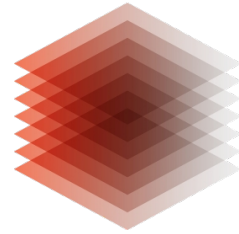

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TIB

Preserving and accessing content stored on USB- flash-drives – a TIB workflow

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Presentation Outline

- 1. USB-Stick as a storage medium for GL**
- 2. Content Preservation Strategy**
- 3. USB Write Blocker**
- 4. USB Imaging Workflow**
- 5. Results**

Digital Preservation at the TIB

- German National Library of Science and Technology
- World's largest specialised library with unique resources:
 - Conference Proceedings, Reports, ...
- Strong focus on Grey Literature
- Hosting and administration of a digital preservation system
- Keeping the data readable and accessible in the long term
- Own workflow and ingest preparation for Grey Literature

USB-Stick as a storage medium for GL

- Approx. 334 USB-flash-drives with GL in the TIB (2017)
- Increase of the amount in the next years
- „Write-many“ storage device
- Accidental write or erase processes during access
- Risk of loss and overwriting of rare and expensive data
- Not allowed for borrowing and accessing in the reading room
- Not suitable for digital preservation (limited lifespan, manipulation, interface dependency)

Content Preservation Strategy

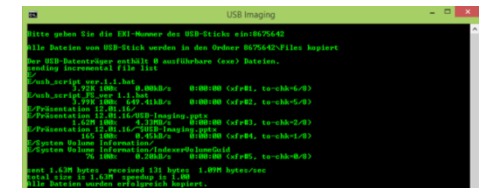
1. Minimization of risks of accidental manipulation during direct access:

- The use of a USB write blocker
 - Blocks the write access to the storage device
 - Access only in Read-Only Mode
 - Ensures the safe forensic data transfer



2. Separation of data from the storage device

- Reusable, semi-automated workflow
- Data saving via imaging or copying



3. Ingest into digital preservation system

USB write blocker

TABLEAU Forensic USB 3.0 Bridge



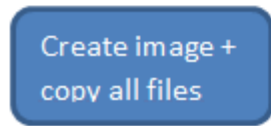
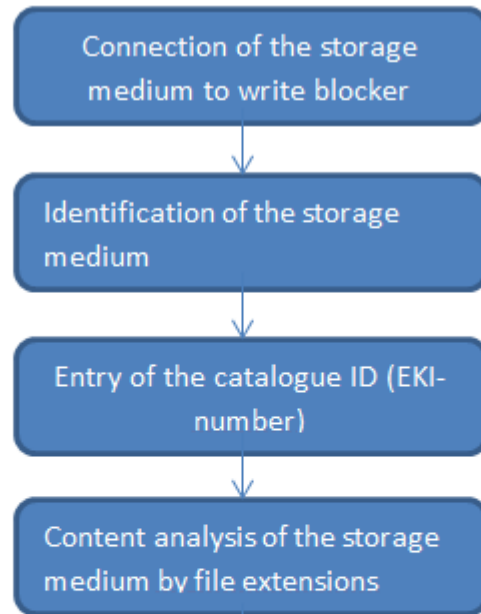
Selection requirements:

- common model in the IT-Forensic ✓
- Forensic data transfer up to 300MB/Sec (USB 3.0) ✓
- Easy handling ✓
- Also supports USB 1.1/2.0 ✓

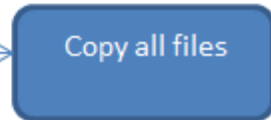
Separation of data from the data storage

- Batch Script (.bat) for workflow automation
- Guided User Dialog (Instructions and Messages)
- Strong focus on usability for librarians
- Creation of the Image-File and/or copying all the files:
 - Imaging for ensuring the connection between files (if .exe exist)
 - Only File-Copy for independent files (e. g. only pdf)
- Comparison of the MD5-checksums of the image and the original
- LOG-File for error capture (three control mechanisms)

