

The XXIV International Scientific Conference
of Young Scientists and Specialists AYSS-2020

Ecosystem of information services for the BM@N experiment

Ivan Slepov, Alexander Chebotov
Konstantin Gertsenberger, JINR, Dubna

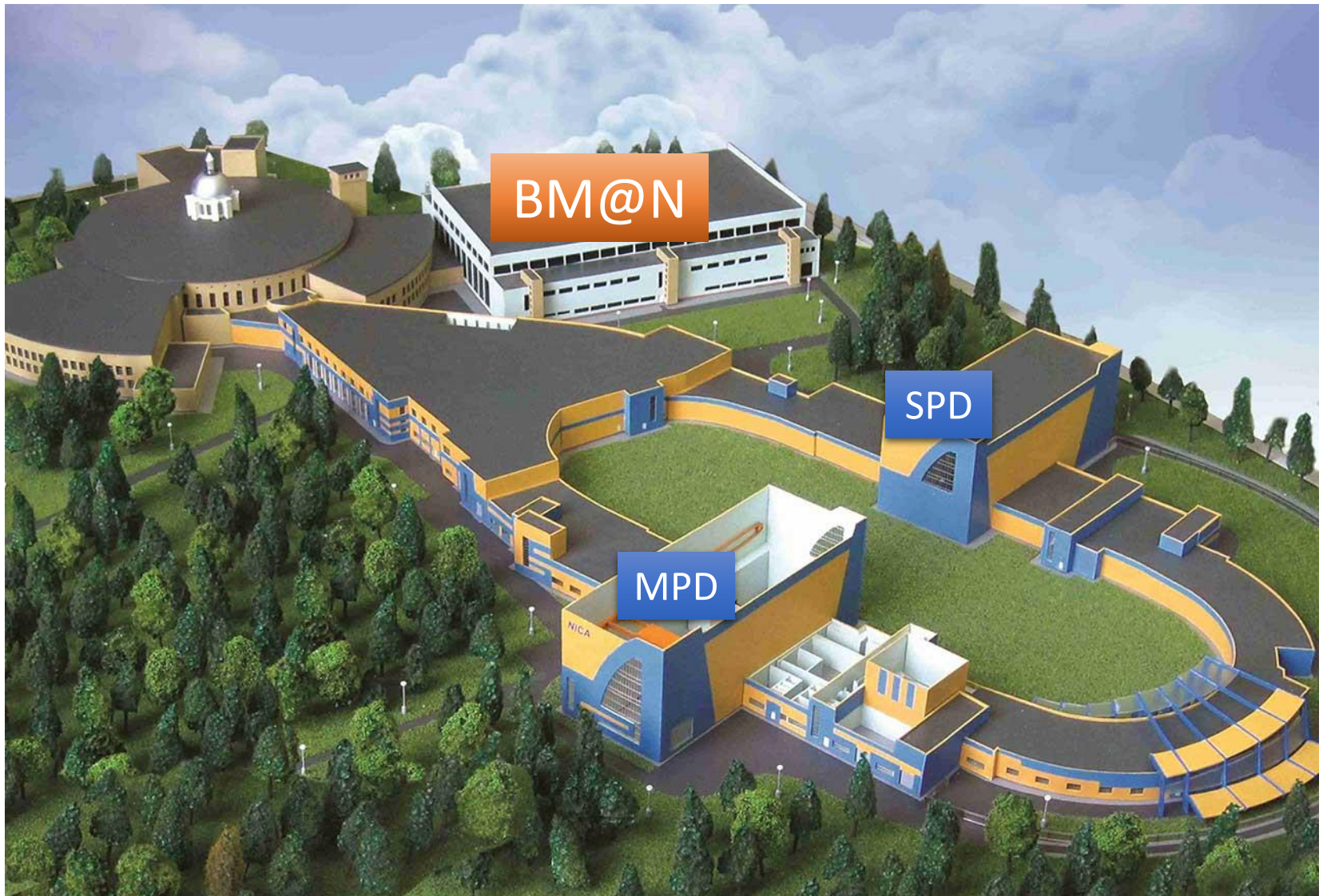


10.11.2020





