



bw | HPC – C5

Access: bwUniCluster, bwForCluster, ForHLR

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Funding:



Baden-Württemberg

MINISTERIUM FÜR WISSENSCHAFT, FORSCHUNG UND KUNST

www.bwhpc-c5.de

Outline

- Introduction
- Registration Processes
 - bwUniCluster
 - bwForCluster
 - ForHLR Phase I & II
- Login Steps
 - How to login on different clusters
- File Transfer & File storage
- Questions

1. Introduction



Introduction

- **bwUniCluster**
 - At tier (level) 3, Baden-Württemberg (BW) cluster for general purposes
 - Simple registration process

- **bwForCluster** (JUSTUS, MLS&WISO, NEMO, BinAC)
 - Also at tier 3, BW research clusters
 - Architecture optimized for certain scientific communities
 - Access process ensures using the suitable cluster and enhances user support

- **ForHLR I & II**
 - At tier 2, national research cluster
 - Access process ensures that applications fulfill requirements of parallelization

2. Registration



Registration

Different clusters → different registration processes

- bwUniCluster
- bwForCluster
- ForHLR Phase I & II

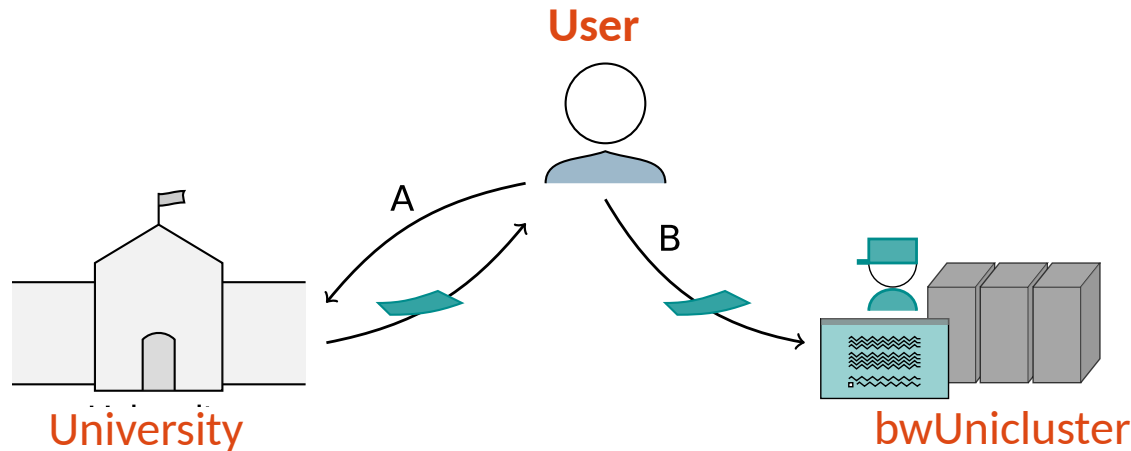


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Registration Process – bwUniCluster & extension

- Access only for members of shareholder universities.
- More Details: http://www.bwhpc-c5.de/wiki/index.php/BwUniCluster_User_Access



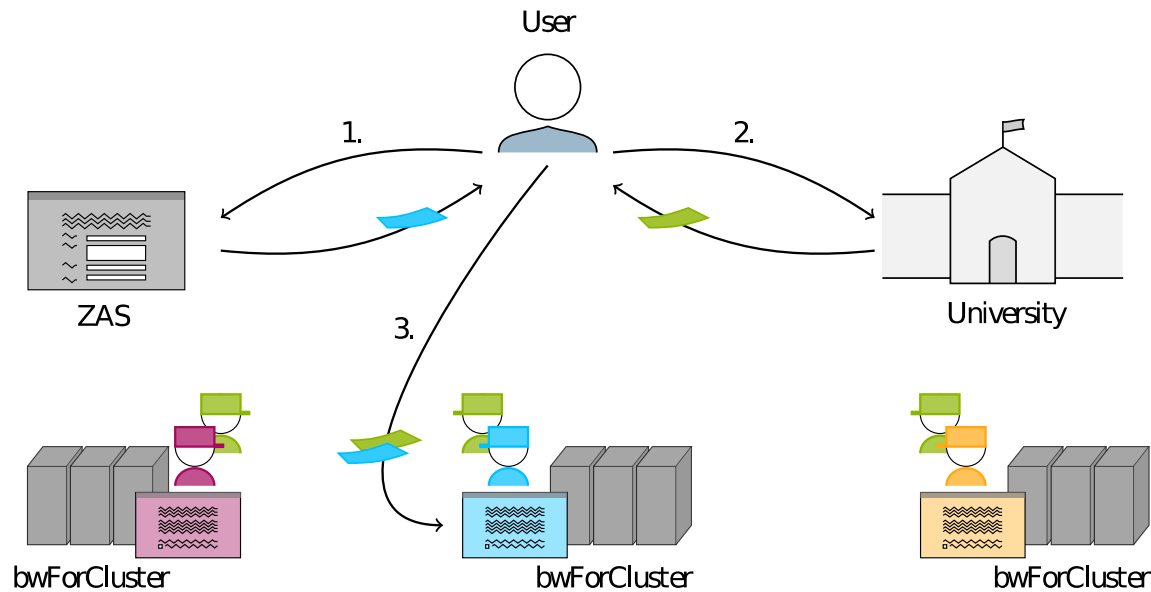
Step A: Obtainment of bwUniCluster entitlement

- Each university has its own entitlement granting policies!

