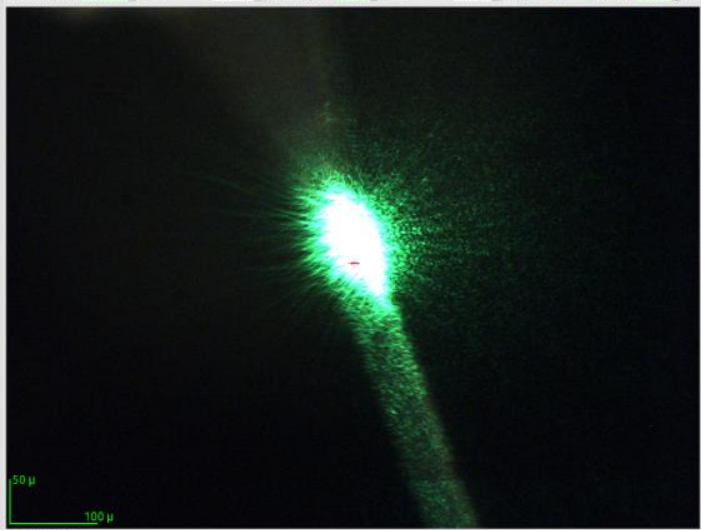


# Tioga

## TINE Server

In Operation @ EMBL (P12, P13, P14, T-REXX) & SOLEIL (Proxima 2A)

Collect Log Test  
 Sample centring  
 Omega: 102.68 Kappa: 180.00 Phi: 360.00  
 Front light: 100.00 Back light: 2.00 Zoom 5 Focus: 0.02



### bcxer\_4 (Point not defined)

**Standard Collection**

**Acquisition**  
 Oscillation start: 102.68 Osc. range per frame: 0.01  
 Number of images: 300000 Total osc. range: 000.00  
 First image: 1 Full osc. range  
 Exposure time (s): .00096 Total exp. time (s): 288.00  
 Kappa: 180 Phi: 360  
 Energy (keV): 2.7002 MAD  
 Resolution (Å): 2 Detector mode: 4M  
 Transmission (%): 100  
 Shutterless

**Data location**  
 Folder: /mnt/beegfs/P14/2021/p3l-gleb1/20211125/RAW\_DATA  
 bcxer\_tr  
 File name: bcxer\_4\_#####.cbf.gz Browse  
 Prefix: bcxer  
 Run number 4  
 Compress data

**Processing**  
 N.o. residues: 200 Space group:  
 Unit cell:  
 a: 0 b: 0 c: 0  
 α: 0 β: 0 γ: 0  
 Run processing after collection  
 Run Dozor

ISPyB - Proposal  
 MX836 - Time-Resolved Crystallography ar Group: Set

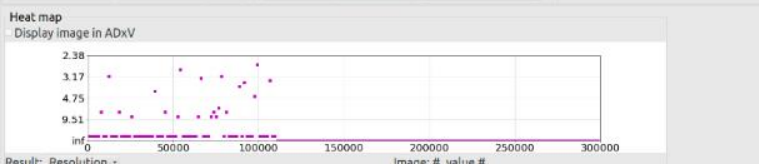
**Sample tree**  
 Mode: Manually mounted Show SC details  
 Sample: ISPyB  
 Centring: Manual 3-click Filter: No filter

- manually-mounted
  - Standard - 3
    - Manual centring (kappa=0.0,phi=0.0)
    - bcxer\_1 (Point not defined) Collection done
    - Standard - 4
      - Manual centring (kappa=0.0,phi=0.0)
      - bcxer\_2 (Point not defined) Collection done
      - Standard - 5
        - Manual centring (kappa=0.0,phi=0.0)
        - bcxer\_3 (Point not defined) Done
        - Standard - 6
          - Manual centring (kappa=0.0,phi=0.0)
          - bcxer\_4 (Point not defined) 105616/300000

