

iTK Database uploading

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Task at hand: uploading files

- Current method: Confluence + manual update to CERNdb
- Raw Files produced in each of the steps [Metrology/bonding/pull test etc]
- Conversion script to json format with Petar's scripts
- Manual upload to cern/confluence

Special thanks to Serhat/Celine for showing me their lab workflow!

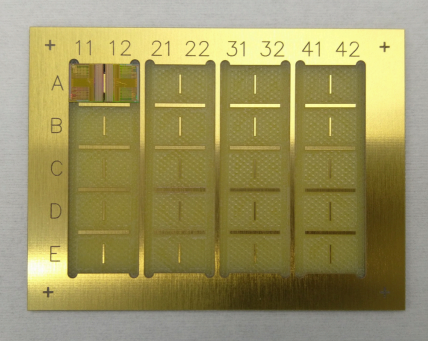
Confluence interface showing a page titled "ABC" under the "Monthly Pulltests" space. The page content includes a table for "Test Card" and a photograph of a test card.

Test Card

	11	12	21	22
A	20USGAA1193446	20USGAA1193445	20USGAA1193444	20USGAA1193443
B	20USGAA1193438	20USGAA1193436	20USGAA1193432	20USGAA1193435
C				
D				
E				

Results

Pulltest	ASIC 1st	ASIC 2nd	src	dst	date	Mean	s	min	max	size	failurecode	qty
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Drawback of current methods

Drawback:

- CERNdb and confluence does not fit the need of the DESY HH group in module building

- EG Does not allow for uploading of multiple test result easily/history tracking

- Lots of manual interaction with database, distracting task for technicians/phD/post doc.

- Difficulty for scaling up: huge time sink in the production chain.

- Zeuthen: similar workflow, but with cron jobs to automate steps for R0, R0,R1,R3,R5

One possibility would be to merge the cronjob/Petar's script, but I would like to propose an alternative solution

The Database

itkdb

- Python API for easy database upload/retrieve management
- Allow for uploading json directly through python code
- Retrieving information with Jupyter notebook
- Interfaces with the CERN DB