Nuclotron-based Ion Collider fAcility



Old resources of information about the BM@N

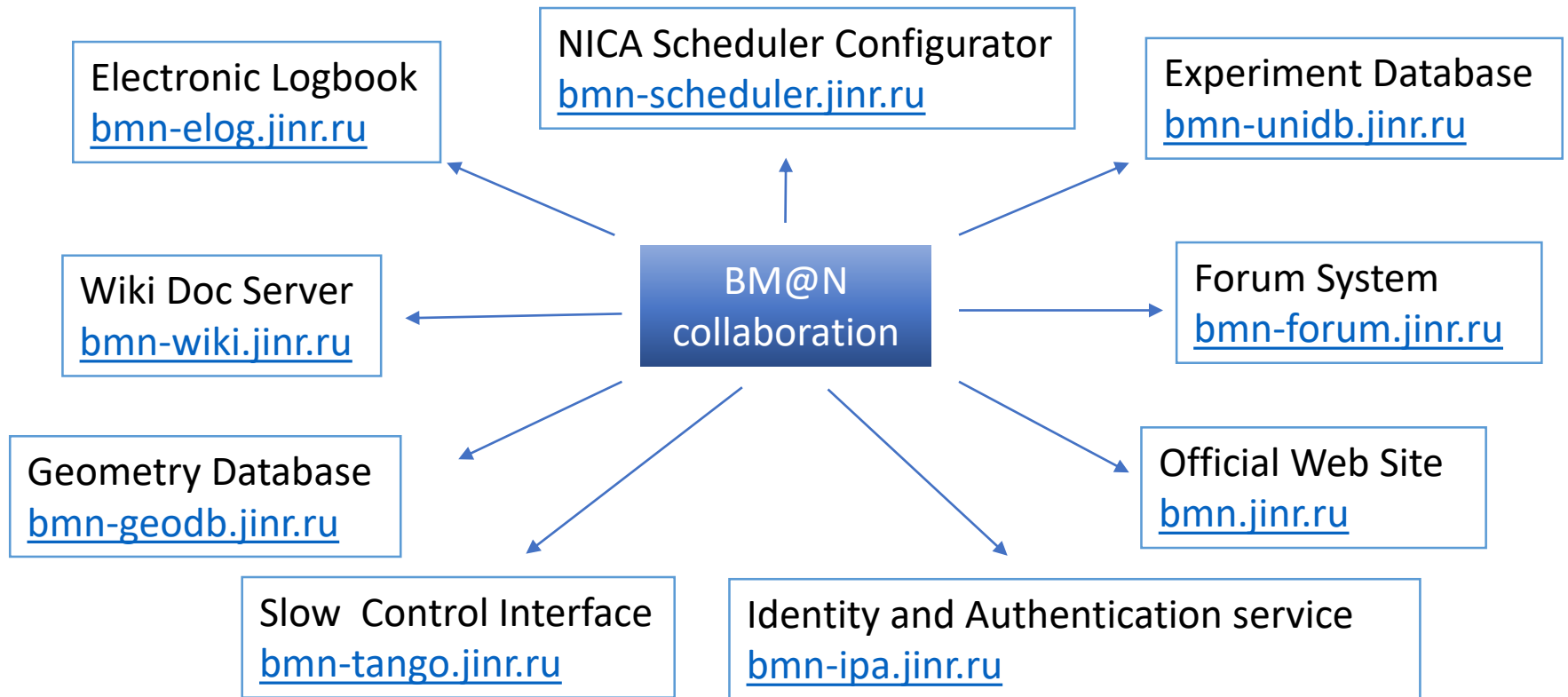
- mpd.jinr.ru – NICA experiments website
- bmnshift.jinr.ru – first document server for BM@N
- bmn.jinr.ru/experiments – first collaboration website