X: 976 Y: 882

**Beam size** Slits Aperture  
 Horizontal: 7.0 μm Horizontal: 6977 μm 300 150 μm  
 Vertical: 3.0 μm Vertical: 5960 μm 300 BEAM

Beamline mode CRL Beam positioning (Double mode)  
 Double Manual Set Horizontal: 2.8307 0.001  
 Out Vertical: 3.3292 0.001



**Characterisation**

- Helical Collection
- Energy Scan
- XRF Spectrum
- Advanced
- Xray Imaging

**Queue history**

- Collection 35%

Queue history  
 Stop  
 Collection 35%

```

[2021-11-25 16:33:05] Collection: Getting data collection info
[2021-11-25 16:33:05] Collection: Creating directories for raw images and processing files
[2021-11-25 16:33:05] Collection: Getting sample info from parameters
[2021-11-25 16:33:05] Collection: Storing sample info in LIMS
[2021-11-25 16:33:05] Collection: Moving to centred position
[2021-11-25 16:33:05] Collection: Taking 1 sample snapshot(s)
[2021-11-25 16:33:05] Collection: Setting transmission to 100.00
[2021-11-25 16:33:05] Collection: Setting energy to 12.7002
[2021-11-25 16:33:05] Collection: Setting resolution to 2.000
[2021-11-25 16:33:05] processing_parallel Undefined
[2021-11-25 16:33:05] Collection: Updating data collection in LIMS
[2021-11-25 16:33:05] Collection: Started
  
```

**Machine current** 120.4 mA

**Machine state** Betrieb->Experimente  
 6.08 GeV, 480 Bunches

**Front End, undulator gap** Opened, 10.94 mm

**Hutch temperature and humidity** 23.6 C, 23.2 %

**Measured / Estimated flux**  
 Flux: 1.87E+12 ph/s / 1.88E+13 ph/s  
 Transmission: 9% / 100.0%  
 Beam size: 7x3 / 7x3  
 Cryoject in place