itkdb



itkdb
a pythonic api wrapper

Example Retrive informaiton - From test run to IV curve stored

```
[11] import itkdb
      c = itkdb.Client()
      testRun = c.get('getTestRun', json={
        'testRun': '653c6c440289a70042ae91ea',
        'noEosToken': False
      })

[12] from rich.pretty import pprint
      pprint(testRun['attachments'][1]['url'])

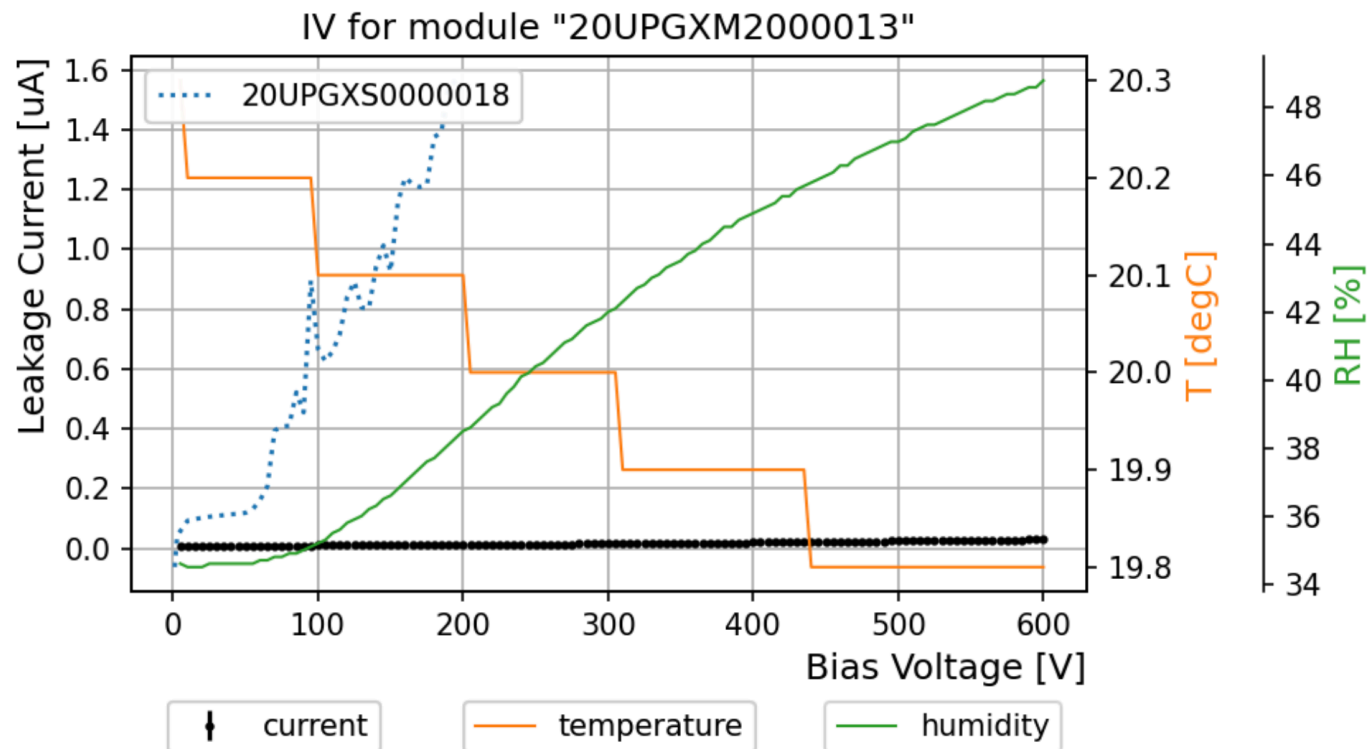
...

[14] image = c.get(testRun['attachments'][1]['url'])

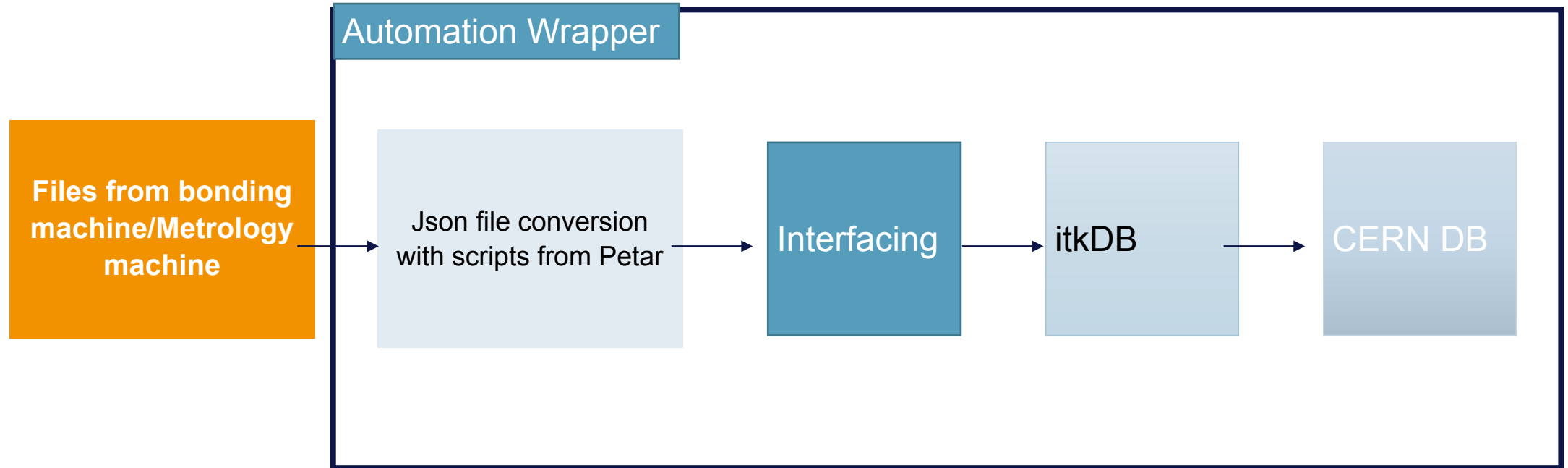
... Changing the mimetype for the response from EOS from 'application/octet-stream' to 'image/png'.

[15] type(image)

... itkdb.models.file.ImageFile
```



Possible workflow



What it would look like:

Serhat do metrology tests-> saves output file to usb, plug to a computer connected online -> automatic chain uploads file to CERN DB

Web GUI/Interface + bonus addition

Web interface/GUI based on itkdb

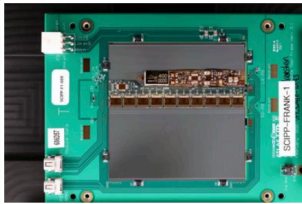
Allow for uploading information and direct interaction with webpage

