
Baobab LIMS Documentation

Release 1.3

SANBI(UWC)

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Baobab LIMS is an open-source laboratory information management system (LIMS) software that will ensure that researchers can track the lifecycle of a biospecimen in the laboratory from receipt to storage and reuse. This software ensures that sufficient metadata is captured..

An open source LIMS for human Biobanks. Baobab is a common name given to nine tree species in different countries in the world, mostly in Africa. Baobab LIMS written in Plone, a python framework known for its robustness, and inherits some modules from Bika LIMS.

The code is open source, and [available on GitHub](#).

The main documentation for the site is organized into a couple sections:

- user-docs
- feature-docs
- about-docs

Information about development is also available:

- dev-docs
- design-docs

This website covers project information for BaobabLIMS such as the changelog, contribution guidelines, development roadmap, news/blog, and so forth. Detailed usage and API documentation can be found at our code documentation site, docs.fabfile.org.

Please see the navigation sidebar to the left to begin.

1.1 Plone installation

Here we describe how to install Plone onto the Ubuntu Linux System. For an installation in a different operating system, check the Plone online documentation, [here](#). The installation process requires users to have root privileges and a basic knowledge of the Linux command lines using Terminal. If you are not familiar with a UNIX operating system, read this tutorial Linux shell [tutorial](#). Please note that a single line must be completed at a time.

1.1.1 Plone dependencies

“Plone” framework requires the installation of additional system packages. Without these packages available in your system, Plone will not compile.

```
$ sudo apt-get install build-essential gcc python-dev git-core  
libffi-dev  
  
$ sudo apt-get install libpcre3 libpcre3-dev autoconf libtool  
pkg-config  
  
$ sudo apt-get install zlib1g-dev libssl-dev libexpat1-dev libxslt1.1  
  
$ sudo apt-get install gnuplot libcairo2 libpango1.0-0  
libgdk-pixbuf2.0-0
```

1.1.2 Download Plone 4.3 Unified Installer

The Baobab LIMS is implemented and tested with Plone 4.3.11, a version released in 2016-09-12. You can download Plone 4.3.x by visiting the [Plone](#) site. Select and click on the Unified installer of your choice or use “wget” command line in your terminal with the path to the Plone version to install. Only Plone 4.3.11 can be used.

```
$ wget --no-check-certificate https://launchpad.net/plone/4.3/4.3.11/  
+download/Plone-4.3.11-r1-UnifiedInstaller.tgz
```

If the download has been done from the Plone site, the installer would be located in the “~/Downloads” directory. If the second option used i.e, the wget command line, the installer should be downloaded into the current directory.

1.1.3 Install Ploner

To continue the installation, in the terminal, change directory to the folder containing the downloaded file then run the following command line to unpack the archive file.

```
$ tar -xf Plone-4.3.11-r1-UnifiedInstaller.tgz
```

Change to the extracted folder in the terminal.

```
$ cd Plone-4.3.11-r1-UnifiedInstaller
```

Run the following command to install Plone

```
$ ./install.sh --target=/usr/local/Plone --build-python zeo
$ ./install.sh --target=/home/ubuntu/Plone --build-python zeo
```

where --target parameter is used to specify the path to the installation folder, --build python will add and build Python package in your system, (this is optional if Python already exist) and finally zeo option will install Plone as a Client-Server application. Plone requires Python2.7 in order to operate. Run ./install.sh -help to obtain the full list of the available parameters and their meaning.

1.2 Install Baobab LIMS

In the new folder created “/usr/local/Plone”, another folder named zeocluster can be found. This folder contains the configuration file, buildout.cfg. Find in the configuration file, and in the section starting with eggs=, add bika.lims and baobab.lims to the existing entries.

Note: Bika LIMS is a dependency that Baobab LIMS needs to function. Some of modules in Baobab LIMS reference modules in Bika LIMS.

```
$ eggs =
    Plone
    Pillow
    bika.lims
    baobab.lims
```

Add to the section developer = the path to your version of Baobab LIMS and BIKa LIMS that should be already downloaded into your local machine. By convention it is preferable to put the source code in zeocluster/src of your Plone installation folder.

Add to the section developer = the path to your version of Baobab LIMS and BIKa LIMS that should be already downloaded into your local machine. By convention it is preferable to put the source code in “zeocluster/src” of your Plone installation folder.

```
$ developer =
    src/baobab.lims
    src/bika.lims
```


Use git clone or fork this project to have your own copy in your local machine. For developers, any change in your source code that you judge interesting and useful for the community please create a Pull request and let us know if you want to become a collaborator in the Baobab LIMS project.

Links below; [Bika labs Baobab LIMS](#)

Save the file, and run `bin/buildout -n`. Buildout will download and install all the declared dependencies.

If you installed “Plone” as a root user i.e., using `sudo`, you should run the buildout command line with the user `plone_buildout`, this user is automatically created during the Plone installation:

```
$ sudo -u plone_buildout bin/buildout
```

Warning: If you encounter the packages not found issue, add the following line, issue related to this: <https://github.com/BaobabLims/baobab.lims/issues/55>

`index = https://pypi.python.org/simple/`

Add the above line in the `[buildout]` section.

1.3 Test your installation

First, you will need to start the zeoserver (this is the database process).

```
$ bin/zeoserver start
```

To start a Plone client in debug mode, run this command:

```
$ bin/client1 fg
```

If you installed Plone as a root user, you will need to use the following commands instead:

```
$ sudo -u plone_daemon bin/zeoserver start
```

```
$ sudo -u plone_daemon bin/client1 fg
```

Note: any error messages, and take corrective action if required. If no errors are encountered, you can press Control+C to exit.

In your preferred browser, Firefox or google chrome, run `‘http://localhost:8080/’` and start working with Baobab LIMS. Enjoy it!

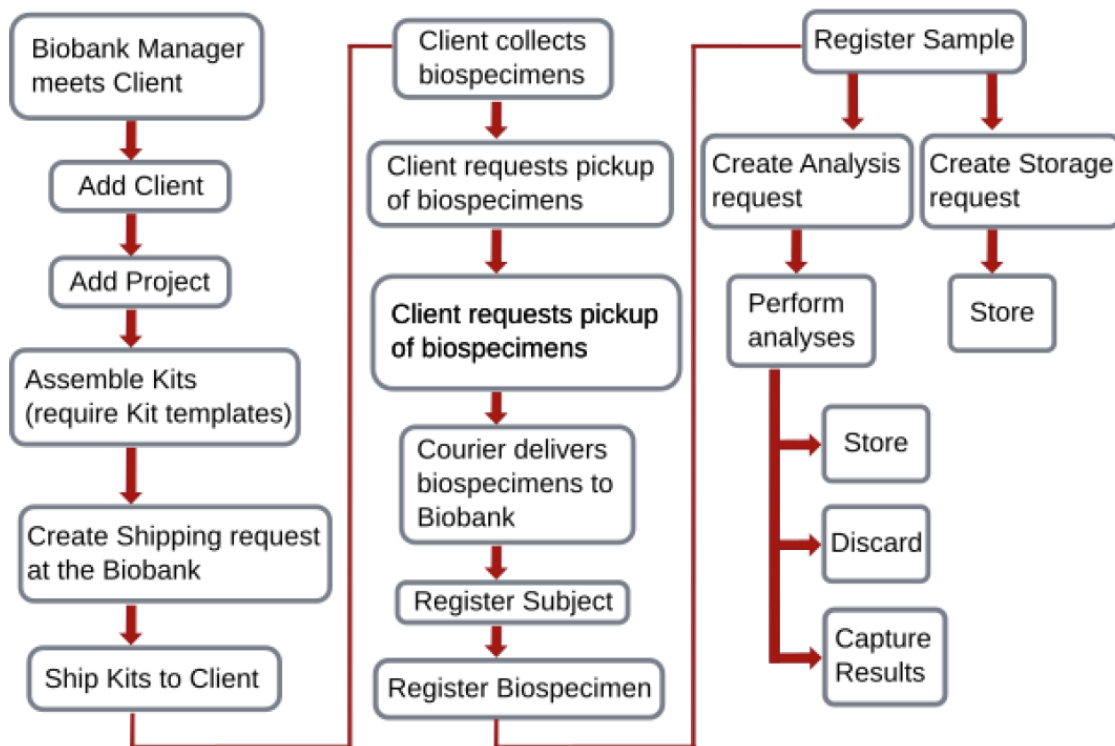
If installed on a remote server, an IP address (of the server) is associated with the use of LIMS eg: <https://192.168.1.1:8080/>

In production mode, other important tools need to be installed and configured, like `Supervisorctl` and `nginx`. The following [article](#) details the process to follow to add those tools cited before.

2.1 Introduction to Baobab LIMS

Baobab LIMS is a Laboratory Information Management System (LIMS) designed for the collection, processing and storage of human biospecimens. The system was designed a priori using the Standard operating procedures (SOPs) of the NHLS-Stellenbosch University Biobank. Baobab LIMS comprises modules for biospecimen kit assembly, biospecimen shipping, storage management, analysis requests, reporting and invoicing. Current developed SOPs define the biobanking activities of the Biobank and in an effort to extend the usability of the system, collaborations which incorporate SOPs generated by other Biobanking facilities, are ongoing. The figure demonstrates the workflow of the current system, deduced from SOPs.

Baobab LIMS is both Free and Open Source with some modules being inherited from Bika LIMS. Furthermore, Baobab LIMS can be customized to the specific needs of your laboratory.



For more additional resources, use the following link to [github](#), or read the paper [here](#)

2.2 Install your Baobab distribution

Go to https://<server IP address>/manage_main Select 'Add Plone site'



Install a Baobab Distribution

Path identifier

The id of the site. This ends up as part of the URL.

No special characters are allowed.

IMPORTANT: Don't use "Baobab", "BAOBAB", "Bika" or "BIKA" as the instance name, this is a reserved namespace. If you get "Site Error" citing "AttributeError: adapters", this is the most likely cause.