**Sample changer** In place Temp: 300.03 K  
 Dewar level in range

**Frames dropped**

**Energy**  
 Currer: 12.7002 keV  
 Wavelength: 0.9762 Å  
 Status:  
 Set to: keV  
 Center beam after energy change

**Transmission**  
 Currer: 100.00 %  
 Set to:

**Resolution**  
 Currer: 2.000 Å  
 142.87 mm  
 Set to: A

**Beamstop distance**  
 Currer: 15.00 mm  
 Set to:

Door interlock  
 Locked (unlock disabled)  
 Unlock

**Safety shutter**  
 by running data collection  
 Open Close

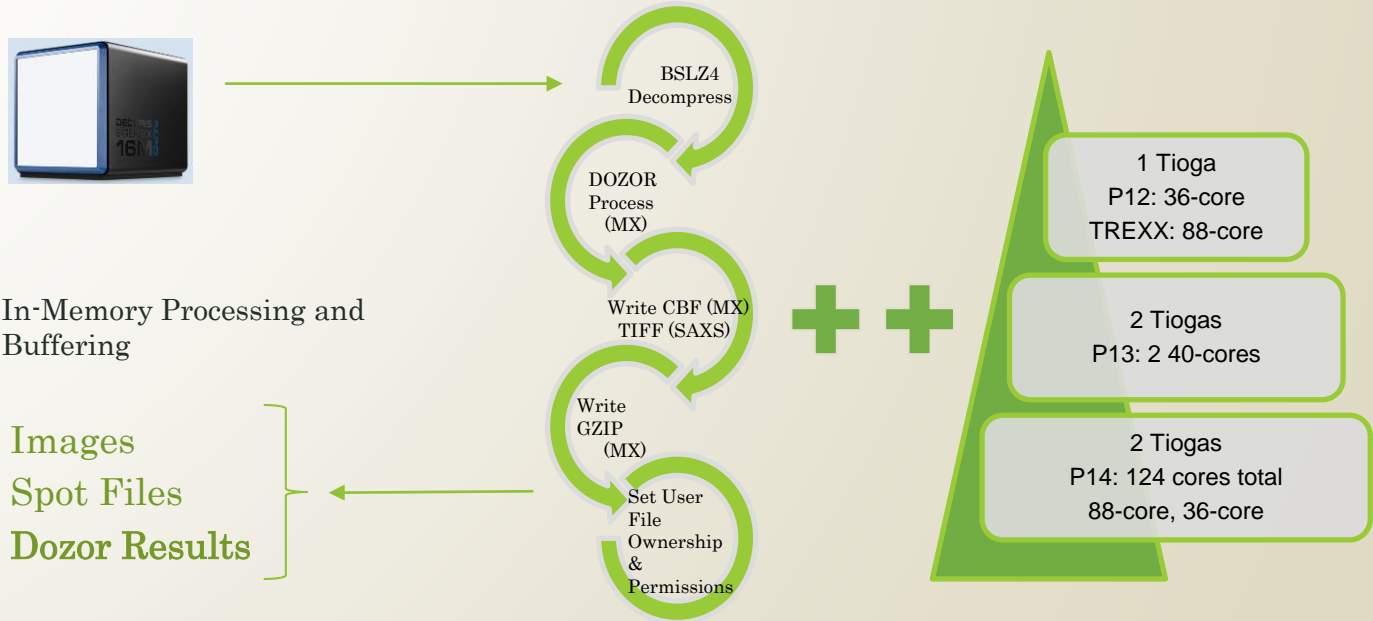
**Fast shutter**  
 Disabled  
 Open Close

**Image tracking** ready  
 Detector status: Exposing

- Enable Adxv image tracking Frame rate: 999.31
- Filter frames based on Dozor score Temperature: 28.1
- Indicate spots Humidity: 0.0%



# Tioga: “where it forks”/”swift current”



Java Instant Client

File Options Data Transfer Monitor Options Information Help

Context: P14 Subsystem: ALL Stock Properties  Meta Pro...

Server: tioga Device: tioga Property: dozor-pass

Data Size: 1048576 Data Type: FWINDOW dozor results

Read Poll Draw Mode Textbox Decimal  Autoscale  Log Scale  History  Suggest  Suggest Draw Mode  Overlap  Input Pa...

Settings: UDP, Timer | Suppress Query Properties, Device Query Precedence Last request: 15:4

**/P14/tioga/tioga dozor-pass @ 15:46:59.090**

(0,0)	[0, 545, 180.18492, 1.5970682]
(0,1)	[6, 547, 175.22383, 1.5758042]
(0,2)	[1, 556, 182.18365, 1.5758042]
(0,3)	[8, 565, 148.42671, 1.5758042]
(0,4)	[4, 564, 155.19858, 1.7180244]
(0,5)	[5, 564, 188.69156, 1.5758042]
(0,6)	[2, 573, 171.1773, 1.5758042]
(0,7)	[9, 564, 190.5657, 1.5758042]
(0,8)	[7, 549, 191.84222, 1.5758042]
(0,9)	[3, 579, 163.23755, 1.5758042]
(0,10)	[11, 580, 173.29439, 1.5758042]
(0,11)	[10, 587, 177.8874, 1.5758042]
(0,12)	[16, 672, 170.99011, 1.7456874]
(0,13)	[15, 700, 207.18315, 1.5758042]
(0,14)	[12, 704, 207.71591, 1.5758042]
(0,15)	[13, 712, 209.47754, 1.5758042]
(0,16)	[21, 671, 200.55522, 1.5758042]
(0,17)	[14, 701, 226.8951, 1.5758042]
(0,18)	[17, 683, 210.72156, 1.5758042]
(0,19)	[20, 663, 200.17862, 1.5758042]
(0,20)	[18, 697, 175.39738, 1.5758042]
(0,21)	[19, 682, 204.16306, 1.5758042]
(0,22)	[23, 682, 179.59766, 1.5758042]
(0,23)	[22, 664, 201.3998, 1.5758042]
(0,24)	[30, 728, 184.8771, 1.5758042]
(0,25)	[24, 690, 201.37184, 1.5758042]
(0,26)	[33, 702, 203.8459, 1.5758042]
(0,27)	[25, 715, 214.30602, 1.5553674]
(0,28)	[27, 716, 201.58548, 1.5758042]
(0,29)	[31, 711, 209.82028, 1.5758042]
(0,30)	[28, 726, 175.83028, 1.5758042]
(0,31)	[32, 727, 215.10684, 1.5758042]
(0,32)	[26, 700, 206.56624, 1.5758042]