Step B: Web registration at <https://bwidm.scc.kit.edu/> + questionnaire (https://www.bwhpc-c5.de/en/ZAS/bwunicluster_survey.php)

- Login via bwIDM with your university account

Registration Process - bwForClusters



Step 1: Registration at „Central Application Site (ZAS)“

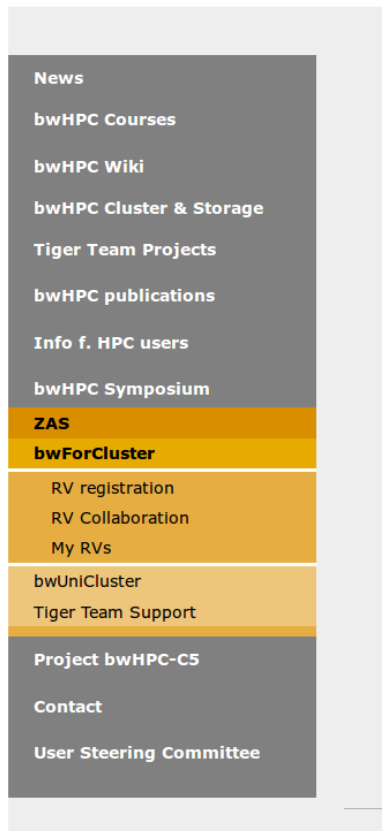
- Approval  of Cluster Assignment Team (CAT)

Step 2: Get bwForCluster entitlement  by own university

Step 3: Web registration at designated bwForCluster site

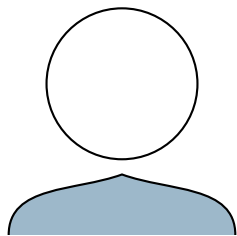
- e.g. <http://bwidm.rz.uni-ulm.de/>, bwForCluster JUSTUS (Computational Chemistry)

What is ZAS

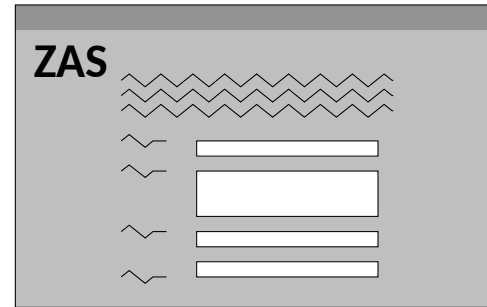


- Web interface of HPC clusters (in the state BW) to handle the user compute activities.
- Nomenclature:
 - RV = Planned compute activities (Rechenvorhaben).
 - RV Responsible: The person who does the registration of of the RV (applicant)
 - Cluster Assignment Team: aka CAT; assigns the exact cluster according to the RV requirement.
 - RV collaboration = The team (managers and coworkers)
- An RV approval is valid
 - Only on one bwForcluster for a period of one year after the approval
 - For all team members

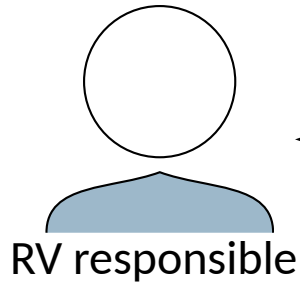
Registration Process: bwForCluster - Step 1a



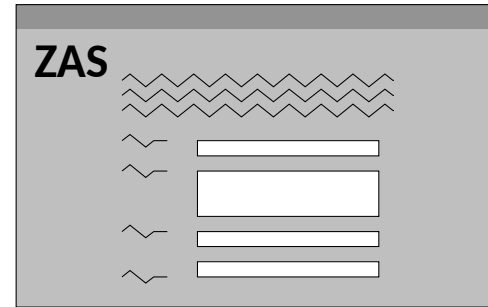
RV registration



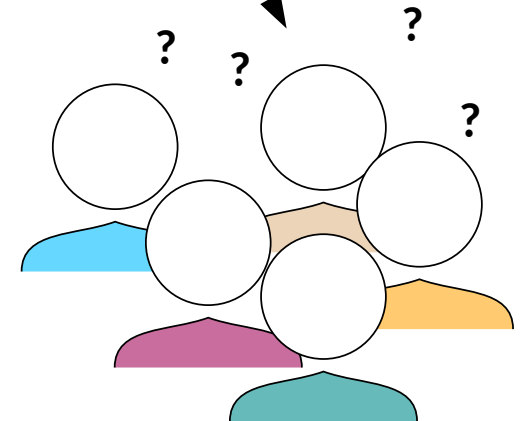
Registration Process: bwForClusters - Step 1b



← acronym / password

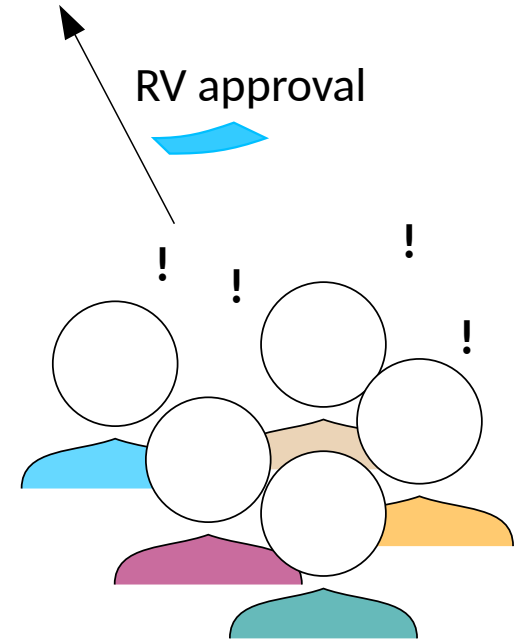
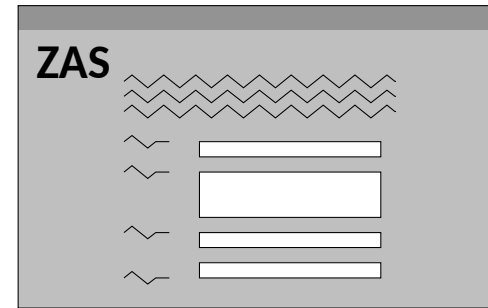
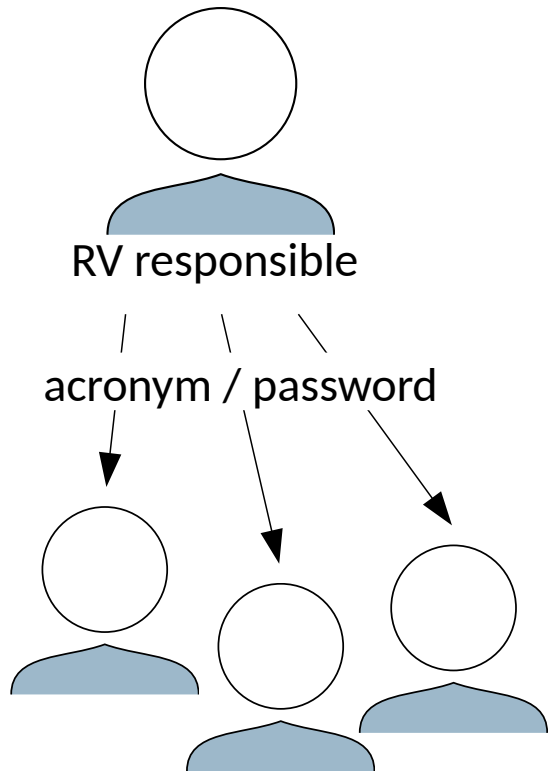