Plone

Select the site name

Title

A short title for the site. This will be shown in the title of the browser window on each page.

Baobab

Language

The main language of the site.

English

Select the language

Add-ons

Select one of the following configurations. You can also de/activate the add-ons once the site has been created from the Plone's add-ons setup view



Baobab LIMS

Baobab extension profile for Bika LIMS

Check box

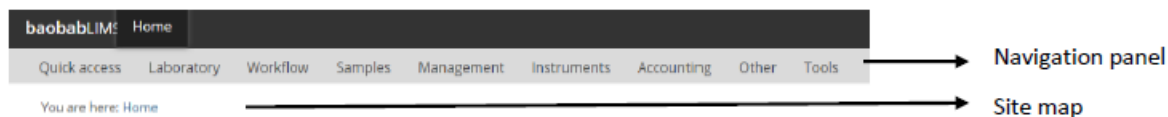
Install

Install

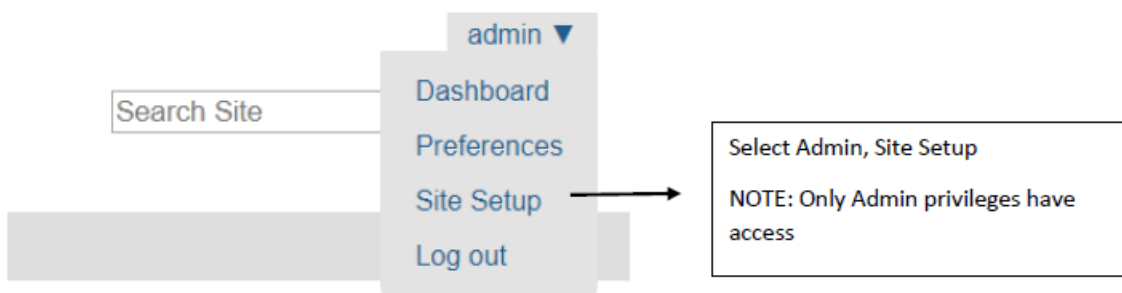
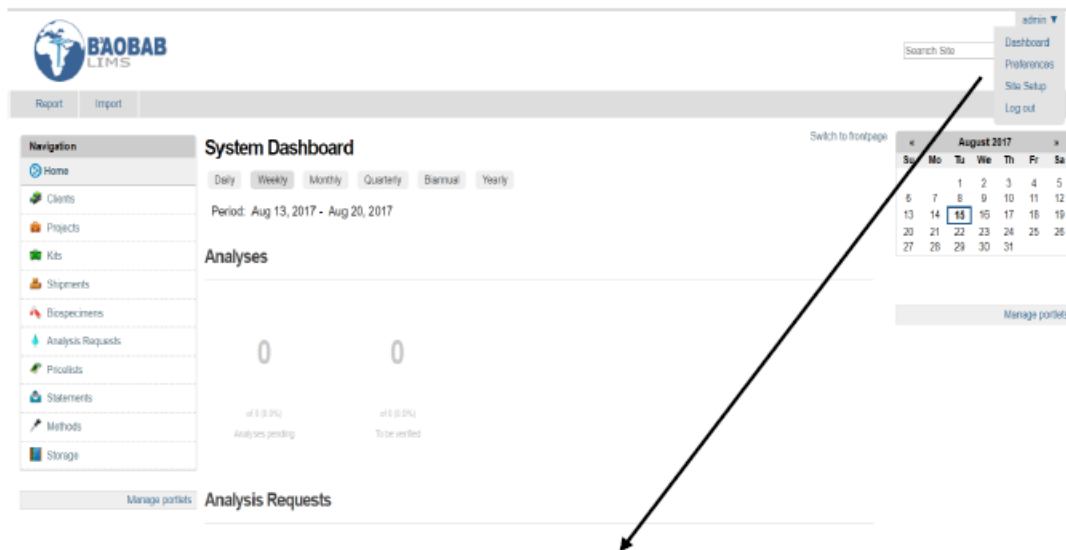
Warning: It is important that you do not use "baobab", "BAOBAB", "BIKA" or "bika" in your instance name. This is a reserved namespace and a "site error" will occur

2.3 Change the Baobab Theme

The Baobab theme can be changed to the graphite theme. The graphite theme has an easy access navigation panel at the top of the page and a site map.



Follow the instructions below to change your theme;

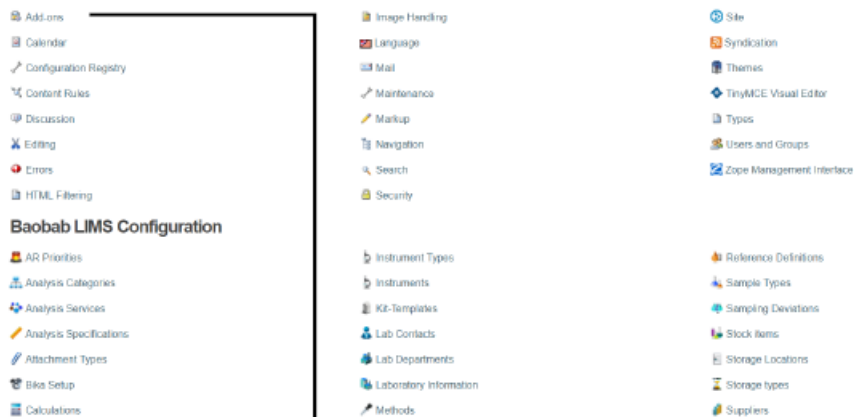


Site Setup

Configuration area for Phone and add-on Products.

Warning You have not configured a mail host or a site 'From' address, various features including contact forms, email notification and password reset will not work. Go to the Mail control panel to fix this.

Phone Configuration



Site Setup

Add-ons

This is the Add-on configuration section, you can activate and deactivate add-ons in the lists below.

To make new add-ons show up here, add them to your buildout configuration, run buildout, and restart the server process. For detailed instructions see Installing Plone add-ons .

– Available add-ons

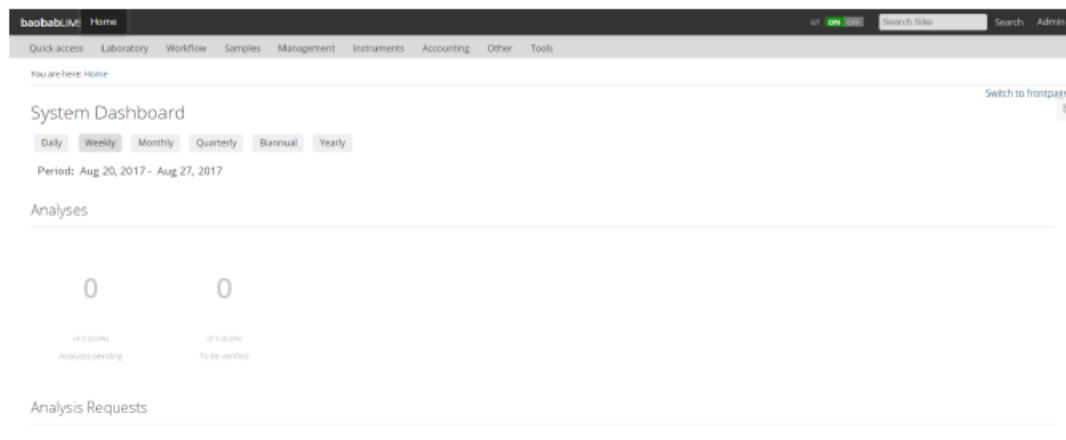
- ☐ **Autocomplete widget 1.2.9**
- ☐ **Content tree widget 1.0.13**
- ☐ **Dexterity Content Types 2.0.17**
Configures various components needed for full Dexterity support.
- ☐ **Diazo theme support 1.1.7**
Installs a control panel to allow on-the-fly theming with Diazo
- ☒ **Graphite Theme for Bika Open Source LIMS 1.2**
Graphite Theme is a Diazo smooth theme for Bika Open Source LIMS.
- ☐ **HTTP caching support 1.1.11**
Installs plone.app.caching
- ☐ **Marshall 2.1.4**
- ☐ **OpenID Authentication Support 2.0.4**
Adds support for authenticating with OpenID credentials in a Plone site
[Add-on Description](#)
- ☐ **Referenceable Behavior for DX 0.7.4**
Extension profile for plone.app.referenceablebehavior
- ☐ **Relation Field 1.2.3**
Adds support for content relationships defined using z3c.relationfield
- ☐ **Session refresh support 3.5.6**
Optional plone.session.refresh support.

Check Graphite Theme

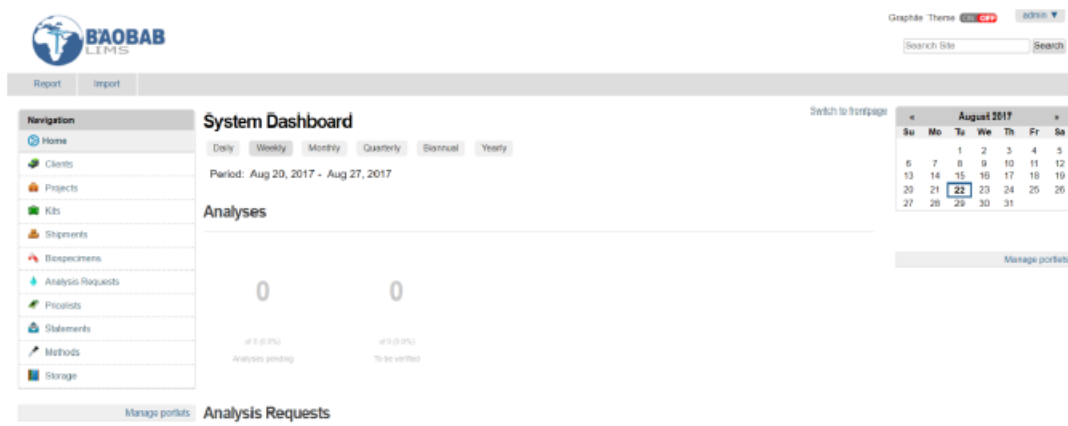
Activate

Click 'Activate'

– Activated add-ons



The figure above represents the homepage of the Graphite theme.