BMN.JINR.RU

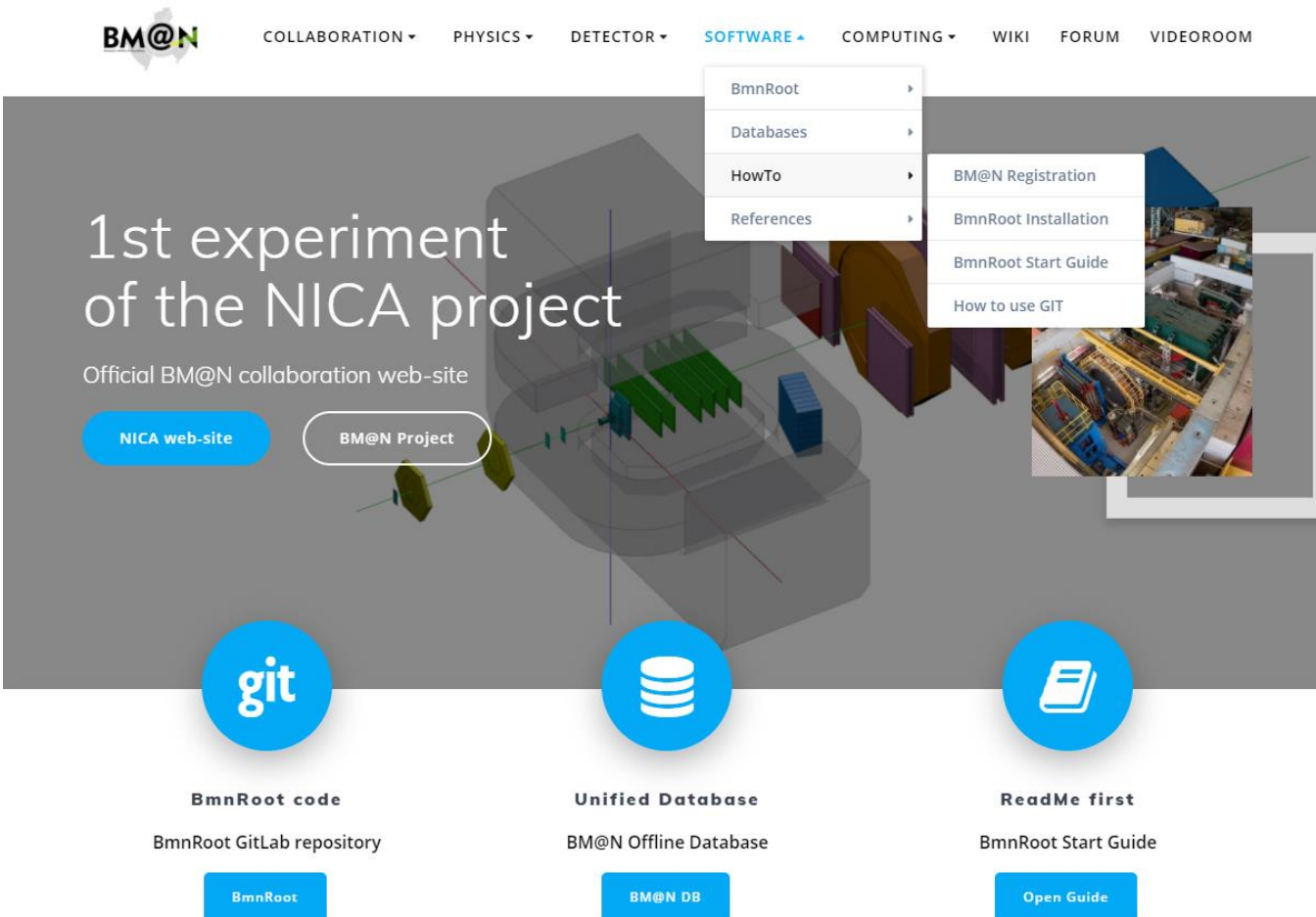
Main website with links to all BM@N resources

