basic kinematic data on African and European swallow species.

Although 47 of the 74 worldwide swallow species are found in Africa, only two species are named after the continent: the West African Swallow (Hirundo domicella) and the South African Swallow (Hirundo spilodera), also known as the South African Cave Swallow.

Since the range of the South African Swallow extends only as far north as Zaire, I felt fairly confident that this was the non-migratory African species referred to in previous discussions of the comparative and cooperative weight-bearing capabilities of African and European swallows.

Kinematic data for both African species was difficult to find, but the Barn or European Swallow (Hirundo rustica) has been studied intensively, and kinematic data for that species was readily available.
...what about the African swallow?

Input interpretation:

estimated average cruising airspeed of an unladen African swallow

Result:

there is unfortunately insufficient data to estimate the velocity of an African swallow (even if you specified which of the 47 species of swallow found in Africa you meant)

(asked, but not answered, about a general swallow in the 1975 film "Monty Python and the Holy Grail")
riker: Questions for tomorrow
riker: maybe some suggestions on spring cleaning your github repo
we are using that a lot also with students and some just use a lot of `git add *` and hence unnecessary large files end up in the repo

whew, I can mention it

question 2: What is the Airspeed Velocity of an Unladen Swallow?
Question 1: Questions for tomorrow

rike: maybe some suggestions on spring cleaning your github repo

we are using that a lot also with students and some just use a lot of `git add *` and hence unnecessary large files end up in the repo

Question 2: What is the Airspeed Velocity of an Unladen Swallow?

Does it Spark Joy?
Q: I put the wrong files in my git, now my repo is 3GB. How do I fix it?
Q: I put the wrong files in my git, now my repo is 3GB. How do I fix it?

Can you simply ignore it on old repos and just do better in the future?

I just want to change the last commit

git rm --cached $FILE
git commit --amend

Learn about .gitignore

I want to remove the files from all history

Do you care about your history?

rm -r .git
git init .

git filter-branch

* Don't try it alone

* Nah
Q: Why has my PS1 variable stopped working?

A: We use our own PROMPT_COMMAND now

```
[perry@apollonius:~]$ cat /etc/profile.d/default_prompt.sh
# This file is managed with Puppet

# We use $PROMPT_COMMAND for a nice git prompt, # which allows us to have colours. This will # override any user setting of $PS1, which means that # users will have to clear $PROMPT_COMMAND, if they # want to have something fancy on their own.

GIT_PS1_SHOWCOLORHINTS=1
GIT_PS1_SHOWDIRTYSTATE=1
GIT_PS1_SHOWUPSTREAM="auto"
__conda_ps1() {
  if [ -z "${CONDA_PROMPT_MODIFIER}" ]; then
    echo ""
  else
    echo "${CONDA_PROMPT_MODIFIER}"
  fi
}

PROMPT_COMMAND='__git_ps1 "$(__conda_ps1)\u@\h:\w" ""
```

Workaround: unset PROMPT_COMMAND in your .bashrc
Q. Why is that weird Python in my Jupyter that doesn’t even have all of my packages?
A. You have to install the ipykernel for the Python you want to use.

```
[perry@apollonius:~]$ conda activate 
(base) [perry@apollonius:~]$ which python 
/home/perry/anaconda3/bin/python 
(base) [perry@apollonius:~]$ python -m ipykernel install --user --name anaconda-base --display-name 'Anaconda (base)' 
Installed kernelspec anaconda-base in /home/perry/.local/share/jupyter/kernels/anaconda-base 
(base) [perry@apollonius:~]$
```

```
python -m ipykernel install --user --name anaconda-base --display-name 'Anaconda (base)'
```
Quick: How can I tell where Python finds my packages?

```
(base) [perry@apollonius:~]$ python -m site
sys.path = [
    '/home/perry',
    '/home/perry/anaconda3/lib/python36.zip',
    '/home/perry/anaconda3/lib/python3.6',
    '/home/perry/anaconda3/lib/python3.6/lib-dynload',
    '/home/perry/anaconda3/lib/python3.6/site-packages',
]
USER_BASE: '/home/perry/.local' (exists)
USER_SITE: '/home/perry/.local/lib/python3.6/site-packages' (doesn't exist)
ENABLE_USER_SITE: True
```

```
[perry@apollonius:~]$ python -m site
sys.path = [
    '/home/perry',
    '/usr/lib/python2.7',
    '/usr/lib/python2.7/plat-x86_64-linux-gnu',
    '/usr/lib/python2.7/lib-tk',
    '/usr/lib/python2.7/lib-old',
    '/usr/lib/python2.7/lib-dynload',
    '/usr/local/lib/python2.7/dist-packages',
    '/usr/lib/python2.7/dist-packages',
    '/usr/lib/python2.7/dist-packages/PILcompat',
    '/usr/lib/python2.7/dist-packages/gtk-2.0',
    '/usr/lib/python2.7/dist-packages/wx-3.0-gtk2',
]
USER_BASE: '/home/perry/.local' (exists)
USER_SITE: '/home/perry/.local/lib/python2.7/site-packages' (doesn't exist)
ENABLE_USER_SITE: True
```
That’s not enough! I need more answers!

- Internal chat with fellow ITB people
- freenode: ##itb
- Maybe there’ll be a different chat option sometime?
Any MORE QUESTIONS?