The figure above represents the homepage if the graphite theme has been disabled.

2.4 Your Baobab distribution

With your installation complete, you can now set up your site. Baobab LIMS requires that your site is set up before you can start to manage clients and projects and certain compulsory information is required for each step and is indicated by a red square or asterisk. As such, we recommend that you follow this setup section in a stepwise manner.

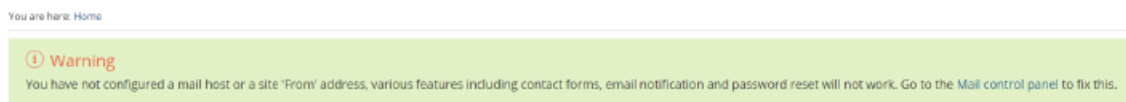
Go to <https://<server IP address>/<installation name>>

Insert Site Name selected in installation step

This will open the homepage for your distribution.

2.4.1 Set up your mail settings

As the administrator for the site, the mail settings will need to be configured, the page will display the following error.



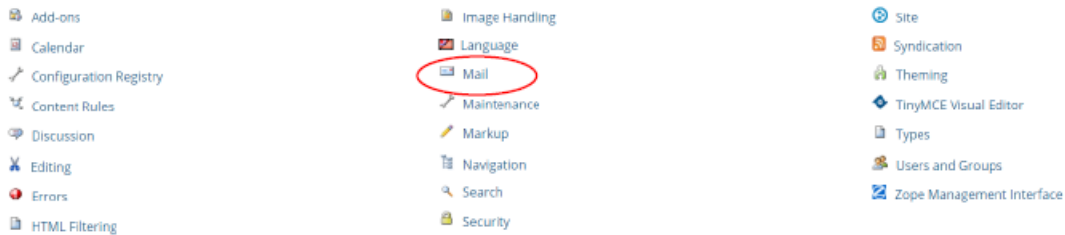
To set up the mail settings select the 'Mail control panel' link in the error message. Alternatively, go to 'site setup' and select the 'Mail' tab.



Site Setup

Configuration area for Plone and add-on Products.

Plone Configuration



You will be automatically directed to the 'Mail settings' page where you will be required to enter the SMTP server address and will be able to set the administrator username and password. Ensure that all the required fields are completed and select 'save and send test email'.

You are here: Home

Site Setup

Mail settings

Mail settings for this site.

Mail settings

SMTP server *(Required)

The address of your local SMTP (outgoing e-mail) server. Usually 'localhost', unless you use an external server to send e-mail.

For example; the SMTP server address for gmail is smtp.gmail.com.

SMTP port *(Required)

The port of your local SMTP (outgoing e-mail) server. Usually '587' or '25'.

ESMTP username

Username for authentication to your e-mail server. Not required unless you are using ESMTP.

Username for the administrators email address

ESMTP password

The password for the ESMTP user account.

Password for the administrators email address

Site 'From' name *(Required)

Plone generates e-mail using this name as the e-mail sender.

Site 'From' address *(Required)

Plone generates e-mail using this address as the e-mail return address. It is also used as the destination address for the site-wide contact form and the 'Send test e-mail' feature.

Email address from which the emails will be sent

Save

Cancel

Save and send test e-mail

Following successful set-up, you will receive an email confirming that the email server is working.



Success! Check your mailbox for the test message.

Test e-mail from Plone

Inbox x



dominique@sanbi.ac.za

12:04 (1 minute ago)



to me

Hi,

This is a test message sent from the Plone 'Mail settings' control panel. Your receipt of this message (at the address specified in the Site 'From' address field) indicates that your e-mail server is working!

Have a nice day.

Love,

Plone



NOTE: For Gmail users, the following error may occur due to the security settings on your Gmail account which will prevent sign-in from another device or app.

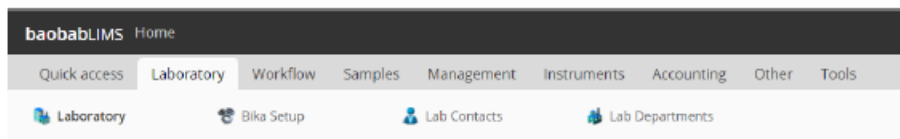
Error

Unable to send test e-mail (534, '5.7.14 <https://accounts.google.com/signin/continue?srp=1&cc=1&pb=AKgrnbvVn5.7.14 3eWAwKQZJ/ImdBcayre71vM0qxRscCKcCf8BrOT/W2m6w/YvQJ3y2QJ135G9OqDqaVefn5.7.14 8cEd2vZXW9<g2fj0dka7CsupGMHXEGxgWY8wnFq2Ak53quw5CNVLfns5O4EX514W9/n5.7.14 kvgR8PUIq9cjuZzeP23A2Djx1dOYC1oNWY/MOQw34GDI8BmScQve_H7Jlu1H4ZnaU/n5.7.14 DfcwkAqvE76A87b-14srphby28e> Please log in via your web browser and/n5.7.14 then try again./n5.7.14 Learn more at/n5.7.14 https://support.google.com/mail/answer/78754 53sm12679577wry.31 - gsmtpl).

Please ensure that your Gmail settings permit the site to access your account. Use the following [link](#) to understand more;

2.4.2 Set up your laboratory

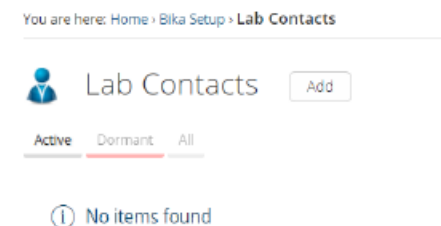
Mouse over the 'Laboratory' Tab and select 'Laboratory'




Enter the details of the laboratory and press 'save'. Compulsory fields are indicated by a red square.

 A screenshot of the 'Edit Laboratory' form in Baobab LIMS. The top navigation bar is dark grey with 'baobabLIMS Home' on the left. Below it is a light grey bar with tabs: 'Quick access', 'Laboratory' (highlighted), 'Workflow', 'Samples', 'Management', 'Instruments', 'Accounting', 'Other', and 'Tools'. Below the tabs is a row of icons and labels: 'Laboratory' (with a person icon), 'Bika Setup' (with a gear icon), 'Lab Contacts' (with a group of people icon), and 'Lab Departments' (with a building icon). The main content area has a breadcrumb trail: 'You are here: Home > Bika Setup > Laboratory'. Below the breadcrumb is a section titled 'Edit Laboratory' with a sub-section 'Default' (highlighted) and other tabs: 'Address', 'Bank details', and 'Accreditation'. The form contains several fields: 'Name' (with a red square icon next to it), 'VAT number', 'Phone', 'Fax', 'Laboratory Supervisor' (with a dropdown menu), and 'Laboratory License ID'. Each field has a description below it.

Mouse over 'Laboratory' and select 'Lab Contacts' Add a lab contact by selecting the 'add' button



Enter the details of the lab contact and press 'save'. Compulsory fields are indicated by a red square Select the 'email, telephone, fax' tab, enter the email address of the lab contact and press 'save'.

 Add Lab Contact

Title
Greeting title eg. Mr, Mrs, Dr

■ Firstname

Middle initial

Middle name

■ Surname

Job title

Select 'Login details'

You are here: [Home](#) > [Bika Setup](#) > [Lab Contacts](#) > **Dominique Anderson**

☒ Active ☐ Deactivate

Enter the details of the user and press 'save'

An email will be sent to the users email address

Edit Login details

Login details

No user exists for Dominique Anderson and he/she will not be able to log in. Fill in the form below to create one for him/her.

Link an existing User

Full Name Email User Name

Create a new User

User Name ^{*(Required)}
Enter a user name, usually something like 'jsmith'. No spaces or special characters. Usernames and passwords are case sensitive, make sure the caps lock key is not enabled. This is the name used to log in.


Password ^{*(Required)}
Minimum 5 characters.

Confirm password ^{*(Required)}
Re-enter the password. Make sure the passwords are identical.

Email ^{*(Required)}
Enter an email address. This is necessary in case the password is lost. We respect your privacy, and will not give the address away to any third parties or expose it anywhere.

You are here: Home > Bika Setup > Lab Contacts > Dominique Anderson

Edit Login details

 Info

Member registered and linked to the current Contact.

Login details

Dominique Anderson can log into the LIMS by using **labman** as username. Contacts must change their own passwords. If a password is forgotten a contact can request a new password from the login form.

Manage linked User



| | |
|-----------------|-----------------------|
| Full Name | labman |
| User Name | labman |
| Email | dominique@sanbi.ac.za |
| Last Login Time | Jan 01, 2009 12:00 AM |

An email will be sent to the users email address

User Account Information for Baobab

Inbox x



Portal Administrator <hocine@sanbi.ac.za>

11:03 (1 minute ago) ☆



to me ▾

Welcome labman, Your user account has been created. Your username is labman. Please activate it by visiting <https://b3abiobank.sanbi.ac.za/Demo/passwordreset/a9656e2da00c5c5e7d3662ba44958732?userid=labman> Please activate your account before Aug 22, 2017 11:03 AM

With kind regards,
==
Portal Administrator

Select the link to activate the account and change the password

You are here: [Home](#)

[View](#)

Set your password

Please fill out the form below to set your password.

New Password
My user name is
Enter your user name for verification.

New password
Enter your new password. Minimum 5 characters.

Confirm password
Re-enter the password. Make sure the passwords are identical.

[Set my password](#)

Set the new password and the user will now be able to login


You are here: [Home](#)

[View](#)

Password set

Your password has been set successfully. You may now log in with your new password.

Mouse over 'Laboratory' and select 'Lab Departments' Add a lab department by selecting the 'add' button. Compulsory fields are indicated by a red square.

 Add Department

■ Title

ⓘ Title is required, please correct.

Description
Used in item listings and search results.