Java Instant Client

File Options Data Transfer Monitor Options Information Help

Context: P14 Subsystem: ALL Stock Properties  Meta Pro...  A

Server: tioga Device: tioga Property: dozor-average-I

Data Size: 1 Data Type: DOUBLE dozor average intensity Timeout: 1000

Read Poll Draw Mode Textbox Decimal  Autoscale  Log Scale  History  Suggest  Suggest Draw Mode  Overlap  Input Pa...

Settings: UDP, Timer | Suppress Query Properties, Device Query Precedence Last request: 16:00:25.611 (10 ms)

**/P14/tioga/tioga dozor-average-I @ 16:04:22.454**

(0,0)	3.507268678964338E7
-------	---------------------

**/P14/tioga/tioga dozor-pass-IS @ 16:00:25.220**

(0,0)	[0, 3.1854168E7, 0]
(0,1)	[6, 3.207932E7, 0]
(0,2)	[1, 3.1838634E7, 0]
(0,3)	[8, 3.237412E7, 0]
(0,4)	[4, 3.1932266E7, 0]
(0,5)	[5, 3.2509732E7, 0]
(0,6)	[2, 3.1972138E7, 0]
(0,7)	[9, 3.2637984E7, 0]
(0,8)	[7, 3.2970876E7, 0]
(0,9)	[3, 3.2425422E7, 0]
(0,10)	[11, 3.2109178E7, 0]
(0,11)	[10, 3.2321752E7, 0]
(0,12)	[16, 3.0198484E7, 0]
(0,13)	[15, 3.0030334E7, 0]
(0,14)	[12, 3.0143376E7, 0]

Collect Log Test  
Sample centring

Omega: 238.45  $\phi$  90.0  
Kappa: 93.0  $\Phi$  151.2  $\theta$  10.0  
Front light: 100.00 Back light: 2.00 Zoom 6.00 Focus: 0.05

HDR\_fps\_2 (Point not defined)  
Standard Collection

Acquisition  
Oscillation start: 238.45 Osc. range per frame: 0.01  
Number of images: 18000 Total osc. range: 180.00  
First image: 1 Full osc. range

Exposure time (s): 00893 Total exp. time (s): 16.07  
Kappa: 93.09 Phi: 151.5  
Energy (keV): 6.6502 MAD  
Resolution (Å): 1.2 Detector mode: 4M  
Transmission (%): 100  
Shutterless

Data location  
Folder: /mnt/beegfs/P14/2022/gleb/20220318/RAW\_DATA  
File name: HDR\_fps\_2\_####.cbf.gz  
Prefix: HDR\_fps  
Run number: 2  
Compress data

Java Instant Client  
File Options Data Transfer Monitor Options Information Help

Context: P14 Subsystem ALL Stock Properties Met...  
Server: r1deau Device: tioga Property: dozor-pass  
Data Size: 1048576 Data Type: FWINDOW dozor results Timeout: 1000

Read Stop  
Draw Mode: Textbox  
Autoscale  
Log Scale  
History  
Suggest Decorations  
Suggest Draw Mode  
Overlap