RV application



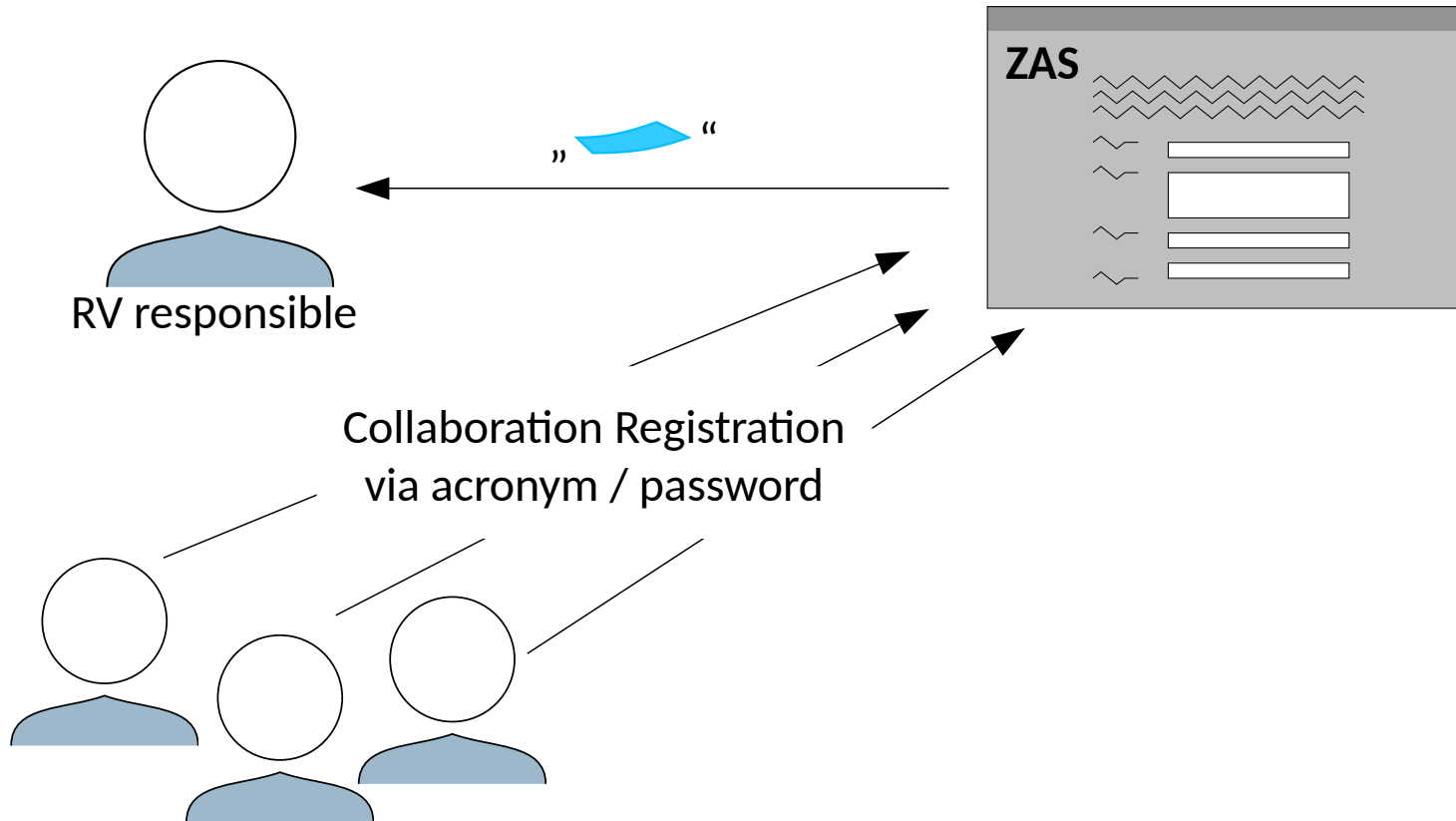
CAT (Cluster Assignment Team)