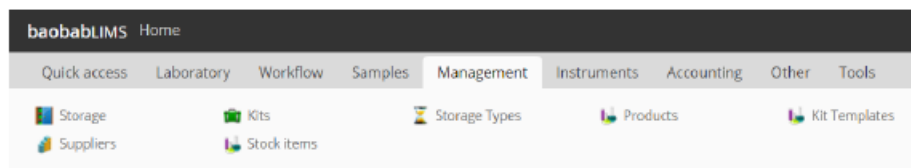
Manager
Select a manager from the available personnel configured under the 'lab contacts' setup item. Departmental managers are referenced on analysis results reports containing analyses by their department.

Dominique Anderson ▾ →

Added users are now available to be selected

2.4.3 Set up your suppliers

Mouse over the 'management' tab and select 'Suppliers'



Add a supplier by using the ‘Add’ button Enter the details of the supplier and press the ‘save’ . Compulsory fields are indicated by a red square.

Add Supplier

Default Address Bank details

■ Name

⊗ Name is required, please correct.

VAT number

Phone

Fax

Website

Once a supplier has been added, contacts, instruments and inventory orders associated with the supplier can be added. Note that products belonging to the supplier must be added using the ‘Products’ tab.

Mouse over the ‘management’ tab and select ‘Products’ Add a product by using the ‘Add’ button

Add Product

Default Price

■ Title

⊗ Title is required, please correct.

Description

Used in item listings and search results.

☐ Hazardous

Samples of this type should be treated as hazardous

Quantity

The number of items of this product already in storage. eg. 15, 100

Enter the details of the product and press the ‘save’ . The suppliers which you added in the previous step will be available from the drop down menu.

■ Suppliers

Name

 Thermo Scientific

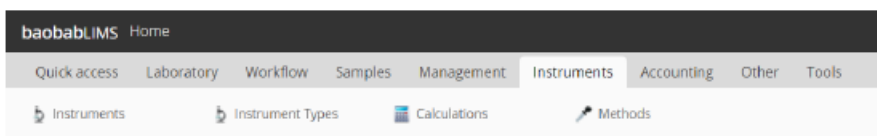
Compulsory fields are indicated by a red square.

Once products associated to suppliers have been added, the products are now available to be selected in the ‘Suppliers’ tab.



2.4.4 Set up your instruments


Mouse over the 'Instruments' tab and select 'Instrument types'



Add an instrument type by using the 'Add' button



Enter the details of the instrument type and press the 'save' . Compulsory fields are indicated by a red square. Once instrument types have been added, select the 'Instruments' tab. Add an instrument using the 'Add' button. Enter the details of the instrument and press 'save'. Compulsory fields are indicated by a red square.

 Add Instrument

Default Procedures Additional info.

■ Title

ThermoPro

Asset Number
The instrument's ID in the lab's asset register


Description
Used in item listings and search results.

Instrument type
RT-PCR thermocycler

Supplier

The instrument type and the supplier can be selected from data which was previously added

Once an instrument has been added, a notification of expired calibration certification will appear and additional tabs will become available for editing.

 1 Instrument's calibration certificate expired:
ThermoPro

You are here: Home > Bika Setup > Instruments > ThermoPro

Edit QC Results Calibrations Calibration Certificates Validations Documents

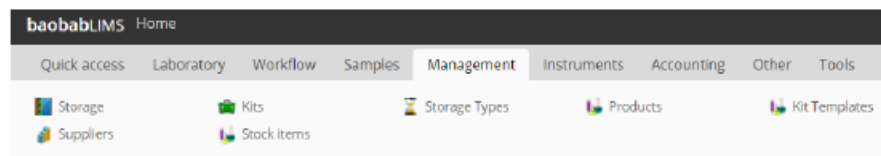
● Active ⊗ Deactivate

Select the 'Calibration Certificates' tab and add a certification specifically related to the instrument using the 'Add' button. Enter the details of an instruments calibration and press 'save'. Compulsory fields are indicated by a red square.

If the calibration dates are current, the notification which occurred, will automatically be removed

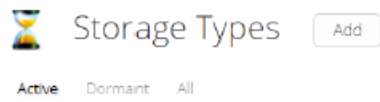
2.4.5 Set up your storage types

Mouse over the 'Management' tab and select 'Storage Types'



Add a storage type by using the 'Add' button

You are here: [Home](#) > [Bika Setup](#) > [Storage Types](#)



Enter the details of the storage type (e.g. a freezer) and press the ‘save’. Compulsory fields are indicated by a red square.

2.4.6 Set up your storage

Mouse over the ‘Management’ tab and select ‘Storage’

Create new storages

Storage units

Storage units are used for creating the structure that matches the physical storage. Storage units can contain more storage units as well as managed or unmanaged storages, but items cannot be stored directly in storage units. In the following simple layout Room, Freezer and Shelf are storage units:

- Room → Freezer → Shelf → Box (= Position)

Prefix text:
The display titles and IDs for new storage units. Provide the prefix to be appended to the leading zeros number.

Leading zeros:
Prepend the zeros specified here to the sequence numbers of the storage units to create, ex: 00

ID sequence start:

Number of items:
The number of storage units to create. If the sequence starts in 'W' and the number of items is 5, items A,B,C,D and E will be created.

Storage unit type

Department

Create Storage units

Prefix text: such as room, shelf, box Leading zeros: denotes the prefix number ID sequence start: the number on which the prefix should start Number of items: How many units with the prefix must be created Storage unit type: become available once defined in the ‘Storage types’ (This is only applicable at the level below a room eg: a freezer) Department: becomes available once defined in the ‘departments’ section in ‘set up your laboratory’ Enter the details of the storage and press ‘create storage units’

Once a storage has been created, the storage unit can be selected and a hierarchical storage system can be created for each unit. Example: Room > Freezer > Shelf > Box > Position

Storage

Create new storages

All **Storage Units** **Managed Storages** **Unmanaged Storages** **Occupied** **Occupied Boxes**

| Title | Type | Temperature | Department |
|---------|--------------|-------------|------------|
| Room 01 | Storage unit | 40 Degrees | Dept1 |

Select the ‘Room’ initially created. Enter the details of a new storage unit and press ‘create storage unit’

You are here: [Home](#) > [Storage](#) > [Room 01](#)

Room 01

Create new storages

All **Storage Units** **Managed Storages** **Unmanaged Storages** **Occupied** **Occupied Boxes**

| Title | Type | Temperature | Department |
|-----------|--------------|-------------|------------|
| Freezer 1 | Storage unit | 40 Degrees | Dept1 |
| Freezer 2 | Storage unit | 40 Degrees | Dept1 |

Select a freezer storage unit that has been created. Enter the details of a new storage unit and press ‘create storage unit’

You are here: Home > Storage > Room 01 > freezer 1

view Edit

Active Deactivate

Info
6 Storage units created.

freezer 1

Create new storages

All Storage units Managed Storages Unmanaged Storages Occupied Occupied Boxes

| Title | Type | Temperature | Department |
|---------|--------------|-------------|------------|
| shelf01 | Storage unit | -80 Degrees | Dept1 |
| shelf02 | Storage unit | -80 Degrees | Dept1 |
| shelf03 | Storage unit | -80 Degrees | Dept1 |
| shelf04 | Storage unit | -80 Degrees | Dept1 |
| shelf05 | Storage unit | -80 Degrees | Dept1 |
| shelf06 | Storage unit | -80 Degrees | Dept1 |

Select a shelf storage unit that has been created. Enter the details of a new storage unit and press ‘create storage unit’

You are here: Home > Storage > Room 01 > freezer 1 > shelf 01

view Edit

Active Deactivate

Info
2 Storage units created.

shelf 01

Create new storages

All Storage units Managed Storages Unmanaged Storages Occupied Occupied Boxes

| Title | Type | Temperature | Department |
|--------|--------------|-------------|------------|
| Box 01 | Storage unit | -80 Degrees | Dept1 |
| Box 02 | Storage unit | -80 Degrees | Dept1 |

At each level of a storage unit creating, space can be managed (ie. Spaces are assigned) or unmanaged (ie. Spaces are not allocated prior to storage).

2.4.7 Managed storage

Managed storage is used specifically for the storage maintenance of biospecimens. The process of creating managed storage is as follows;

Navigate to the storage unit created in the previous step and select the ‘managed storage’ tab.

Create new storages

Storage units **Managed storage** Unmanaged storage

Managed storage contains a set number of positions for storing objects, e.g. boxes which can store 36 tubes each, or shelves which can store three of a type of stock item. Once all positions are occupied, the storage itself will be flagged as occupied, and when a position next becomes available the storage becomes available too. Items can be stored in specific positions, or the storage itself can be selected, in which case a position is chosen automatically.

Prefix Test:
The display titles and IDs for new storage units. Provide the prefix to be appended to the leading zeros number.

Leading Zeros:
Prepend the zeros specified here to the sequence numbers of the storage units to create, ex: 00

ID Sequence Start:
The number of the first item in the ID sequence. This can be a simple number like '1', or it can be a string like 'A' or 'ABC'.

Number of items:
The number of storage units to create. If the sequence starts is 'A' and the number of items is 5, items A,B,C,D and E will be created.

Number of positions:
Enter the number of possible storage positions located inside these storages.

Storage Types:
Select the types of objects that can be stored here.

Graphical representation:
Select a dimension and set number of columns and rows to represent positions in a grid.

Prefix test:

Leading zeros:

1:

1:

Storage Types:

Rows: 0 Columns: 0

Create storages

Enter the details required to create managed storage and press ‘create storage’. By selecting the created storage unit, a list of created positions will be shown. In addition, a graphical display is available.