Migration for centralized access to BM@N information and services



Web services are mainly deployed on 3 servers on the NICA cluster:

- web-services and web-sites
- freeipa server
- BM@N DBs



The screenshot shows the BM@N collaboration website. The header includes the BM@N logo and navigation links: COLLABORATION, PHYSICS, DETECTOR, SOFTWARE (highlighted), COMPUTING, WIKI, FORUM, and VIDEOROOM. A dropdown menu for 'SOFTWARE' is open, showing links to BmnRoot, Databases, HowTo, and References. The main content area features a large 3D visualization of the NICA project with the text '1st experiment of the NICA project' and 'Official BM@N collaboration web-site'. Below this are two buttons: 'NICA web-site' and 'BM@N Project'. At the bottom, there are three circular icons representing Git, a database, and a document. Below each icon is a section with a title, a description, and a button. The Git section is titled 'BmnRoot code' with the description 'BmnRoot GitLab repository' and a 'BmnRoot' button. The database section is titled 'Unified Database' with the description 'BM@N Offline Database' and a 'BM@N DB' button. The document section is titled 'ReadMe first' with the description 'BmnRoot Start Guide' and an 'Open Guide' button.

BM@N

COLLABORATION ▾ PHYSICS ▾ DETECTOR ▾ SOFTWARE ▴ COMPUTING ▾ WIKI FORUM VIDEOROOM

BmnRoot ▸
Databases ▸
HowTo ▸
References ▸

BM@N Registration
BmnRoot Installation
BmnRoot Start Guide
How to use GIT

1st experiment
of the NICA project

Official BM@N collaboration web-site

NICA web-site BM@N Project

git

BmnRoot code
BmnRoot GitLab repository
BmnRoot

Unified Database
BM@N Offline Database
BM@N DB

ReadMe first
BmnRoot Start Guide
Open Guide

Website –
bmn.jinr.ru

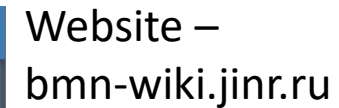
Platform – WordPress

Architecture –
PHP + MySQL + WP Plugins

Apache with SSL

Information about:

- Collaboration
- Physics
- Detectors
- Software
- Computing
- Web Services



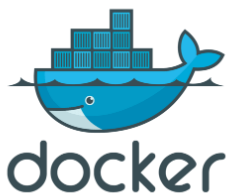
Architecture – Docker containers: Xwiki + MySQL

- BM@N Subsystems
- Run Control
- SRC for BM@N
- Comon documents
- Reports
- Software
- Computing
- Archive



all categories ▾
Categories
Latest
Top
+ New Topic

 Staff - READ ME FIRST: Admin Quick Start Guide - Privacy Policy - FAQ/Guidelines	 Site Feedback - Confusing activation link - Non-secure connection - Change the server address	Collaboration Support and Common Questions - File disappearing - Ncx cluster state - alignment_innTracker.root failed to read the file type data
Software Development Group - BmnRoot News (updates, improvements, features) - Suggestion to remove 'check_system' - New Authorization System for BM@N services	SRC Data Analysis and Simulation Group - DCH global tracks - Trigger setup - PID using DCH tracks	Event Reconstruction and Detector Simulation Group MWPC geometry
Hyperon Reconstruction and Simulation Group	Physics Analysis Issues	Particle Identification Group
ZDC & ECAL Data Analysis and Simulation Group	- Data Analysis and Simulation - Hyperon Reconstruction and Simulation - SRC Data Analysis and Simulation - Physics Analysis Issues	



Website –
bmn-forum.jinr.ru

Platform – Discourse

Architecture –
Docker containers

Redis + sidekiq + Discourse
Nginx + PostgreSQL

Forum groups:

- News
- Support
- Software development
- Event reconstruction
- Particle Identification

Menu Sign Out

BM@N Experiment Runs

Run Selector : *Period 6;* + ✎ -

Period	Run	Start Time	End Time	Beam	Energy, GeV	Target	Voltage, mV	Event Count	File Size, GB	Raw File Path	Geometry
6	1992	2017-03-18 23:55:33	2017-03-19 00:13:31	C	5.14	C	74.493333	57737	5.481	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1992	≡
6	1991	2017-03-18 23:33:48	2017-03-18 23:49:54	C	5.14	C	76.112108	65368	6.170	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1991	≡
6	1990	2017-03-18 23:31:00	2017-03-18 23:31:59	C	5.14	C	76.107547	6607	0.618	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1990	≡
6	1989	2017-03-18 23:26:47	2017-03-18 23:30:20	C	5.14	C	76.102794	29085	2.727	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1989	≡
6	1988	2017-03-18 22:58:22	2017-03-18 23:07:12	C	5.14	C	76.110363	41893	3.940	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1988	≡
6	1987	2017-03-18 22:44:02	2017-03-18 22:56:36	C	5.14	C	76.085479	79187	7.429	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1987	≡
6	1986	2017-03-18 22:40:21	2017-03-18 22:43:33	C	5.14	C	76.066589	24847	2.319	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1986	≡
6	1985	2017-03-18 22:29:55	2017-03-18 22:38:35	C	5.14	C	76.075318	47324	4.434	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1985	≡
6	1983	2017-03-18 22:21:51	2017-03-18 22:27:57	C	5.14	C	76.048702	53616	5.010	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1983	≡
6	1982	2017-03-18 16:56:23	2017-03-18 17:00:00	C	4.5	C	76.921612	5076	0.494	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1982	≡
6	1981	2017-03-18 16:35:49	2017-03-18 16:56:01	C	4.5	C	76.948587	261080	24.644	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1981	≡
6	1980	2017-03-18 16:21:09	2017-03-18 16:35:31	C	4.5	C	76.960804	208949	19.736	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1980	≡
6	1979	2017-03-18 16:06:39	2017-03-18 16:20:51	C	4.5	C	76.996687	209341	19.769	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1979	≡
6	1978	2017-03-18 15:54:32	2017-03-18 16:05:24	C	4.5	C	0.981394	112414	10.568	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1978	≡
6	1976	2017-03-18 13:28:33	2017-03-18 13:47:16	C	4.5	C	76.056474	84310	7.983	/eos/nica/bmn/exp/raw/run6/mpd_run_Glob_1976	≡

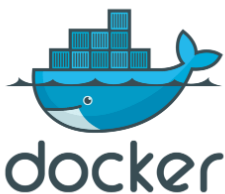
Website –
bmn-unidb.jinr.ru

Platform – Angular

Architecture –
Docker containers

Information about runs:

- Date
- Shift Leader
- Type of record
- Number of run
- Trigger
- DAQ status
- SP-41
- SP-57
- VKM2
- Beam
- Energy
- Target
- Comments



