

what is BIBBOX ?

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ACROSS EUROPE AND AFRICA

25 January 2017

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what is BIBBOX?

There is no Answer



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25/01/17 “2

what is the BIBBOX?

there are 5 answers



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BIBBOX is ...

1. a VM running a PaaS based on a tomcat application server and bundled together with offline bioinformatics DBs.
2. A portal to install, configure, and backup biobanking and bioinformatics software tools available as orchestrated docker containers.
3. an out-of-the-box solution for biobank data management with MIABIS support.
4. a data integration, harmonization and metadata exchange toolkit according to the FAIR principles.
5. a set of useful software tools for my daily data management tasks in our biobank.



BIBBOX Personas



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B3Africa Personas



Prof. Dr. Majmuna Sandu

PI of the MAK Biobank

- Phd in Microbiologie
- 400+ publications
- Member of H2020 advisory board for rare diseases
- Head of ISBER working group on sample quality



BIBBOX is a “out of the box solution” for biobank data management with MIABIS support.

With bibbox my research group got a swiss knife for data management, preconfigured to our needs and directly connected to the BCnet catalogue



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B3Africa Personas



Alan Punter

System Administrator @MAK Biobank

- Hacker since he can think
- His motto: „127.0.0.1 sweet 127.0.0.1“
- Speaks ruby, perl, python, and BASH shell fluently
- Responsible for all software problems at the Biobank



BIBBOX is a portal to install, configure, and backup biobanking and bioinformatics software tools available as orchestrated docker containers



With **BIBBOX** my life get much more easy, as I can devote more time to my „127.0.0.1“.

B3Africa Personas



Roxana Rilling

CTO @ the Makerere University IT department

- Responsible for all servers
- Expert in virtualization technologies in datacenters
- Counts Cores / Main Memory / Disk Capacity
- Responsible for all IT resources, especially server and networks



BIBBOX is a virtual machine running a PaaS based on a tomcat application server and bundled together with offline bioinformatics DBs.

I have to plan for more capacity in my datacenter, because lot of research groups will deploy a eB3Kit VM next year.



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B3Africa Personas



Santa Morello

Curator @MAK Biobank

- Assistant of Prof. Sandu
- Currently working on her PhD in Biomarker research
- Responsible for 2 international projects
- Doing the data stewardship for international cooperations



BIBBOX a data integration, harmonization and metadata exchange toolkit according to the FAIR principles

I can do all my data annotation and harmonization work with a simple interface, without being a software developer.



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B3Africa Personas



Carmen Rilling

Operator / User of some BIBBOX apps @ MAK biobank

- 50/50 bewteen wetlab and data work
- Is the main Operator for OpenSpecimen
- Uses Phenotips fom time to time



The eB3Kit provides a set of usefull software tools for my daily data management tasks in our biobank.

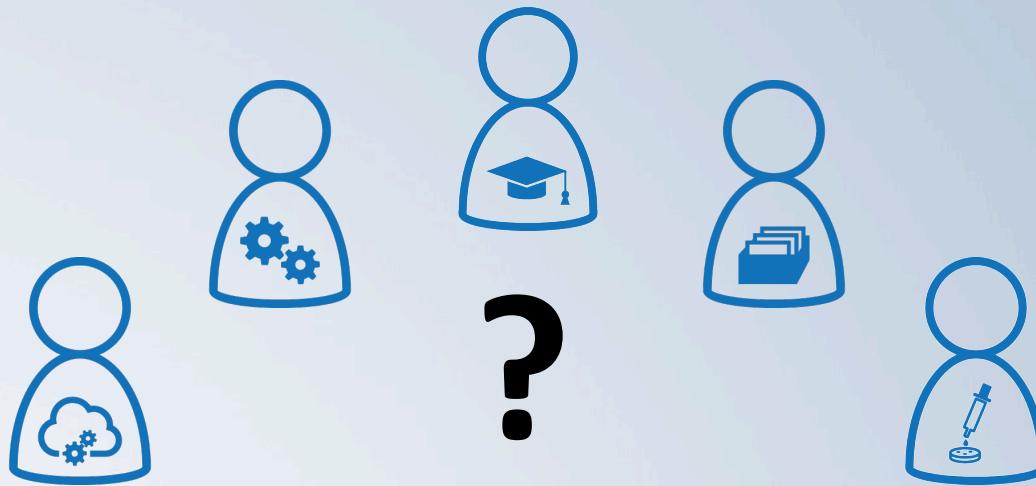
I met in the eB3Kit user gorup several BIKA.biobank users who are adressing the same challenges as we.