Registration Process: bwForClusters Step 1c

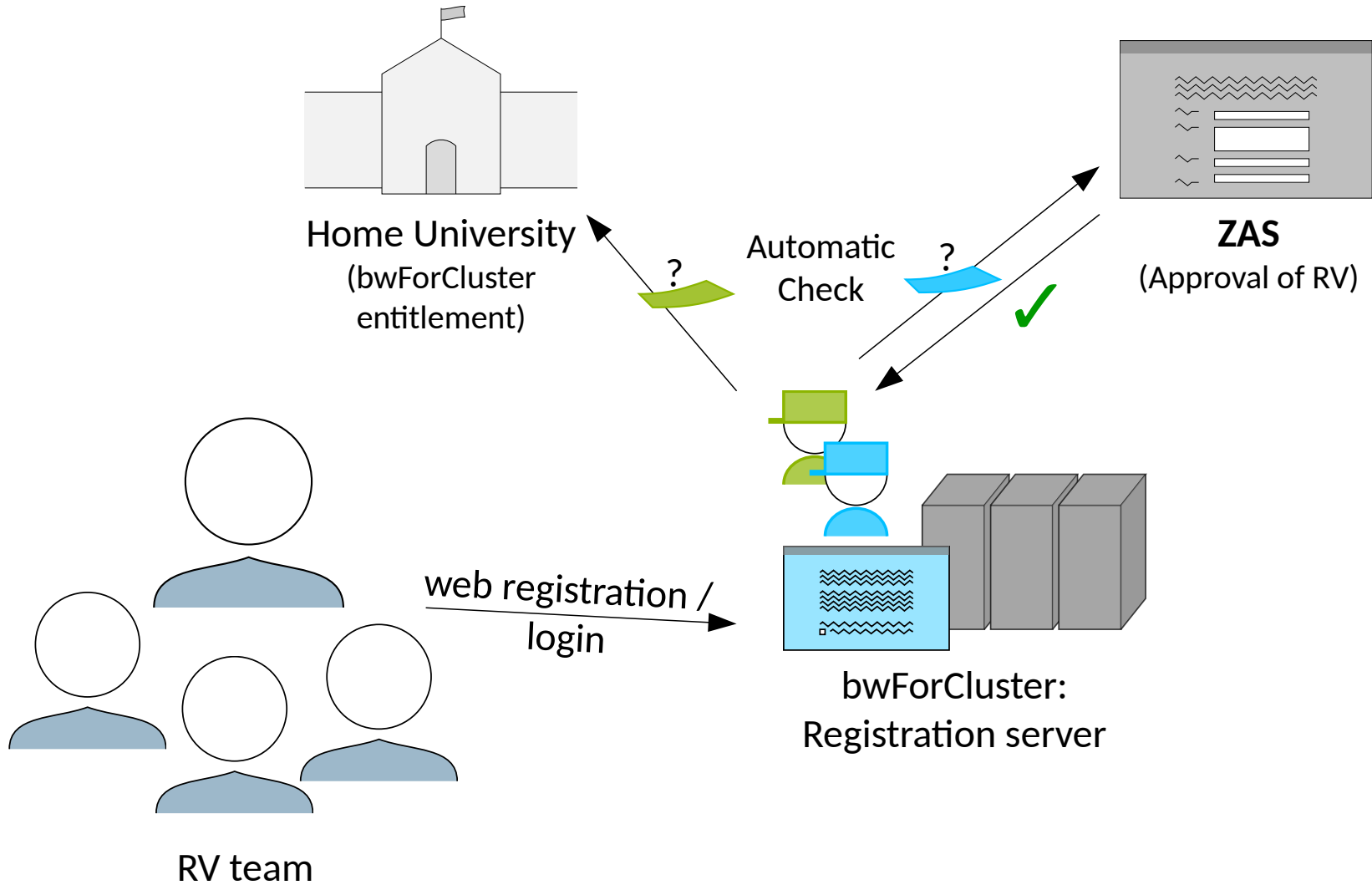


CAT (Cluster Assignment Team)

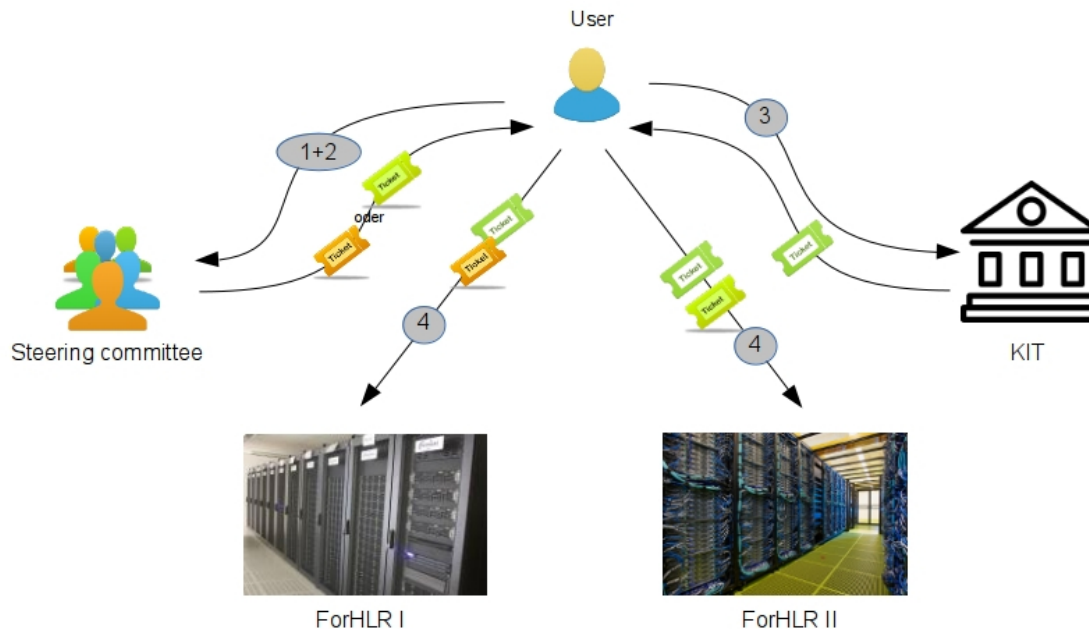
Registration Process: bwForClusters - Step 1a



Registration Process: bwForClusters - Step 3



Registration Process - ForHLR I & II



Step 1: „Online Proposal Form“. (<http://www.scc.kit.edu/forschung/4971.php>)
(granting preliminary access)

Step 2: Peer-reviewed extended project description (3-5 pages).
PDF-file must be send to forhlr-projects@lists.kit.edu