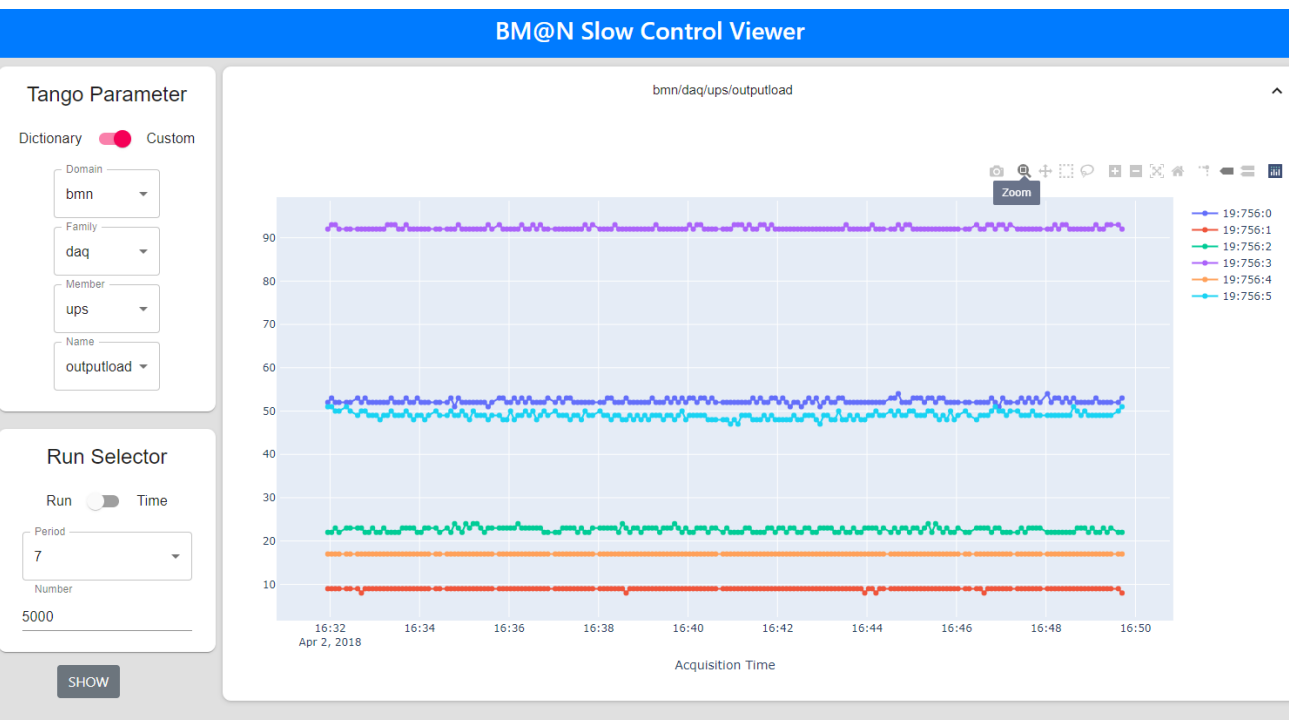
Website –
bm-n-tango.jinr.ru

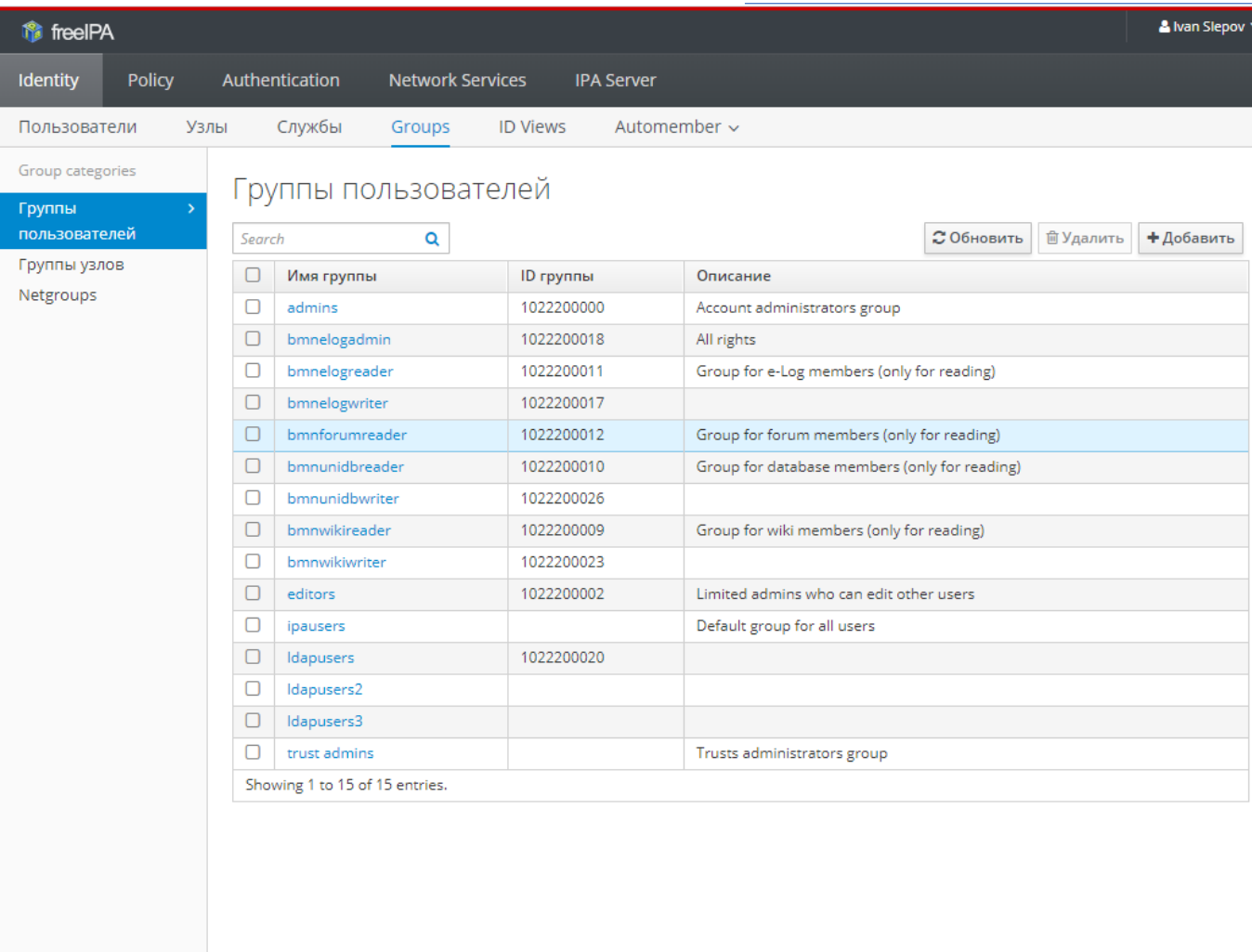
Platform – self-written

Architecture –
Docker containers with
own launcher

Python + PostgreSQL

Apache Reverse Proxy with
SSL to Docker container





freelPA Ivan Stegov

Identity Policy Authentication Network Services IPA Server

Пользователи Узлы Службы Groups ID Views Automember

Group categories

Группы пользователей

Группы узлов

Netgroups

Группы пользователей

Search

Обновить Удалить Добавить

☐	Имя группы	ID группы	Описание
☐	admins	1022200000	Account administrators group
☐	bmnelogadmin	1022200018	All rights
☐	bmnelogreader	1022200011	Group for e-Log members (only for reading)
☐	bmnelogwriter	1022200017	
☐	bmforumreader	1022200012	Group for forum members (only for reading)
☐	bmunidbreader	1022200010	Group for database members (only for reading)
☐	bmunidbwriter	1022200026	
☐	bmwikireader	1022200009	Group for wiki members (only for reading)
☐	bmwikiwriter	1022200023	
☐	editors	1022200002	Limited admins who can edit other users
☐	ipausers		Default group for all users
☐	ldapusers	1022200020	
☐	ldapusers2		
☐	ldapusers3		
☐	trust admins		Trusts administrators group

Showing 1 to 15 of 15 entries.