You are here: Home > Storage > Room 01 > Freezer 1 > shelf 01 > Box 01

WWW

Edit

●

Deactivate

Box 01

Active

Reserved

All

Q

| ID | Storage Types | Stored Item | State |
|--------------------------------------|---------------|-------------|-----------|
| Room-01-Freezer-1-shelf-01-Box-01.1 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.2 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.3 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.4 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.5 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.6 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.7 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.8 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.9 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.10 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.11 | Samples | | available |

Occupancy

Total Positions

35

Available

35

Reserved

0

Occupied

0

A

B

C

D

E

0

1

2

3

4

5

Free

Reserved

Occupied

By selecting a storage unit (a position within a box), the item may be reserved. When the item is reserved, the state of the item will change and this change will also be reflected in the graphical representation.

Box 01

Active

Reserved

All

Q

| ID | Storage Types | Stored Item | State |
|-------------------------------------|---------------|-------------|-----------|
| 1 items selected | Samples | | available |
| Deactivate Reserve | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.2 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.4 | Samples | | available |

Occupancy

Total Positions

36

Available

35

Reserved

1

Occupied

0

A

B

0

1

2

3

4

5

Free

Reserved

Occupied

The storage position can be freed by selecting the position and pressing ‘liberate’.

Box 01

Active

Reserved

All

Q

| ID | Storage Types | Stored Item | State |
|-------------------------------------|---------------|-------------|-----------|
| 1 items selected | Samples | | reserved |
| Deactivate Reserve Liberate | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.2 | Samples | | available |
| Room-01-Freezer-1-shelf-01-Box-01.3 | Samples | | available |

2.4.8 Unmanaged storage

Unmanaged storage refers to locations for items such as inventory stock items that will be used in kit assembly. The process of creating unmanaged storage is as follows;

Navigate to the storage unit created previously and select the 'add new storage' button. Navigate to the 'unmanaged storage' tab and enter the details of the storage. In the example below, Room01 contains 3 shelves for storage of inventory items. The shelves are labeled from 1 to 3 and will contain stock items.

Room 01

Create new storages

Storage units Managed storage **Unmanaged storage**

Unmanaged storage does not restrict the number of items which can be stored. These storages will be available for selection until they are manually flagged as occupied or available.

Prefix Text:
The display titles and IDs for new storage units. Provide the prefix to be appended to the leading zero number.

Leading Zeros:
Prepend the zeros specified here to the sequence numbers of the storage units to create, ex: 00

ID Sequence Start:
The number of the first item in the ID sequence. This can be a simple number like '1', or it can be a string like 'A' or 'AA'.

Maximum number of unmanaged storage:
The maximum number of unmanaged storage to create.

Storage Types:
Select the types of objects that can be stored here.

Shelf:

0

1

3

Stock Item


Create storages

2.4.9 Set up your stock items for unmanaged storage

Go to 'Suppliers' and navigate to the 'Orders' tab. Select 'Add' and enter a quantity which you would like to order and press 'save'.

Edit Products Contacts Instruments **Orders**

● Active ⊗ Deactivate

 **Inventory Orders** Add

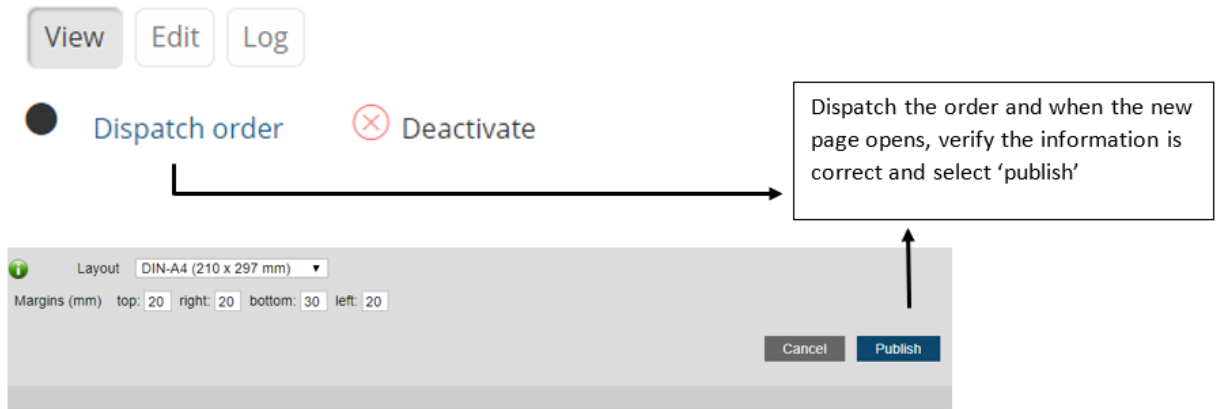
All Pending Dispatched Received Stored

View Edit Log

Order Date: 2017-11-07

| Product | Description | Unit | Price | VAT | Quantity |
|-----------|-------------|------|-------|--------|----------|
| Gloves | | | 10.00 | 14.00% | 0 |
| Tube 15ml | | | 20.00 | 14.00% | 0 |
| Subtotal | | | | | |
| VAT | | | | | |
| Total | | | | | |

Select 'Dispatch the order' and wait to 'publish', which opens in a new tab.



Supplier Information

Biomerieux
Chemin de l'Orme
Marcy-l'Étoile
Rhône-Alpes
France
Email: supplier@example.com
Phone: 012 440 9555
Fax: 012 440 9765



inventoryorder-1

Summary

| | |
|-----------------|----------------------------------|
| Order ID | inventoryorder-1 |
| supplier | Biomerieux |
| Date Dispatched | 2017-11-07 08:11 |
| Date Published | 2017-11-07 08:11 |

Details

| Title | Description | Unit | Price | VAT | Quantity | SubTotal | SubTotal-with VAT |
|-----------|-------------|------|-------|-------|----------|----------|-------------------|
| Gloves | | | 10.0 | 14.0% | 5.0 | 50.00 | 57.00 |
| Tube 15ml | | | 20.0 | 14.0% | 0.0 | 0.00 | 0.00 |

Total Price: 57.00

Once published and you have received the order, you can change the state of the order to 'receive order'.

View Edit Log

Receive order Deactivate

Change the state of the order by selecting 'receive order'. Ensure that you select the number of items as well as designate the storage level (unmanaged storage). Select 'Store'

Order Date 2017-11-07

| Product | Price | VAT | Ordered (stored) | Number | Storage level |
|-----------|-------|-------|------------------|--------|---------------|
| Gloves | 10.0 | 14.0% | 5 (0) | | |
| Tube 15ml | 20.0 | 14.0% | 0 (0) | | |
| Subtotal | | | | | |
| VAT | | | | | |
| Total | | | | | |

Store

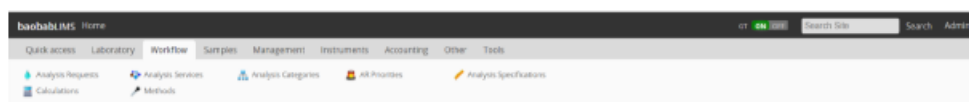
Now you can change the state of the item by selecting 'store order'

View Edit Log

Store order Deactivate

2.4.10 Set up your analysis category

Mouse over the 'Workflow' tab and select 'Analysis category'



Add an analysis category by using the 'Add' button

Analysis Categories Add

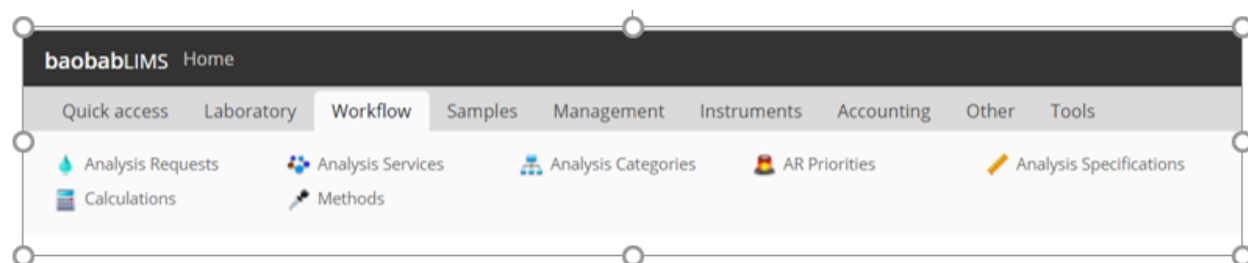
Active Dormant All

No items found

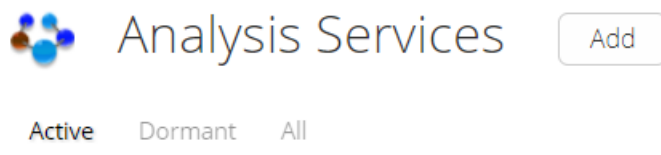
Enter the details of the analysis category and press the 'save'. Compulsory fields are indicated by a red square.

2.4.11 Set up your Analysis services

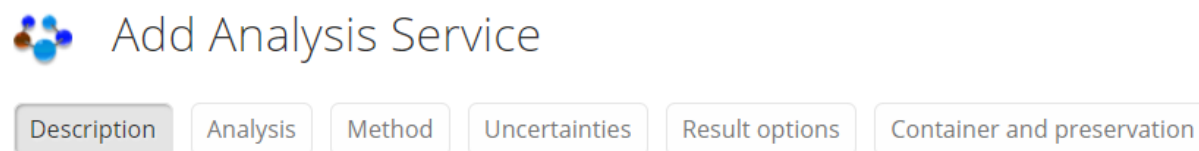
Navigate to the 'Workflow' tab and select 'Analysis services'.



Add an analysis service by using the 'Add' button



Enter any details related to your analysis services and press 'save' Compulsory fields are indicated by a red square.

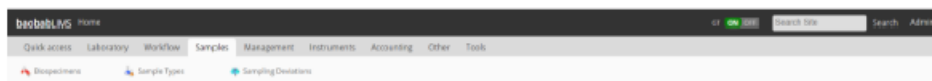


■ Title

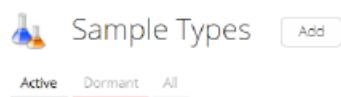
⊗ Title is required, please correct.