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Which is the closest persona to you?



Roxana



Alan



Maimuna



Santa



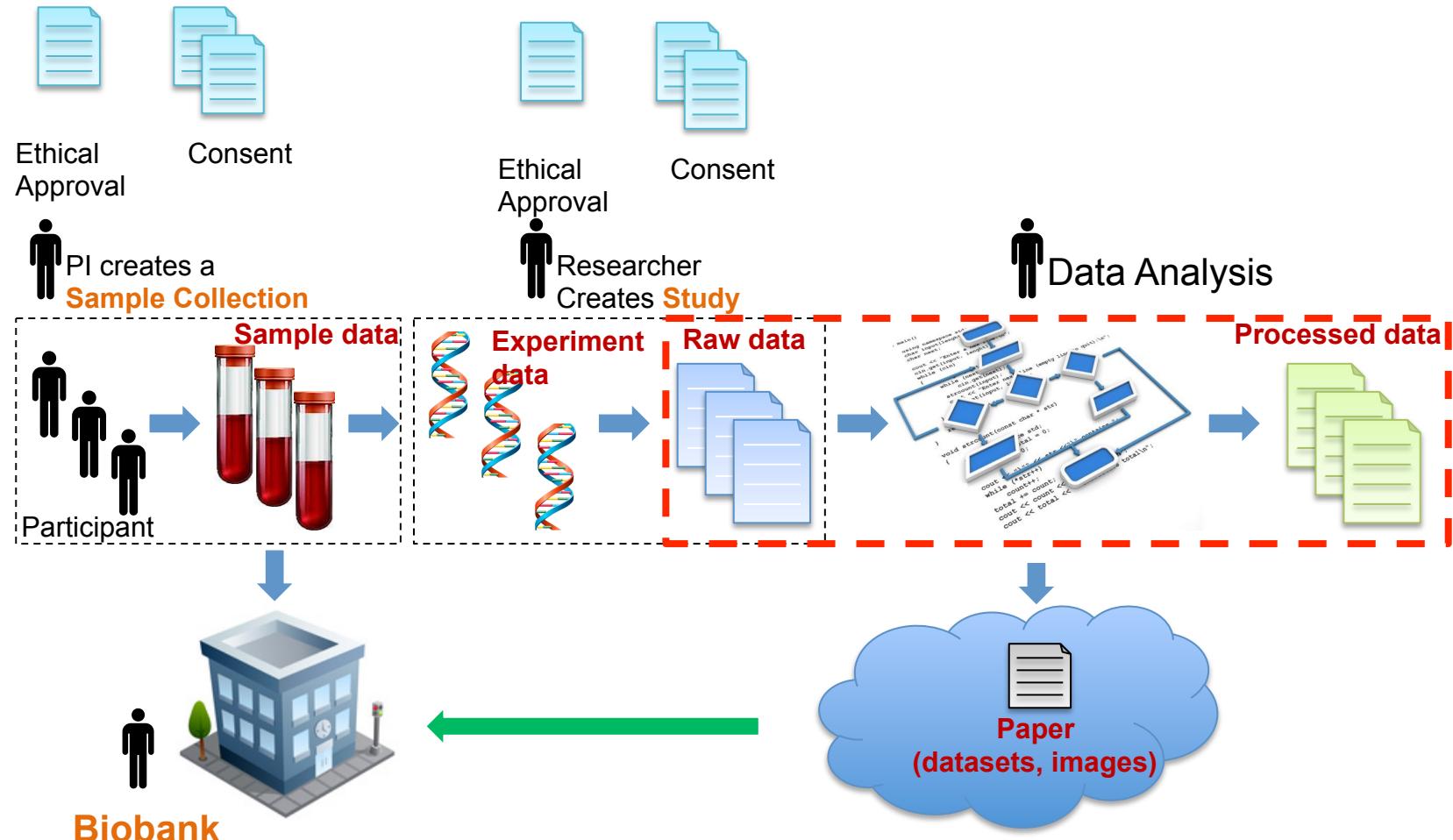
Carmen



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Biomedical research process

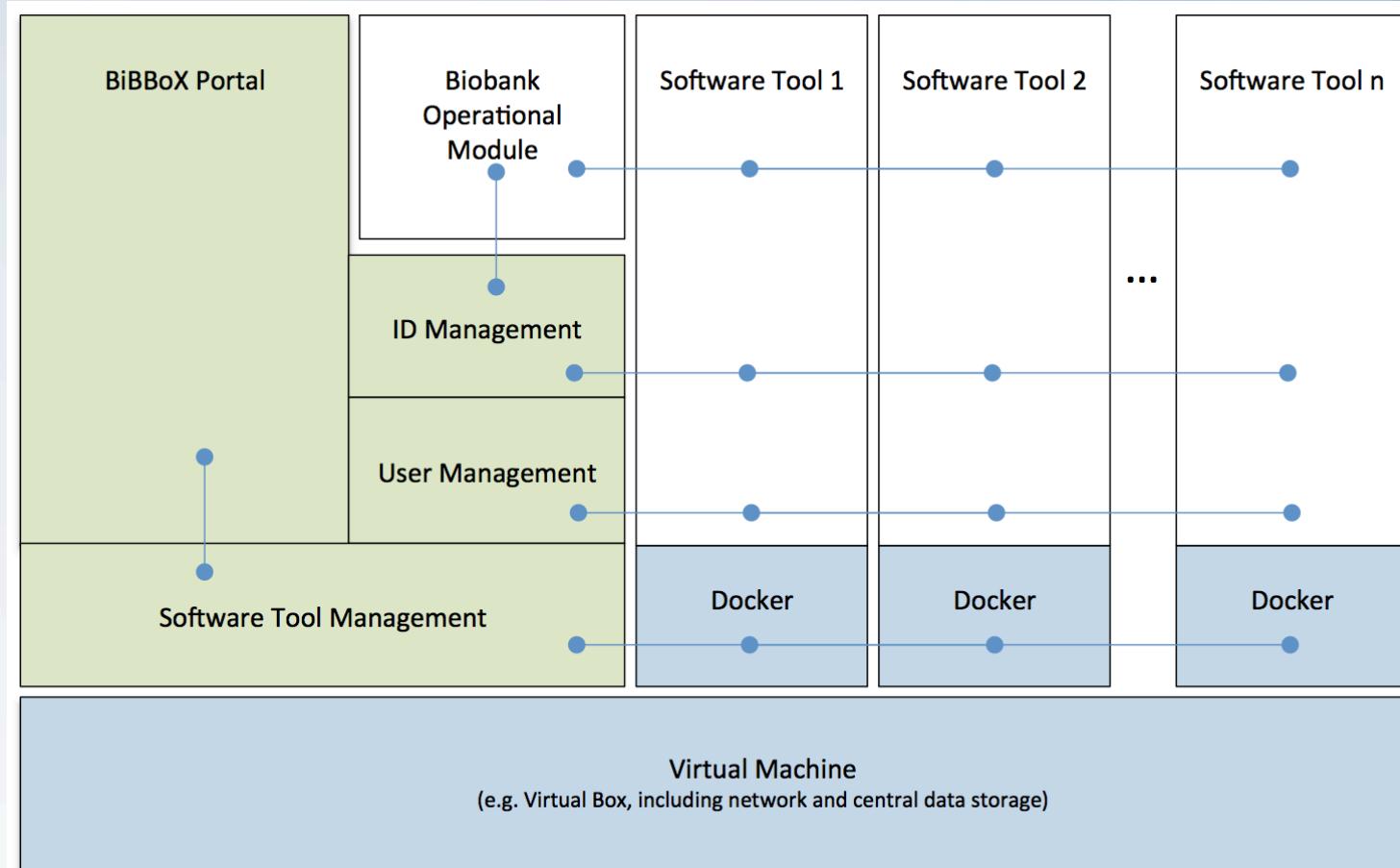


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BIBBOX System Architecture



BIBBOX in the Cloud

Dropbox concept:

- Connect instances of BIBBOX VMs
- Each BIBBOX “knows” apps running in others
- Implementation of FAIR principles
- Internet coverage: BIBBOX interoperability
- ID management for data discovery and sharing