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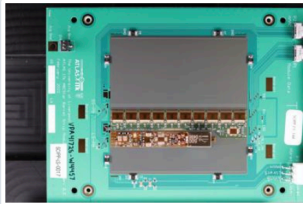
- Env Monitoring
- Dry Cabinets
- Bonding QC
- Sensors
- Hybrids
- Modules
- Reporting
- Pictures
- Tests
- Shipments
- File system

Menu Gitlab

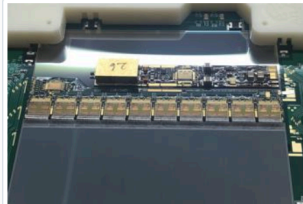
Module results




FRANK_LS Modules



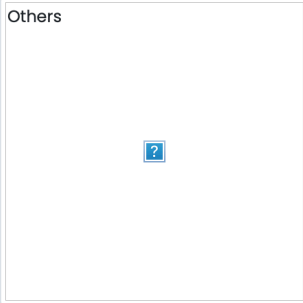
LS Modules



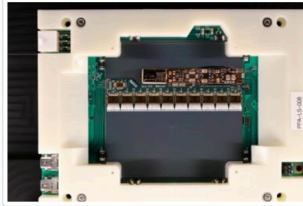
M3 Modules



M4 Modules



Others Modules



PPA_LS Modules

Direct interaction via web interface

Allows for multiple test result on same module


Easy for personnel to be trained and run to do

Hybrid	DB registered	Glue weight	Metrology	Wirebonding	Electrical	Burn-in
GPC1938_X_020_C_5						
GPC1938_X_020_C_6						
GPC1938_X_020_C_4						
GPC1938_X_020_C_3						
GPC1938_X_020_C_2						
GPC1938_X_020_C_1						
GPC1938_X_010_C_6						
GPC1938_X_010_C_5						
GPC1938_X_010_C_4						
GPC1938_X_010_C_3						
GPC1938_X_010_C_2						
GPC1938_X_010_C_1						
GPC1917_X_003_A_6						
GPC1917_X_003_A_5						
GPC1917_X_003_A_4						
GPC1917_X_003_A_3						
GPC1917_X_003_A_2						