2.4.12 Set up your Samples

Mouse over the 'Samples' tab and select 'Sample Types'



Add a sample type by using the 'Add' button

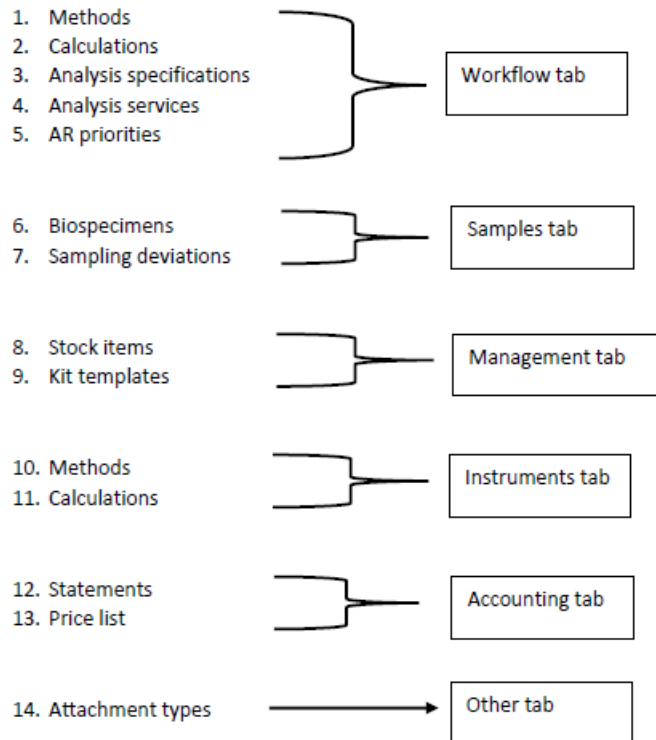


ⓘ No items found

Enter the details of the sample type and press the 'save'. Compulsory fields are indicated by a red square.

2.4.13 Set up your other parameters

Once all the above categories have been set up, all other categories can be set up. These can be managed by simply selecting the category and adding information using the 'Add' button. Enter details related to the category and press the 'save' button. Compulsory fields are indicated by a red square.



CHAPTER 3

Baobab LIMS User manual

This manual will guide you through the process of creating projects and the associated data related to projects. This manual is for use FOLLOWING the setup of your lab (see 'SETUP' manual).

Warning: Please make use of the user manual following the setup of your site

3.1 Plone Configuration

| Tab | Function |
|------------------------|--|
| Add-ons | For Plone, available add-ons can be activated or deactivated according to desired preferences. To add new add-ons that will be reflected in the Add-ons tab, modules will need to be added to the build-out configuration in the terminal. Build-out must be run and the server restarted in order for changes to be reflected. Detailed instructions may be found using the hyperlink, Installing Plone add-ons . |
| Calendar | Calendar settings can be managed using this tab. To update settings, save changes and return to the dashboard. |
| Configuration registry | Records managed by the configuration registry are tabulated here. Records can be obtained using a prefix or a filtered search and edited accordingly. |
| Content rules | Content rules will automatically perform actions on the content when a defined trigger occurs. Content rules can be added and following definitions, they can be assigned to a folder . |
| Discussion settings | Discussion settings can be modified using this tab. Not all discussion related settings are located here and in order to enable comments for a specific type, or enable moderation workflow for comments, use the 'Types' tab. |
| Editing settings | General editing settings |
| Errors | Logs the errors or exceptions which have recently occurred. A user may select how many logs are kept and if the logs should be copied to Zope event log files. |
| HTML filtering | HTML tags which may be considered as security risks can be tagged using Plone filters. |
| Image handling | These settings allow for image handling and scaling. |
| Languages | Interface language and content translation settings. |

| | |
|---------------------------|---|
| Mail | Email related settings for the site. |
| Maintenance | Zope server and Baobab site maintenance options. |
| Markup | When editing content, these settings enable the user to control which mark-ups are available. |
| Navigation | Navigation settings allow the user to control navigation construction on the users site. To control the display of the navigation tree, the 'manage portlet' tab is used. |
| Search | The user can define the search settings for the site. |
| Security | Multiple options for control of the security settings for the site are found here. |
| Site | Site-wide settings. |
| Themes | The look and feel of the site can be modified using these settings. |
| TinyMCE visual settings | These settings are used to alter the TinyMCE Wysiwyg HTML editor. |
| Users and Groups | <p>Plone configuration allows for the addition of Users or Groups in the Users and Groups tab. An individual user may be added or removed, or the specific details of a user, modified accordingly, in this section. Furthermore, a user can be linked to a specified group and the privileges of that particular group can be managed.</p> <p>Users overview provides a list of currently registered users on the system. Users are assigned a role which is inherited from membership and occurs when a new user is added to a specified group upon initial registration. By selecting a specific user, personal information, personal preferences and group membership can be edited accordingly. Group membership can also be updated in the 'overview' page.</p> <p>The 'Groups' tab provides a tabulated list of collections of users. Selecting a group from the Group Name provides information on the members assigned to the group, group properties, group portlets and the group dashboard.</p> |
| Zope management interface | These settings are for use by administrators. |

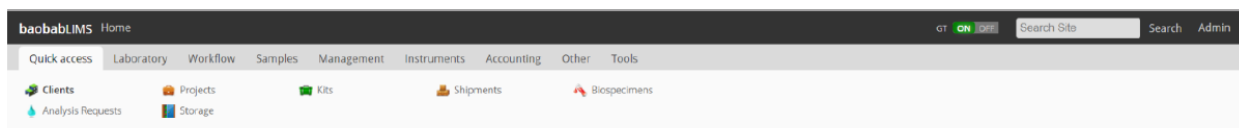
3.2 Baobab LIMS Configuration

| | |
|------------------------|---|
| AR priorities | All analysis requests are listed in this section. The priority status of an analysis request can be added or changed by selecting the 'Add' button. |
| Analysis categories | Various analysis tools utilized by the laboratory can be described and categorized. |
| Analysis services | Analysis services provided by the laboratory are listed in this section. New analysis services can be added by selecting the 'Add' button. A number of options exist to define the analysis service and includes the description, analysis specification, methodology (including assigned instrumentation), uncertainties, result options, and container/preservation information. |
| Analysis specification | Specifications relating to the results of an analysis service are listed in this section. By selecting the 'Add' button, specifications relating to a sample type and the related analysis service can be defined. |
| Attachment types | Attachment types are defined. |
| Bika setup | The Bika setup tab allows for changes to be made in the security, accounting, results report and analyses. In the accounting tab, currency, levy, vat and member discounts can be adjusted accordingly. Result report formats can be set up using the Results reports tab and formats related to the Analysis can be modified in the Analyses tab. Stickers can be automatically printed when new analysis reports or sample records are created by selecting 'register' in the stickers tab. Similarly, stickers can be printed when analysis reports or samples are received by selecting the 'receive' option. The format of the sticker can also be adjusted accordingly in this tab. In the ID server tag, the configuration of ID's for content items can be formatted. The storage tab allows the user to set the costing of sample storage depending on the storage required. |
| Calculations | Calculation formula related to tests and analysis can be defined, edited and maintained. |
| Instrument location | Add, manage or remove locations for instruments. |
| Instrument types | Instrument types are listed in this section. New instrument types can be added and defined by selecting the 'add' button. |
| Instruments | The laboratory list of instruments and equipment is listed in this section. By selecting the 'Add' button, new instruments can be added. Detailed information relating to the piece of equipment such as the serial number, supplier and model number can be included. In addition, in-house calibration and maintenance procedures can be included. Other related additional information can be captured and this includes instrument location, and certification documentation. |
| Kit templates | Current kits that are loaded onto the system are displayed here. New kit templates can be added by selecting the 'add' button which allows the user to define the kit according |

| | |
|------------------------|--|
| | to components and costing. For components to be selected, these products need to be registered in the 'products' section. |
| Lab contacts | Laboratory staff information can be added, edited and maintained. |
| Lab departments | Laboratory departments and corresponding manager contacts can be added, edited and maintained. |
| Laboratory information | Information related to the specific laboratory including registration, accreditation and address can be added, edited and maintained. |
| Methods | Methods associated to analysis of a sample are listed in this section. By selecting the 'Add' button, new analysis methods can be added and various parameters described. In addition, associated method documentation and SOPs can be uploaded. |
| Products | Consumable information, specification and suppliers can be added, edited and maintained. |
| Reference definitions | Reference definitions or sample types used for QC testing can be added, edited and maintained. |
| Sample conditions | Conditions for a specific sample type can be added, edited and maintained. |
| Sample types | Samples and their corresponding descriptors are listed in this section. By selecting the 'Add' button, new sample types can be added to the list. In addition, the types of analysis or services related to the sample type can be defined and are grouped into analysis categories. |
| Stock items | Inventory stock items are displayed in this section. New inventory products can be added by selecting the 'Add' button and defined according to the storage location, invoice number, batch ID, date received, date opened, expiry and details of the receiving individual. |
| Storage location | The storage location describes the physical location of a storage type and is listed in this section. New storage locations can be added by selecting the 'Add' button and can be defined using multiple descriptors. |
| Storage types | The storage types refer to the storage system used for sample storage. Storage systems are displayed in this section and new storage can be added and defined by selecting the 'add' button. |
| Suppliers | Suppliers that are defined in the system are listed here and new suppliers can be added by selecting the 'Add' button. Information linked to each supplier, such as company registration, website, banking details and contact details can be defined. |

3.3 Add client

Mouse over 'quick access' and selecting the 'Clients' tab. All added clients are listed in this section.



Add a client by selecting the 'Add' button. Enter the details of the client and press the 'save' button. Compulsory fields are indicated by a red square.

You are here: [Home](#)



Clients

[Add](#)[Active](#)[Dormant](#)[All](#)

No items found

Client information includes address, bank details, preferences and licenses and can be added by selecting the required tab and entering the information.

[Default](#)[Address](#)[Bank details](#)[Preferences](#)[Licenses](#)

3.4 Add project

In the clients list, select the client of interest which will automatically take you to the 'projects' page. A notification may appear requesting for client contact information to be submitted.