Step 3: Fill out of the [ForHLR access form](#) for each project collaborator.
Form must be send to SCC-Service desk or scanned to haefner@kit.edu

Step 4: Personal registration for ForHLR I & II on website <https://bwidm.scc.kit.edu>

3. First Steps - Login

Login

MS Windows

■ **GUI:** MobaXterm, PuTTY

■ Connection via **ssh**

UserID: [**<prefix>_<username>**]

Host, e.g. bwUniCluster:

`bwunicluster.scc.kit.edu`

or

`uc1.scc.kit.edu`

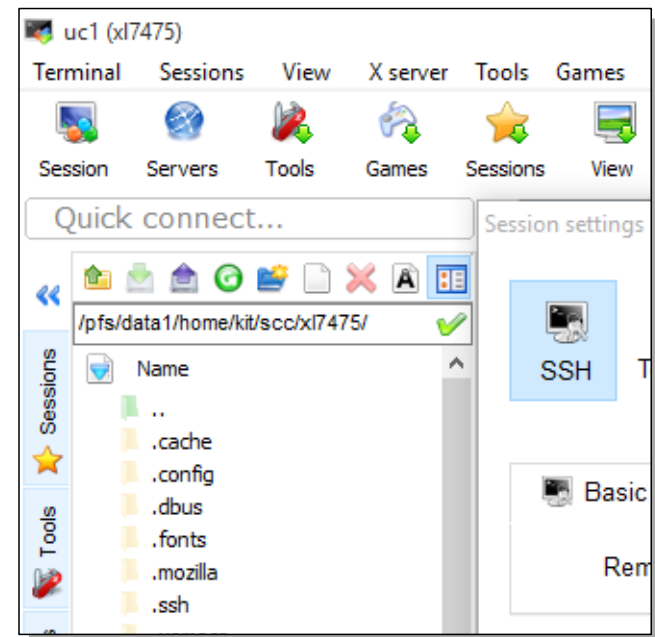
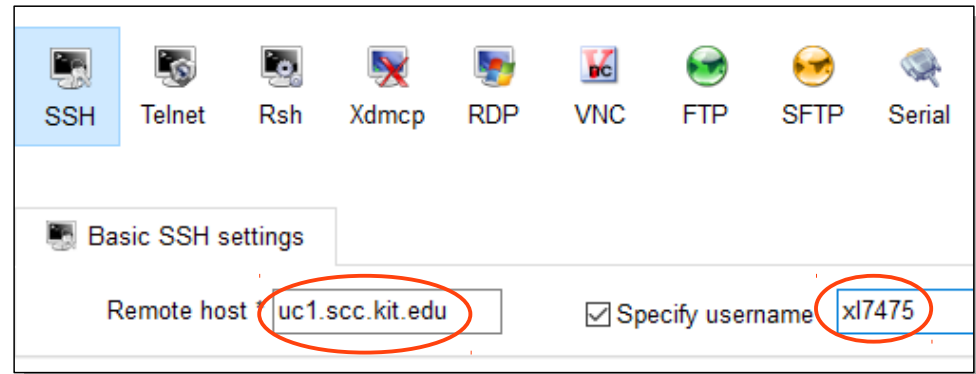
or

`uc1e.scc.kit.edu`

Linux / macOS

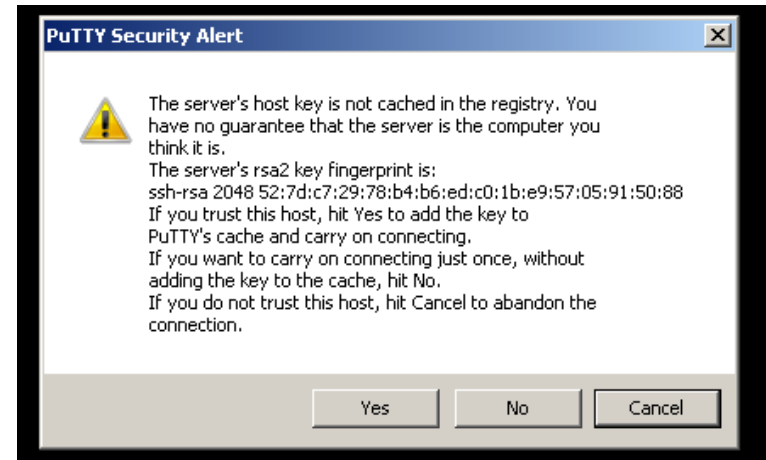
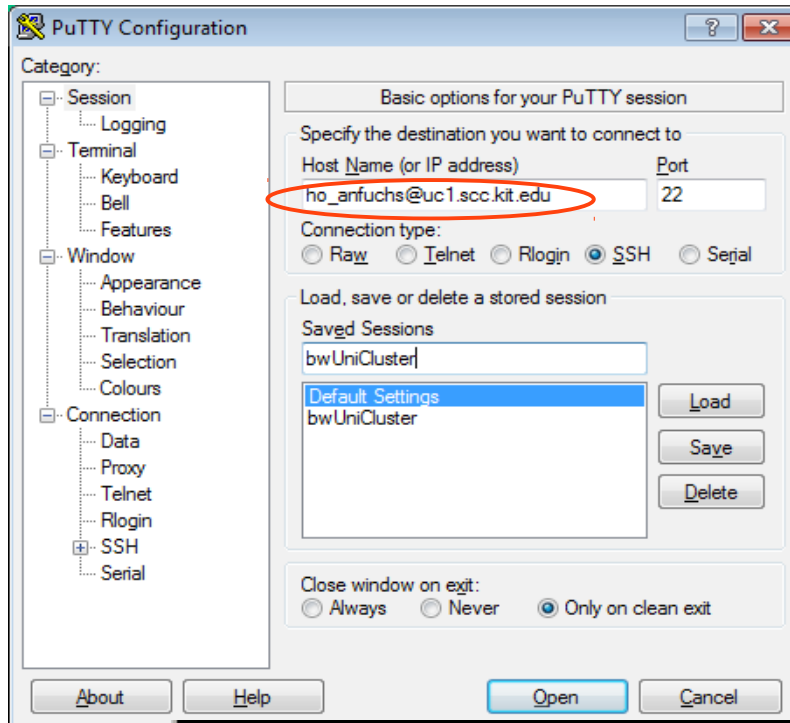
■ Command line interface (CLI)

```
$ ssh -X xy_ab1234@uc1.scc.kit.edu
```