Website –
bm-n-ipa.jinr.ru

Platform – FreeIPA

Stand-alone server for it

Architecture –
bind + sssd + krb5 +
apache with SSL

Identity and Authentication service



Registration or User rights

 Your first name

 Your last name

 Login

 Email

If you have not registered for BM@N collaboration, please fill and attach this signed form

 Attach signed form

REGISTRATION

Already registered



Resource Access Request
Web page –
bm.jinr.ru/registration/

The required fields are filled in and the request is sent by e-mail to the resource manager

It is impossible to register yourself on the resources only by sending this request

You must specify the mail, select resources and specify the necessary rights

Date	Shift Leader	Type	No Run	Trigger	DAQ Status	SP-41, A	SP-57, A	VKM2, A	Beam	Energy, GeV	Target	Comment
2018-04-05 11:47:06	Rumyantsev	Inform All	5185 per.7	Special Trigger	All	0	0	0	Kr	2.94	Cu (2 mm)	End of the RUN7
2018-04-05 11:09:20	Rumyantsev	New Run	5184 per.7	Beam Trigger + Si >3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & Si>3 VKM2: I=125A, SP-57=50A, SP41=1250A; 100 k
2018-04-05 08:12:35	Rumyantsev	New Run	5183 per.7	Beam Trigger + Si >3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & Si>2 VKM2: I=125A, SP-57=50A, SP41=1250A; 120 k
2018-04-05 07:46:35	Babkin	New Run	5182 per.7	Beam Trigger + Si >3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & Si>3 VKM2: I=125A, SP-57=50A, SP41=1250A; 208 kev
2018-04-05 07:41:29	Babkin	New Run	5180 per.7	Beam Trigger + Si >3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & Si>3; VKM2: I=125A, SP-57=50A, SP41=1250A; 201 kev
2018-04-05 07:25:08	Babkin	New Run	5179 per.7	Beam Trigger + Si >3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & Si>3; VKM2: I=125A, SP-57=50A, SP41=1250A; 201 kev
2018-04-05 06:01:07	Babkin	New Run	5178 per.7	Beam Trigger + Si >3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & Si>3; VKM2: I=125A, SP-57=50A, SP41=1250A; 201 kev
2018-04-05 05:27:39	Babkin	New Run	5177 per.7	Beam Trigger + Si >3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & Si>3; VKM2: I=125A, SP-57=50A, SP41=1250A; 204 kev
2018-04-05 05:27:06	Babkin	New Run	5176 per.7	Beam Trigger + BD>3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & BD>3; VKM2: I=125A, SP-57=50A, SP41=1250A; 150 kev
2018-04-05 04:47:27	Babkin	New Run	5174 per.7	Beam Trigger + BD>3	All	1250	50	125	Kr	2.94	Cu (2 mm)	Cu target; Tr= BC1 & BC2 & VC & BD>3; VKM2: I=125A, SP-57=50A, SP41=1250A; 213 kev

Website –
bmn-ellog.jinr.ru

Platform – self-written

Architecture –
PHP + PostgreSQL

Information about runs:

- Date
- Shift Leader
- Type of record
- Number of run
- Trigger
- DAQ status
- SP-41
- SP-57
- VKM2
- Beam
- Energy
- Target
- Comments

NICA-Scheduler Scheme Configurator [Documentation](#)

[Load XML Scheme](#) No file loaded [Download XML Scheme](#)

Global Job Scheme + Job

✗ [Job]: default + Macro

✗ [Macro]: + File

✗ [Job]: new job + Macro

✗ [Macro]: + File

Job Configuration

Name*
new job

Batch*
SGE
SLURM
TORQUE

Run Configuration

Mode*
local

CPU Count*
2

Configuration File Path

▼ Advanced Parameters

Queue

Priority

Log File Path

Hosts

Website –
bm-n-scheduler.jinr.ru

Platform – self-written

Architecture –
HTML + JavaScript

- The services reviewed are constantly evolving, so stay tuned for the main website and collaboration forum
- We try to keep up to date and use the latest software technologies for the development of BM@N collaboration services

Current work:

- Using “Jenkins or GitLab -> Portainer -> Docker “ for CI/CD
- Using user-friendly monitoring for services

Thank you for your attention!