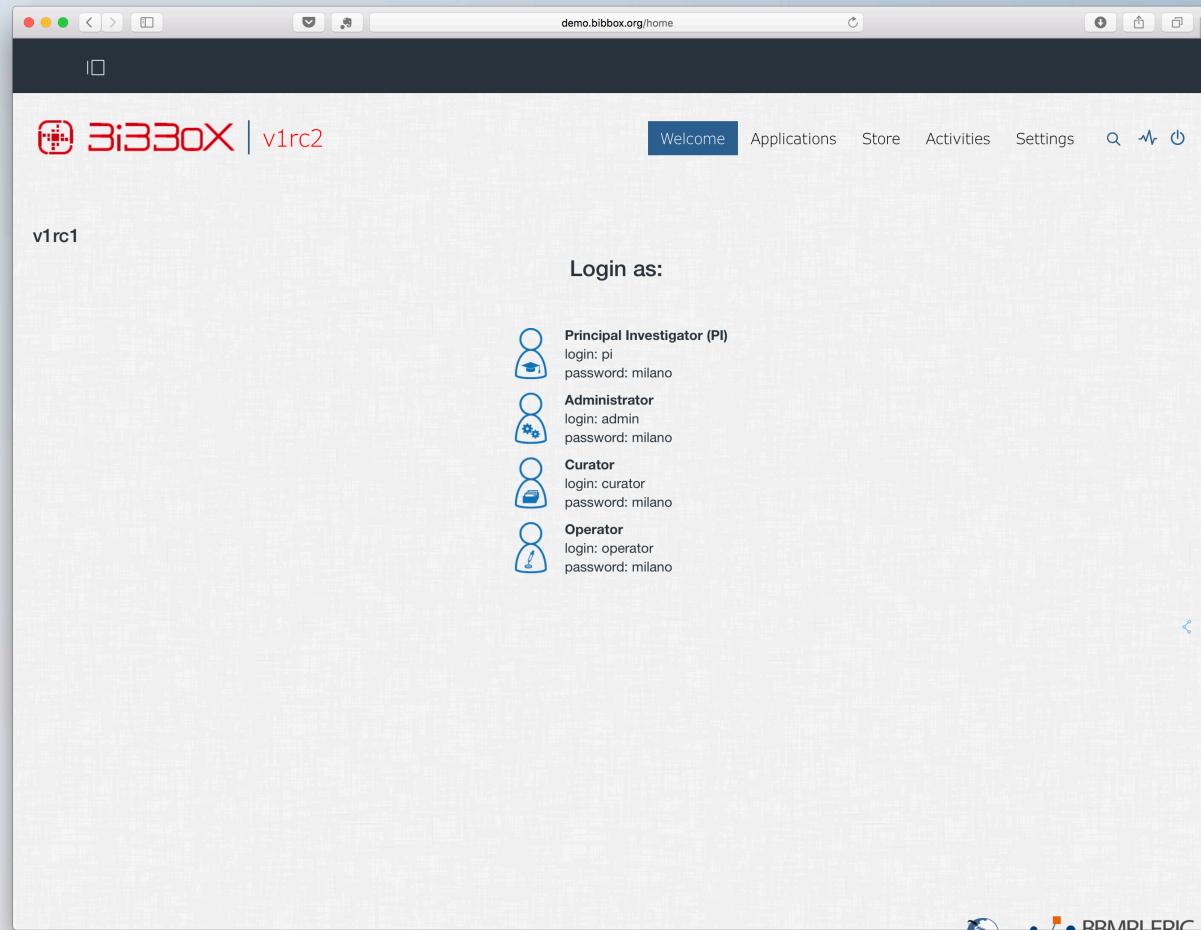


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BIBBOX



The screenshot shows a web browser window for demo.bibox.org/home. The title bar says "demo.bibox.org/home". The main content area displays the BiBBox logo and version "v1rc2". A "Welcome" button is highlighted in blue. Below it, there are links for "Applications", "Store", "Activities", and "Settings", along with a search icon and a power icon. The text "v1rc1" is visible on the left. On the right, there is a section titled "Login as:" with four user roles listed:

- Principal Investigator (PI)**
login: pi
password: milano
- Administrator**
login: admin
password: milano
- Curator**
login: curator
password: milano
- Operator**
login: operator
password: milano



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The screenshot shows a web-based application interface titled "Bibbox v1rc2". The top navigation bar includes links for "Welcome", "Applications" (which is currently selected), "Store", "Activities", "Settings", and search/filter icons. Below the navigation is a search bar labeled "Search...". The main content area displays a 3x3 grid of application cards:

- Blog**: A card for a WordPress blog.
- Data Management**: A card for Data Management using Molgenis.
- Jupyter**: A card for Jupyter notebooks.
- Sample Management**: A card for Sample and Storage Management by OpenSpecimen.
- Phenotips**: A card for Phenotips, showing demo data for 5 patients.
- System Monitor**: A card for monitoring running docker containers and OS metrics.
- LOGIN**: A general login section for various users.
- Test Openspecimen**: A card for testing OpenSpecimen.