Login via PuTTY: deprecated

- Because: does NOT provide means to display natively GUI, use [MobaXterm](#) instead



```
*****
*
* KIT News:
* 2014-02-06:
* - seminar about bwHPC/bwUniCluster (+ hands-on) on February 19th 2014
*   http://indico.scc.kit.edu/indico/event/Info-Veranst_2014-02_bwUniCluster
*
*****
[Feb-16 10:12] yc8563@uc1n996:~$ █
```

X11 Tunneling

- Run programs at the cluster, display the GUI at home.
- Linux / macOS

```
$ ssh -X xy_ab1234@uc1.scc.kit.edu
```

enables X11 forwarding

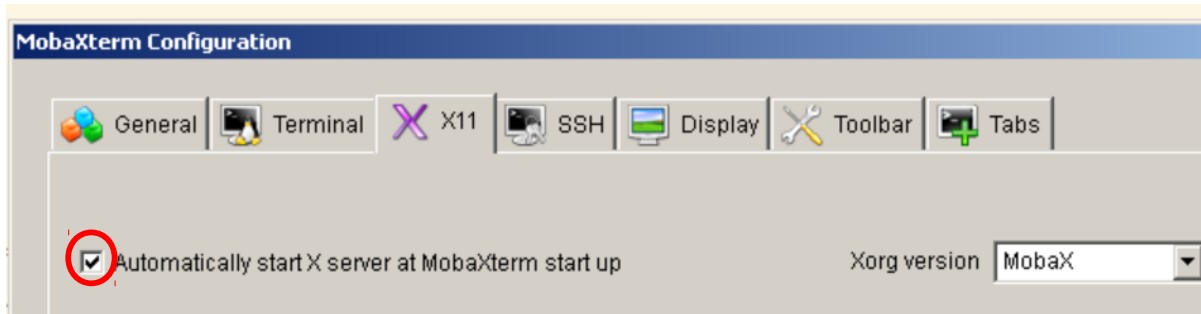
```
$ ssh -Y xy_ab1234@uc1.scc.kit.edu
```

enables trusted X11 forwarding

```
$ ssh -X -C xy_ab1234@uc1.scc.kit.edu
```

Adds compression to improve slow connections

- MS Windows
 - MobaXterm automatically starts X server



- PuTTY needs Xming (commercial)
- Other alternative: Cygwin/X

File transfer

File transfer - Linux

<pre>\$ scp <sourcefile> <targetfile></pre>	secure copy (remote file copy program)
<pre>\$ scp -r <sourcedir> <targetdir></pre>	recursively copy entire directories
<pre>\$ sftp <targetdir> \$ put get <sourcefile></pre>	secure file transfer program upload/download file

■ Example: Transfer [paket.tar](#) from local to bwUniCluster

■ **scp:**

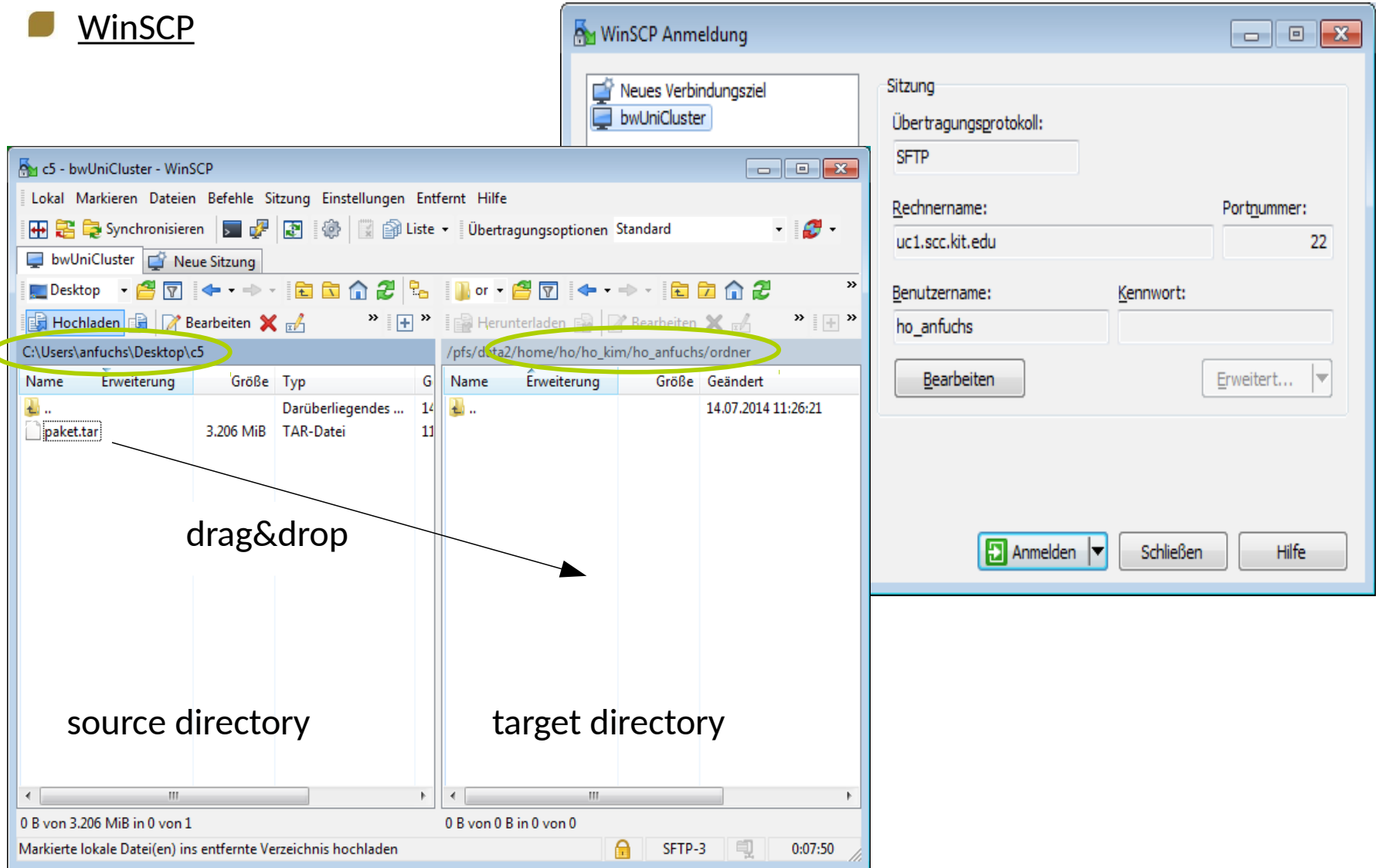
```
$ scp paket.tar xy_ab1234@uc1.scc.kit.edu:dir/  
xy_ab1234@uc1.scc.kit.edu's password:
```