Queue history  
Stop  
collection

022-03-18 16:09:28 Collection: Moving  
022-03-18 16:09:28 Collection: Taking  
022-03-18 16:09:28 Collection: Settling  
022-03-18 16:09:28 Collection: Settling  
022-03-18 16:09:28 Collection: Settling  
022-03-18 16:09:28 Collection: Update  
022-03-18 16:09:29 Collection: Start  
022-03-18 16:09:49 Processing: Done  
022-03-18 16:09:51 Collection: Done  
022-03-18 16:11:46 Collection: Preparing  
022-03-18 16:11:46 Collection: Storing

Settings: UDP, Event | Suppress Query Properties, Dev...  $\Delta t=60.003$  s. 0 cycles

Adv - /mnt/beegfs/P14/2022/gleb/20220318/RAW\_DATA/HDR\_fps\_1\_18000.cbf.gz

Queue history  
Stop  
collection

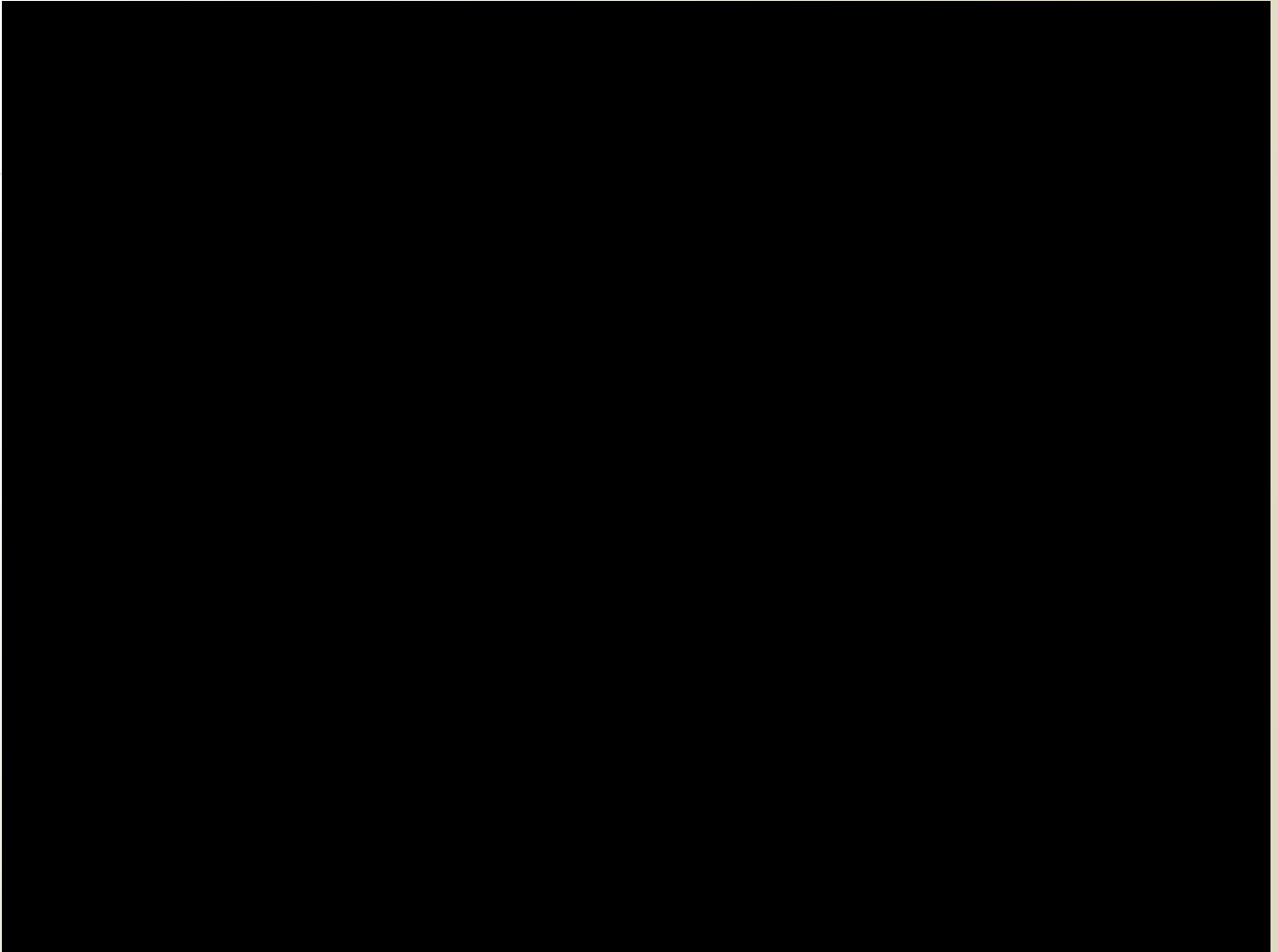
022-03-18 16:09:28 Collection: Moving  
022-03-18 16:09:28 Collection: Taking  
022-03-18 16:09:28 Collection: Settling  
022-03-18 16:09:28 Collection: Settling  
022-03-18 16:09:28 Collection: Settling  
022-03-18 16:09:28 Collection: Update  
022-03-18 16:09:29 Collection: Start  
022-03-18 16:09:49 Processing: Done  
022-03-18 16:09:51 Collection: Done  
022-03-18 16:11:46 Collection: Preparing  
022-03-18 16:11:46 Collection: Storing