Separation of data from the data storage



%EKI-number%/Image/



%EKI-number%/Files/



Separation of data from the data storage

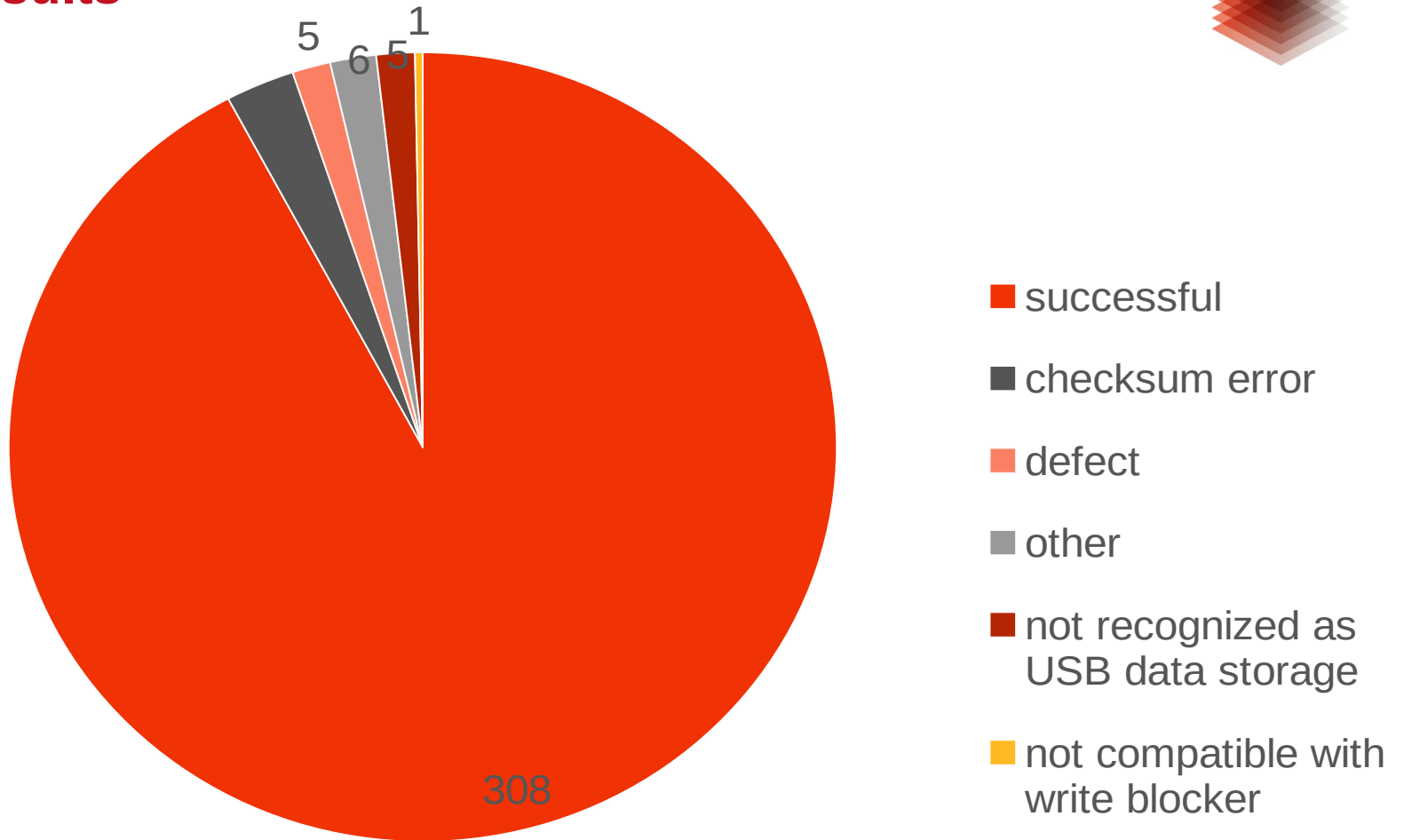
```
ca: USB Imaging
Bitte geben Sie die EKI-Nummer des USB-Sticks ein:8675642
Alle Dateien vom USB-Stick werden in den Ordner 8675642\Files kopiert
Der USB-Datenträger enthält 0 ausführbare (exe) Dateien.
sending incremental file list
E/
E/usb_script ver.1.1.bat
  3.92K 100%  0.00kB/s   0:00:00 (xfr#1, to-chk=6/8)
E/usb_script_FS_ver 1.1.bat
  3.99K 100% 649.41kB/s   0:00:00 (xfr#2, to-chk=5/8)
E/Präsentation 12.01.16/
E/Präsentation 12.01.16/USB-Imaging.pptx
  1.62M 100%  4.33MB/s   0:00:00 (xfr#3, to-chk=2/8)
E/Präsentation 12.01.16/~$USB-Imaging.pptx
  165 100%  0.45kB/s   0:00:00 (xfr#4, to-chk=1/8)
E/System Volume Information/
E/System Volume Information/IndexerVolumeGuid
  76 100%  0.20kB/s   0:00:00 (xfr#5, to-chk=0/8)

sent 1.63M bytes received 131 bytes  1.09M bytes/sec
total size is 1.63M speedup is 1.00
Alle Dateien wurden erfolgreich kopiert.

Haben Sie noch weitere USB-Sticks?

Antworten Sie bitte mit Y oder N: Y
Bitte stecken Sie den nächsten USB-Stick ein und bestätigen mit einer beliebigen Taste.
Drücken Sie eine beliebige Taste . . . _
```

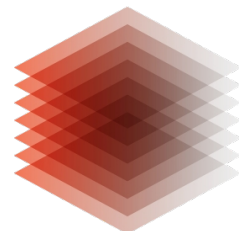
Results



Conclusion and further work

- Data from 92% of USB-Sticks successfully separated
- Different problems occur by 8%
- Data can be transferred by another method from 21 USB-Sticks, errors caused by other reasons
- 4 USB-Sticks lost their data completely (acquisition between 2009-2016), while stored in the library
- 1 USB-Stick was already defect at the time of acquisition
- Failure rate 1,5%
- Digital Preservation of files and images

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