■ **sftp:**

```
$ sftp: xy_ab1234@uc1.scc.kit.edu:dir  
xy_ab1234@uc1.scc.kit.edu's password:  
Connected to uc1.scc.kit.edu.  
Changing to: ${HOME}/dir  
sftp> put paket.tar
```

File transfer - MS Windows (1)

 WinSCP



WinSCP Anmeldung

Neues Verbindungsziel
bwUniCluster

Sitzung

Übertragungsprotokoll:
SFTP

Rechnername: uc1.scc.kit.edu Portnummer: 22

Benutzername: ho_anfuchs Kennwort:

Bearbeiten Erweitert...

Anmelden Schließen Hilfe

c5 - bwUniCluster - WinSCP

Lokal Markieren Dateien Befehle Sitzung Einstellungen Entfernt Hilfe

Synchronisieren Übertragungsoptionen Standard

Desktop Hochladen Bearbeiten

Herunterladen Bearbeiten

source directory: C:\Users\anfuchs\Desktop\c5

Name	Erweiterung	Größe	Typ	G
..			Darüberliegendes ...	14
paket.tar		3.206 MiB	TAR-Datei	11

target directory: /pfs/d/ta2/home/ho/ho_kim/ho_anfuchs/ordner

Name	Erweiterung	Größe	Geändert
..			14.07.2014 11:26:21

0 B von 3.206 MiB in 0 von 1

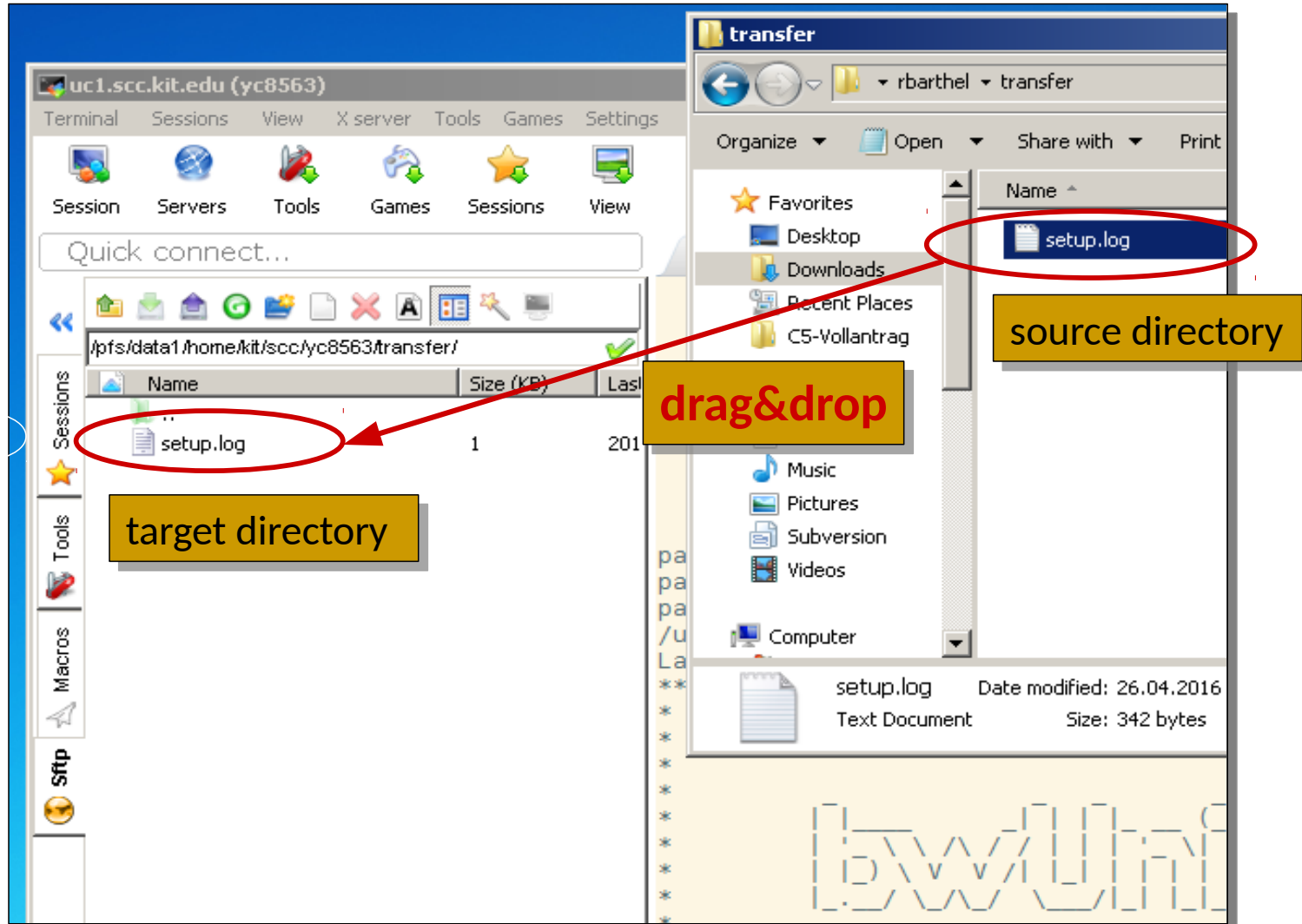
0 B von 0 B in 0 von 0

Markierte lokale Datei(en) ins entfernte Verzeichnis hochladen

SFTP-3 0:07:50

File transfer - MS Windows (2)

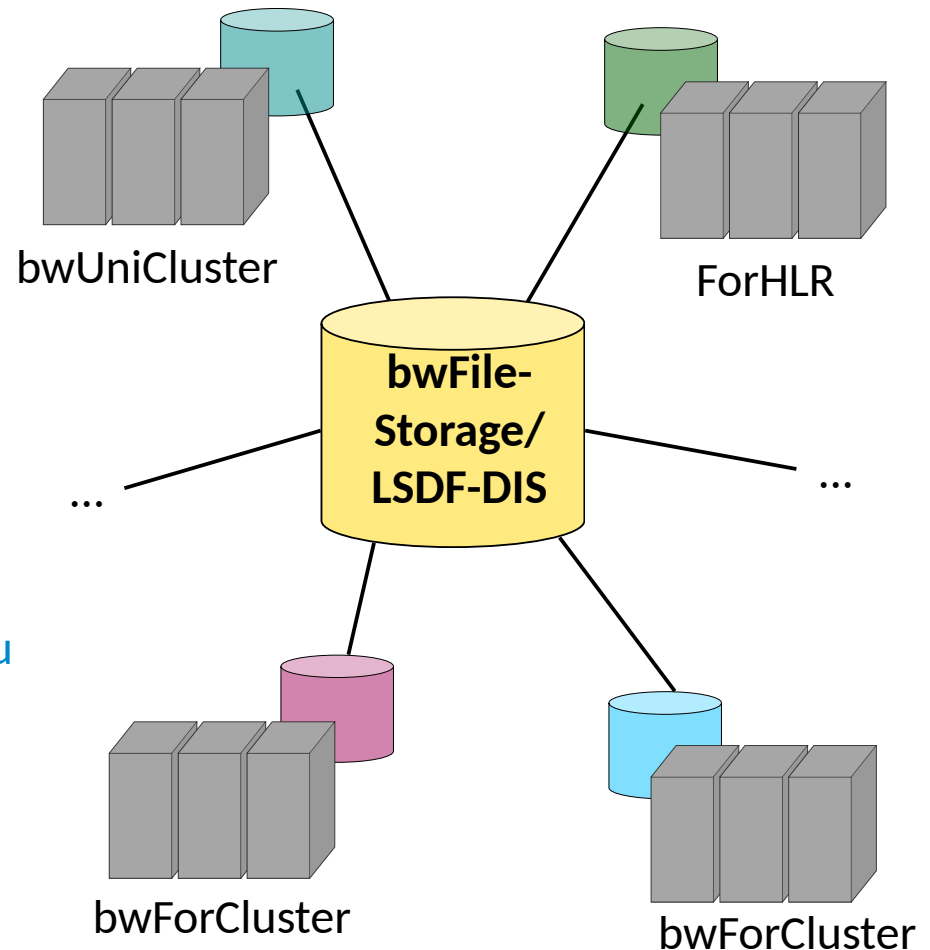
MobaXterm + MS Windows Explorer



bwFileStorage

BwFileStorage / LSDF-DIS

- Central storage located at KIT
- 100GB disk space per user
- Requirements
 - bwFileStorage entitlement
 - web registration at <https://bwidm.scc.kit.edu>
- Hosts
 - Via web: <https://bwfilestorage.lsd.f.kit.edu>
 - Via ssh: `bwfilestorage-login.lsd.f.kit.edu`