[Projects](#)[Orders](#)[Edit](#)[Contacts](#)

Info

Client contact required before request may be submitted

Proceed to the 'Contacts' tab above the notification and select the 'add' button. Enter the details and press the 'save' button. Compulsory fields are indicated by a red square.



Add Contact

Default

Email telephone fax

Address

Publication preference

Title

Greeting title eg. Mr, Mrs, Dr

■ Firstname

Middle initial

By adding a client contact details, the login details of the contact can be edited by navigating to the 'Login details' tab.

Edit

Login details



Active



Deactivate

The login details for the Client contact can be added and the once saved, the client will receive an email indicating the username and password. The client can login to the LIMS site using these details, but will have limited access to modules on the site (as stipulated by the user role). User roles can be defined by the administrator in the `plone` configuration under the tab `Users` and `Groups`.

Link User

Create a new User

User Name *(Required)

Enter a user name, usually something like 'jsmith'. No spaces or special characters. Usernames and passwords are case sensitive, make sure the caps lock key is not enabled. This is the name used to log in.

Password *(Required)

Minimum 5 characters.

Confirm password *(Required)

Re-enter the password. Make sure the passwords are identical.

Email *(Required)

Enter an email address. This is necessary in case the password is lost. We respect your privacy, and will not give the address away to any third parties or expose it anywhere.

Save

3.5 Projects

The Biobank user can now be directed to the ‘projects’ page for the specific client. Add a project by selecting the ‘Add’ button and enter the details of the project. Compulsory fields are indicated by a red square. The user will be automatically directed to the created project page where tabs for kits, shipments, biospecimens and analysis requests can be selected, and items can be added or viewed.

Projects


Orders

Edit

Contacts

● Active

⊗ Deactivate

 Projects

Add

Active

Dormant

All

You are here: [Home](#) > [Clients](#) > [Dominique](#) > **Demo project 1**

View

Edit

Kits


Shipments

Biospecimens

Analysis Requests


● Active

⊗ Deactivate


 Info

Changes saved.

project-1

 Info Project:

| | |
|------------------------|---------------------------|
| Title | Demo project 1 |
| Description | |
| Client | Dominique |
| Study Type | |
| Number of Participants | |
| Age low - Age high | None - None |

 Biospecimen Types:

3.6 Kits

In the 'Kits' tab, select 'add new kits'.

You are here: [Home](#) > [Clients](#) > [Joe Soap](#) > **Blood disease**

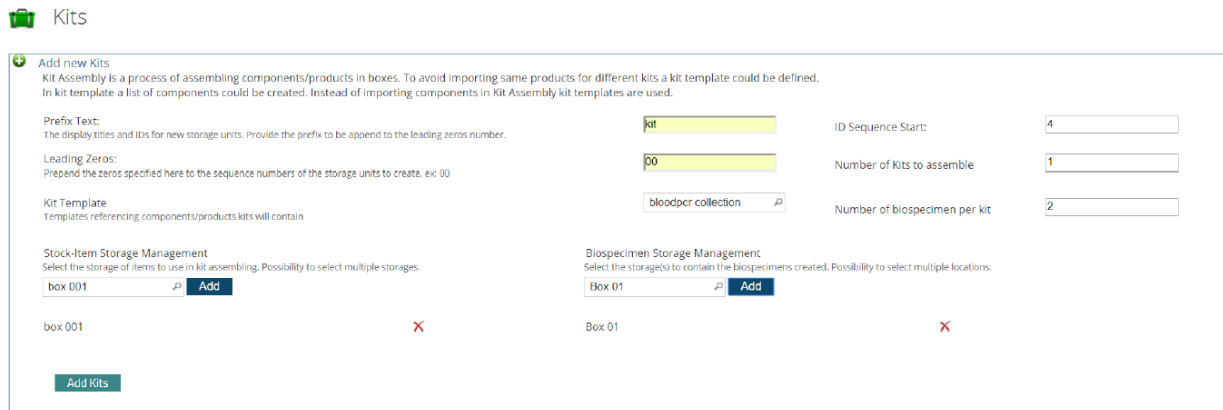
View Edit **Kits** Shipments Biospecimens Analysis Requests

● Active ⊗ Deactivate



[Add new Kits](#)

The page will be generated allowing the user to add kits accordingly. In the `example` below, prefix text 'kit' is used. There will be 1 kit with 3 already generated, therefore, the next kit will start from the next number in sequence i.e. 4. According to the kit template generated, each kit will contain 2 biospecimens. The stock item to be used will be selected from an unmanaged storage which was generated, and the storage will be selected from a managed storage unit which was previously generated.



By selecting the kit which has been added, details of the kit can be visualized.

You are here: Home > Clients > Joe Soap > Blood disease > kit 04

[View](#) [Edit](#) [Biospecimens](#) [Log](#)

☒ Receive kit ☐ Ship Kit ☐ Deactivate

[Print](#)

kit-04

Attachments

Kit Title: kit 04

Kit Project: Blood disease

Kit Template: bloodpcr collection

| Product | Quantity | Price | Total |
|-----------|----------|-------|----------|
| PCR tubes | 2 | 0.00 | 0.00 |
| Subtotal | | | ZAR 0.00 |
| VAT | | | ZAR 0.00 |
| Total | | | ZAR 0.00 |

You are here: Home > Clients > Joe Soap > Blood disease > kit 04

[View](#) [Edit](#) [Biospecimens](#) [Log](#)

☒ Receive kit ☐ Ship Kit ☐ Deactivate

The kit can also be marked as 'receive' or 'ship' to track the state of the kit.

kit-04

| Kit Name | Kit template | State |
|---------------------------------|---------------------|--------------|
| <input type="checkbox"/> kit 05 | bloodpcr collection | Kit Created |
| <input type="checkbox"/> kit 04 | bloodpcr collection | Kit Shipped |
| <input type="checkbox"/> kit 03 | bloodpcr collection | Kit Received |
| <input type="checkbox"/> kit 02 | bloodpcr collection | Kit Shipped |
| <input type="checkbox"/> kit 01 | bloodpcr collection | Kit Received |

3.7 Shipments

Add a shipment by selecting the 'Add' button and enter the details of the shipment. Compulsory fields are indicated by

You are here: Home > Clients > Joe Soap > **Blood disease**

[View](#) [Edit](#) [Kits](#) [Shipments](#) [Biospecimens](#) [Analysis Requests](#)

☒ Active ☐ Deactivate



Shipments

[Add](#)

[All](#) [Pending](#) [Dispatched](#) [Received](#) [To collect](#) [Received Back](#)

[i](#) No items found

Note: Compulsory fields are also present in the 'correspondence' tab and need to be entered to continue.



Add Shipment

Default

Correspondence

Shipping information

Dates

■ Title

⊗ Title is required, please correct.

Description

Used in item listings and search results.

■ From Contact

Laboratory contact sending this shipment.

■ To Contact

Client contact receiving this shipment.

The process for shipments is as follows;

1. The Biobank selects 'dispatch' (an email is sent to client to inform them that a shipment has been dispatched)
2. The client logs in with his/her username and password and selects projects < shipments < shipment# < and 'receive'
3. Client fills the tubes with samples
4. Client selects 'collect' and an email is sent back to the biobank. The Biobank then arranges for the courier to now collect shipment
5. The Biobank checks their shipments and selects 'receive back'. An email will be sent to the client informing the client that the kit has been received back at the Biobank.
6. The Biobank selects the specific kit and changes the state of the kit by selecting 'receive kit'
7. The Biobank unpacks and checks kit contents and selects 'process kit'
8. The Biobank examines the biospecimens in the kit and adds subject ID, volume and other relevant details
9. The Biobank then selects 'receive sample'
10. The sample is now in storage

Note: barcodes can be scanned in if a scanner is available.


3.8 Biospecimens

Biospecimens associated with the project can be viewed in this tab and are generated automatically when a kit is created from a template.

You are here: [Home](#) > [Clients](#) > [Joe Soap](#) > **Blood disease**

[View](#)
[Edit](#)
[Kits](#)
[Shipments](#)
[Biospecimens](#)
[Analysis Requests](#)

☒ Active
 ☐ Deactivate

 Biospecimens

[Active](#)
[Sample Registered](#)
[Sample Due](#)
[Received](#)
[Cancelled](#)
[All](#)

| <input type="checkbox"/> | Title | Kit | Type | Subject ID | Barcode | Volume | Unit | State |
|-------------------------------------|------------|--------|-------------------------------|------------|---------------------------------------|--------|------|-----------------|
| <input checked="" type="checkbox"/> | Blood-0001 | kit 01 | <input type="text" value=""/> | | <input type="text" value="0001234"/> | 15.00 | ml | Registered |
| <input type="checkbox"/> | Blood-0002 | kit 01 | Blood | | <input type="text" value="00001235"/> | 10.00 | ml | Sample received |
| <input type="checkbox"/> | Blood-0003 | kit 02 | <input type="text" value=""/> | | <input type="text" value=""/> | 0.00 | ml | Registered |
| <input type="checkbox"/> | Blood-0004 | kit 02 | <input type="text" value=""/> | | <input type="text" value=""/> | 0.00 | ml | Registered |
| <input type="checkbox"/> | Blood-0005 | kit 03 | <input type="text" value=""/> | | <input type="text" value=""/> | 0.00 | ml | Registered |
| <input type="checkbox"/> | Blood-0006 | kit 03 | <input type="text" value=""/> | | <input type="text" value=""/> | 0.00 | ml | Registered |
| <input type="checkbox"/> | Blood-0007 | kit 04 | <input type="text" value=""/> | | <input type="text" value=""/> | 0.00 | ml | Registered |
| <input type="checkbox"/> | Blood-0008 | kit 04 | <input type="text" value=""/> | | <input type="text" value=""/> | 0.00 | ml | Registered |
| <input type="checkbox"/> | Blood-0009 | kit 05 | <input type="text" value=""/> | | <input type="text" value=""/> | 0.00 | ml | Registered |
| <input type="checkbox"/> | Blood-0010 | kit 05 | <input type="text" value=""/> | | <input type="text" value=""/> | 0.00 | ml | Registered |

By selecting the biospecimen, the parameters of the specimen can be established, such as, barcode, volume, sample condition etc.