Image tracking ready  
Enable Adv image tracking  
Filter Frames based on Dozor score  
Indicate spots

Detector status ready  
Frame rate: 1071.1 Hz  
Temperature: 28.3°C  
Humidity: 0.0%

File system EDNA ISPyB



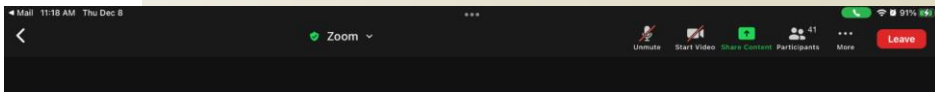


# Updates and Changes

- SOLEIL has a new remote access server:
  - **Host** = `remote.synchrotron-soleil.fr`
    - **Port** = `4000`
    - **Protocol** = `NX`
  - `nx-vip.synchrotron-soleil.fr` should **NOT** be used
- PROXIMA 2A has a new MXCuBE workstation:
  - `proxima2a-pc4` (pc4)
    - Custom Display ONLY
  - `proxima2a-10` (p10) = old workstation
    - Still available via `remote.synchrotron-soleil.fr`
    - Physical and Custom Displays available
- NoMachine version 6
  - All workstations have been upgraded the NoMachine version 6
- ALBULA & ADXV
  - ADXV launches automatically with MXCuBE
    - A spot search algorithm (TIOGA) will display blue boxes around spots
  - ALBULA can be launched via command line on `proxima2a-pc4`
    - `albula` or `albula_4.1`

[https://www.synchrotron-soleil.fr/en/beamlines/proxima-2a\\_remote\\_access\\_px2-a\\_nomachine\\_guide\\_ws15c.pdf](https://www.synchrotron-soleil.fr/en/beamlines/proxima-2a_remote_access_px2-a_nomachine_guide_ws15c.pdf)

Martin Savko



## TINE/TIOGA/DOZOR

- Running since April 2022
- Code shared and explained by Marina and Gleb
- Added support for Eiger 9M
- Compiled for CentOS 7 and Ubuntu 20.04
- Setting up minimum TINE environment on our control network
- Configured for Huawei FusionServer (288 threads, 2.56TB memory) for production
  - dedicating 144 threads and 258GB of RAM to TIOGA
  - Eiger 9M@238Hz get processed and gzipped cbfs appear on the filesystem ~211Hz (1GB/s)
- Live view in ADXV