- Transfer tools
 - `scp`, `sftp`, `rsync`, `https`,
 - `rdata @ bwUnicluster`, `ForHLR`



bwFileStorage: rdata

- File system operations on „data mover“ nodes
- Supported commands:
 `cp, rm, ls, rsync, mv, mkdir, ...`
- Environment variables:
 - `$BWFS=/bwfilestorage/ka/ka_scc/ab1234/`
- Example:
 `$ scp file ka_ab1234@bwfilestorage.lsd.fkit.edu:`
 `$ rdata cp file $BWFS`
- Performance with a file size of 20000 MB:
 - `scp` : 2min 24s (139 MB/s)
 - `rdata cp` : 1min 5s (308 MB/s)

FAQ

- “I cannot login”, why?
 - Login at registration server of your cluster
 - e.g. bwUniCluster → <https://bwidm.scc.kit.edu>

The image shows two screenshots from the bwUniCluster web interface. The left screenshot is titled 'bwUniCluster' and contains a descriptive paragraph about the service, followed by a list of menu items: 'Servicedescription', 'Registry Info' (highlighted with a red box), and 'Set Password'. A red arrow points from the 'Registry Info' box to the right. The right screenshot is titled 'User' and shows a list of menu items: 'Index' and 'User Properties' (highlighted with a red box). A red arrow points from the 'User Properties' box to the left. Below the two screenshots, the text 'Check info given at: Registry Info, Index, User Properties' is written in blue, with a red arrow pointing from this text to the 'Registry Info' box in the left screenshot.

- @ bwUniCluster: Check if you've done the questionnaire within 14 days after the registration.

4. Questions