Local DB for search function

Monitoring the result (multiple result possible) for the iTK database

https://itkpix-srv.ucsc.edu/localdb/

LocalDB

Top | Modules | PCBs | Bare Modules | Sensors | QC Tests | YARR Scans


Etc/UTC Sign in

Top Page > MODULE List

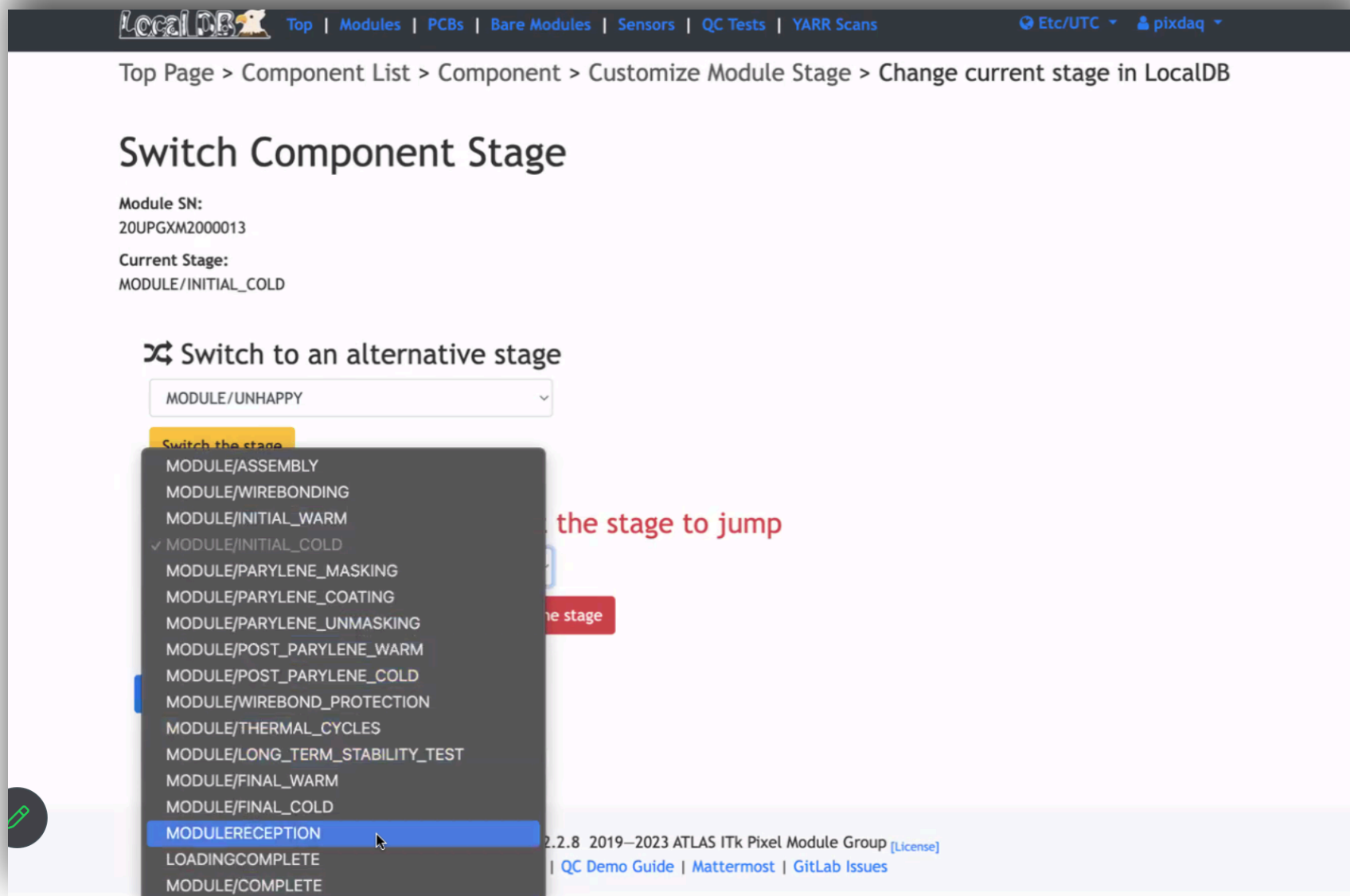
MODULE List

☒ Partial match ☐ Perfect match

Found 2 MODULE components in LocalDB.

MODULE	Relational Components	Current Stage	Last QC Test Type	Date	Tag  : <input type="button" value="Create"/>
20U PG XM 20 00013 Tutorial-Module/ITkPix_v1.1	20U PG XB 20 00013 Tutorial-BareModule/ITkPix_v1.1 20U PG XF 00 00013 RD53A-00-(0,13) 20U PG XP 00 00013 Tutorial-PCB/RD53A	MODULE/INITIAL_COLD	IV_MEASURE	2023-07-01 13:08:52 UTC(+0000)	
20U PG R9 21 01041 Digital-Quad-Module/ITkPix_v1.1	20UPGBQ200808 Invalid Serial Number 20U PG FC 00 87209 ITkPix-54-(10,9) 20U PG FC 00 87193 ITkPix-54-(9,9) 20U PG FC 00 87161 ITkPix-54-(7,9) 20U PG FC 00 87177 ITkPix-54-(8,9) 20U PG PQ 11 01041 Quad-PCB/Prototype	MODULE/INITIAL_WARM	E_SUMMARY	2023-07-07 04:32:28 UTC(+0000)	

Local DB/ switching components



LocalDB Top | Modules | PCBs | Bare Modules | Sensors | QC Tests | YARR Scans Etc/UTC pixdaq

Top Page > Component List > Component > Customize Module Stage > Change current stage in LocalDB

Switch Component Stage

Module SN:
20UPGXM2000013

Current Stage:
MODULE/INITIAL_COLD

Switch to an alternative stage

MODULE/UNHAPPY

Switch the stage

- MODULE/ASSEMBLY
- MODULE/WIREBONDING
- MODULE/INITIAL_WARM
- ✓ MODULE/INITIAL_COLD
- MODULE/PARYLENE_MASKING
- MODULE/PARYLENE_COATING
- MODULE/PARYLENE_UNMASKING
- MODULE/POST_PARYLENE_WARM
- MODULE/POST_PARYLENE_COLD
- MODULE/WIREBOND_PROTECTION
- MODULE/THERMAL_CYCLES
- MODULE/LONG_TERM_STABILITY_TEST
- MODULE/FINAL_WARM
- MODULE/FINAL_COLD
- MODULERECEPTION**
- LOADINGCOMPLETE
- MODULE/COMPLETE

the stage to jump

the stage

2.2.8 2019–2023 ATLAS ITk Pixel Module Group [License]
| QC Demo Guide | Mattermost | GitLab Issues

DESY

Proposal

Start on itkdb for -> json-> CERN itk database uploading

Web interface/GUI

A possible Solution to a soon mass production upcoming in DESY

Code internal, have contact points at SCIPP that I can reach out to.