Each card includes "info", "open", and "settings" buttons at the bottom.



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The screenshot shows the BiBBox application store interface. At the top, there is a navigation bar with tabs for Welcome, Applications, Store (which is selected), Activities, Settings, and a search bar. Below the navigation bar, there is a sidebar titled "Tags" containing a list of various software categories. The main content area is divided into two sections: "Biobank Applications" and "Bioinformatics Applications".

Biobank Applications

- bika (Biobank Information Management System (BIMS))
- Open Specimen (Sample Management)
- Molgenis (EXCEL in the Web)
- Phenotips (Phenotyp Editor for the HPO ontology)
- Jupyter Notebook (Interactive data science and scientific computing)
- Open Data Kit (ODK) (Mobile data collection solution)
- Onyx (Interviews and Data Collection (OBiBa))
- OPAL (Data warehouse (OBiBa))
- Mica (Portal for epidemiological studies (OBiBa))
- Agate (Authentication server (OBiBa))
- Omero (Digital microscopy & pathology tool)

Bioinformatics Applications

- Phenotips (Phenotyp Editor for the HPO ontology)
- STATegra (STATistica EMS)



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BIBBOX in Action

<http://demo.bibbox.org>

<http://rd-demo.bibbox.org>

Further Readings

Bibbox Portal: <http://bibbox.org/welcome>

Heimo Müller, Nicolas Malservet, Philip Quinlan, Robert Reihs, Matthieu Penicaud, Antoine Chami, Kurt Zatloukal, George Dagher

[From the evaluation of existing solutions to an all-inclusive package for biobanks](#)

Springer Health and Technology, DOI 10.1007/s12553-016-0175-x



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