

Update plan of ATF/ATF2 operation system

What is planned to work until next operation?

- Working items to improve the performance
- Enhance the accessibility to the ATF control system
- Comment on the sharing of the calibrated data

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Improve the hardware structure (1)

Remove the bottle neck of data transfer

	Present structure	Upgrade Plan
Core system (User interface, process communication, logging,...)	Vsystem on VMS server and Linux (Ubuntu) server VMS server limits the overall performance of the ATF system. CPU ~1/100 of recent PC. EPICS on Linux servers (many Linux distributions)	Vsystem on Linux server (Scientific Linux) EPICS on Linux servers (Scientific Linux) Python, Java to integrate GUIs
User terminal	LTSP user terminals for integrated management; Diskless, remote booting GUI tasks are concentrated in a master server (Vsystem server).	Standalone but diskless, USB booting, LDAP user managing GUI can be run on client PC.

Improve the hardware structure (2)

Remove the bottle neck of data transfer

	Present structure	Upgrade Plan
Video images screens, oscilloscopes	<p>CATV for LINAC/BT video images</p> <p>Ethernet base images</p> <p>Really a bottle neck of data transfer</p>	<p>same</p> <p>prepare the access control server/software to minimize the overhead.</p>
Sub system (Hardware interface)	<p>CAMAC serial highway on Linux (C)</p> <p>CAMAC CC/NET servers (C,EPICS)</p> <p>PLCs, VMEs (EPICS), Ethernet-RS232C</p>	<p>Basically same as present</p> <p>encourage the use of EPICS for data sharing</p>
Storage	<p>On each servers</p> <p>“atfsad” has NSF disk (RAID5). This server is very busy.</p>	<p>1TB RAID1 (x3) + hot spare (x 2)</p> <p>SAN (Fiber Channel) capability for future.</p>

Access to the ATF servers

	Present structure	Upgrade Plan
Gate to ATF-local	VPN to KEK and SSH to ATF-local	same
Accessibility to ATF-local	from KEK internal only	from KEK internal only
User account	server by server	common in ATF servers; LDAP
File posting structure	Partially in web	should be done for R&D reports
ELOG	not yet used	should be used Force to use in next operation? lessons?
ATF web	Outside of KEK secure network	same

Enhance the user accessibility to data on ATF control system including Vsystem

We have to move the software from VMS to Linux.

In this work, prepare the EPICS PVs in addition to the Vsystem database.

Priority to immigration is

ATF2 (mostly done) → DR → BT → Linac → Gun

EPICS PVs for all ATF/ATF2 magnets are ready to test.

Whole DR BPMs will be upgraded into FNAL digitizer system (EPICS) in this summer.

The screenshot displays the 'Database/magnet' web interface. At the top, there are navigation links: [New | List of pages | Search | Recent changes]. The main title is 'Database/magnet' with a breadcrumb path 'atfwiki / Database / magnet'. Below the title, there are action links: [Edit | Freeze | Permission | Diff | Backup | Upload | Reload].

The interface is divided into two main sections: 'DC control' and 'PS control'. The 'DC control' section contains two entries:

- <device>:currentWrite (float)**: Target current of the magnet in Amps. It will be operated immediately when the value is entered.
- <device>:currentRead (float)(read only)**: Read back of the current setting in Amps. Current on magnet is changed by an internal step size. This record will return the internal current setting if the PS is under moving to the target current specified by "<device>:currentWrite".

The 'PS control' section is partially visible at the bottom. A 'Table of contents' sidebar on the right lists the following records:

- DC control
 - <device>:currentWrite
 - <device>:currentRead (float)(read only)
- PS control
 - <device>:on (binary)
 - <device>:off (binary)
 - <device>:reset (binary)
 - <device>:abort (binary)
 - <device>:status (int)(read only)
 - <device>:statusInt (int)(read only)
- Other useful records

Calibrated data should be shared and stored into a common accessible area.

This is for all ATF collaborators, not only for FS and SAD users.

BPM positions,
movers,
Magnet power supplies,
...

← internally done by EPICS

BPM offset by BBA,
Calibrated K-values,
...

→ should be prepared in the structure,
so called “middle layer” of FS?,
EPICS PVs?, AML?

Update/Maintenance of calibration factors and methods will be done through the R&D with beam. Therefore the natural way to update is using the FS and SAD.

We need to discuss how it should be done. This is a subject that the commissioning group have to decide and establish until the next operation.