You are here: Home > Clients > Joe Soap > Blood disease > Blood-0001

View Edit Analyses Log Aliquots

● Reject Sample due Cancel

Blood-0001

| | | | |
|---------------|---------------|------------------|---------------------------|
| Biospecimen | | Storage Location | Room-1 Freezer-1 Box-01.1 |
| Project * | Blood disease | Sampling Date | 2017-06-28 |
| Kit | kit 01 | Sample Condition | |
| Sample Type * | Blood | Subject ID | |

Save

View Edit Analyses Log Aliquots

● Sample Due ✗ Reject ↕ Receive sample ✗ Cancel

The state of the biospecimens must be changed by selecting 'Sample due'.
Once received, the state of the sample can be changed and is either received or rejected.

You are here: Home > Clients > Joe Soap > Blood disease > Blood-0003

View Edit Analyses Log Aliquots

● Sample received ✗ Reject ✗ Expire ✗ Cancel

Blood-0003

| | | | | | |
|---------------|---------------|------------------|---------------------------|------------|--------------|
| Biospecimen | | Storage Location | Room-1 Freezer-1 Box-01.6 | Subject ID | 333333333333 |
| Project * | Blood disease | Sampling Date | | Barcode | 012345 |
| Kit | kit 02 | Sample Condition | | Volume * | 10.00 |
| Sample Type * | Blood | Date Received | 2017-06-30 12:29 | Unit | ml |

Save

By receiving the sample, a barcode will be generated which can then be printed

Template: Code 128 1x48mm

GO BACK PRINT

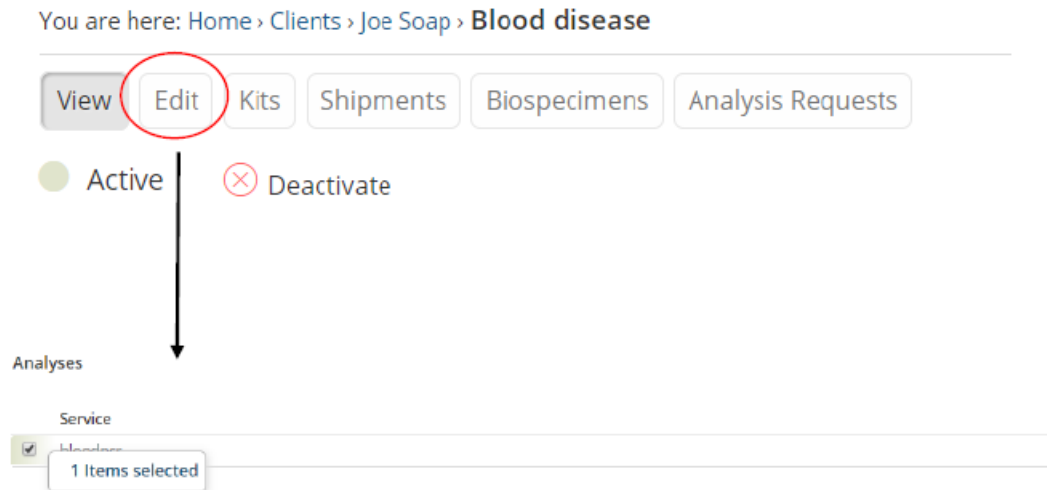
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Blood-0003

Blood Sampling Date

3.9 Performing an analysis request

If your biobank can perform an analysis for a client, ensure that you have selected the analyses service to be provided for the project. To do this, select the 'edit' tab in the project and select the service to be performed.



The user can now select the number of Analysis requests and create them by using the 'Add' button.



Request new analyses Blood disease

| | |
|---|--------------------------|
| Client * The assigned client of this request | Joe Soap |
| Contact * The primary contact of this analysis request, who will receive notifications and publications via email | Joe Soap |
| CC Contacts The contacts used in CC for email notifications | |
| CC Emails Additional email addresses to be notified | |
| Sample Select a sample to create a secondary AR | Blood-0001 |
| Volume * The sample volume needed for the analyses | 2 |
| Analysis Specification Choose default AR specification values | analysis.spec.2017-08-29 |
| Environmental conditions The environmental condition during sampling | |
| Report as Dry Matter These results can be reported as dry matter | <input type="checkbox"/> |
| Priority The urgency of this request | |
| Subtotal | R 0.00 |
| VAT | R 0.00 |
| Total | R 0.00 |

Save

Lab Analyses

Service

☒ bloodpcr

AR 1

☐ 10 ☐ 100 ☐ 5

Save

* Can be reported as dry matter

Ensure that the sample is selected, the volume is specified, and the analysis specification is selected.

Once the analysis specification has been selected, AR1 fields specified in the "analysis services" section will automatically be defined. Select if correct and press 'save'

You are here: Home > Clients > Joe Soap > Blood disease

View Edit Kits Shipments Biospecimens Analysis Requests

Active Deactivate

Analysis Requests

Add 4 ARs

Active Due Received To be verified Verified Published Cancelled

| Request ID | Sample | Sub-group | Creator | Client Order | Sample Type | Priority | Sampling Date | Date verified | State |
|--------------|----------|-----------|---------|--------------|-------------|----------|---------------|---------------|----------|
| 11144555-001 | 11144555 | | admin | | Blood | | | | Received |

By selecting the specific analysis request, information relating to the analysis will be shown and can be edited once results have been obtained.

View Manage Analyses Manage Results Results not requested Published results Invoice Log

Received Cancel

X01BAR-R01

Attachments

Lab Analyses

| Analysis | Result | Specification | Analyst | Captured | Due Date | Status |
|-------------------|-------------------------------|---------------|-------------------------------|----------|----------|----------|
| Genome | | | | | | |
| DNA concentration | <input type="text" value=""/> | >1,<999,0.5% | <input type="text" value=""/> | | None | Received |

Remarks

Remarks and comments for this request

Once the results and the analyst have been selected, the analysis can be submitted by selecting 'submit'.

| Analysis | Result | Specification | Analyst |
|-------------------|---------------------------------------|---------------|--|
| Genome | | | |
| DNA concentration | <input type="text" value="150"/> mg/l | >1,<999,0.5% | <input type="text" value="Lab Analyst"/> |

1 Items selected
Submit

The status of the analysis request will change as the result will need to be verified by another analyst with verification permissions.

The screenshot shows the sample details for X01BAR-R01. At the top, there are buttons for 'To be verified' (circled in red), 'Retract', and 'Cancel'. Below this is an 'Info' section with a green background and the text 'Changes saved.'. The sample name 'X01BAR-R01' is displayed with a barcode icon. Under 'Attachments', there is a list of 'Lab Analyses'. The table below shows one analysis: 'DNA concentration' with a result of '150.00 mg/d', a specification of '>%', an analyst of 'Lab Analyst', a target of '± 9.20 mg/d', a captured status of 'Yes', a date of '2017-11-07 10:26', and a due date of 'None'. The 'Status' column for this analysis is 'To be verified' (circled in red).

| Analysis | Result | Specification | Analyst | ± | Captured | Due Date | Status |
|-------------------|-------------|---------------|-------------|-------------|----------|------------------|----------------|
| DNA concentration | 150.00 mg/d | >% | Lab Analyst | ± 9.20 mg/d | Yes | 2017-11-07 10:26 | To be verified |

Note: The system dashboard will indicate that an analysis is pending and needs to be verified.

System Dashboard

Period: Nov 05, 2017 - Nov 12, 2017

Analyses



of 1 (100.0%)
Analyses pending



of 1 (100.0%)
To be verified

The analyst with verification permission can log in with their username and password and navigate to the analysis request and select 'Verify'.

The screenshot shows the 'Manage Results' tab selected in the top navigation bar. Below the navigation bar, there are buttons for 'View', 'Manage Analyses', 'Manage Results' (selected), 'Results not requested', 'Published results', 'Invoice', and 'Log'. At the bottom, there are buttons for 'To be verified', 'Retract', 'Verify' (circled in red), and 'Cancel'.

View Results not requested Published results Invoice Log

● Verified **Publish** ↩ Invalidate

The verified result can be published. A new page will be opened, and the report will be available to publish. By selecting 'Publish', an email of the result for will be sent to the client.

Note: The dashboard status will also change

Template: default Layout: DIN-A4 (210 x 297 mm)

Margins (mm) top: 20 right: 20 bottom: 30 left: 20

☐ Landscape
☐ Show QC Analyses
☐ Show Hidden Analyses

1 analysis requests selected: [X01BAR-R01](#)

Cancel **Publish**

ISO 17025 Accreditation Reference Example

Tamari Smith
Bellville Medical Centre
South Africa
hocine@sanbi.ac.za

SANBI Institute
Modderdam Rd, Sacks Circle Industrial
Bellville
Western Province
7530
South Africa
<http://www.sanbi.ac.za/>

Summary

| | |
|----------------|--|
| Request ID | X01BAR-R01 |
| Sample ID | X01BAR |
| Client | Bellville Medical Centre |
| Client SID | |
| Sample Type | Whole Blood |
| Specification | analysispec: 2017-11-07.8300012036 |
| Date Received | 2017-11-07 10:21 |
| Date Published | 2017-11-07 10:36 |
| Published by | labmanager@example.com |

Results

Published results can be emailed to the Client and can also be downloaded by navigating to the Analysis request and selecting the 'Published results' tab.

You are here: [Home](#) > [Clients](#) > [Bellville Medical Centre](#) > [Blood Extraction Project](#) > [X01BAR-R01](#)

[View](#)[Results not requested](#)[Published results](#)[Invoice](#)[Log](#)

Published results

| <input type="checkbox"/> File | Size | Date |
|---|------|------------------|
| <input type="checkbox"/> Download | 51Kb | 2017-11-07 10:37 |