

BLIS-Kenya v2.5

User Guide



A joint initiative of C4G @ Georgia Tech, the CDC, @iLabAfrica - Strathmore University , Association of Public Health Laboratories (APHL) and participating countries



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What is BLIS?

The Basic Laboratory Information System, BLIS, is a freeware Web-based system that can be installed in a local, district, or national laboratory. It is a tool that can help to standardize data, which improves the ability to run useful reports and can both give a realistic picture of laboratory services and assist with staff and budget planning. With enough data, BLIS can be used to track disease prevalence over time

Features of BLIS include:

- One-time entry of each unique patient
- Standardization of data collected (allowable entries for specimen type, test type, patient data, reagents are set at MOH level and then entered consistently throughout a country)
- Customization to a country's needs
- Ability to track lab supplies such as test kits, reagents
- Ability to run reports as specified by a country
- Automatic alerting of data values that may be out of range(reference ranges and panic values are set at the regional or national level)
- Daily logs to be reviewed for data verification
- Simple data backup

As with any properly implemented electronic record system, BLIS may be found over time to improve data accuracy and reduce costs in laboratories. Benefits already seen in labs using BLIS:

- Reduced burden for technicians, as results are available soon after testing
- Improved consistency of data entry
- Ability to view patient history and track samples
- Ability to aggregate data and analyze data patterns and trends at a regional or national level
- Printed patient records in place of handwritten records
- Printed daily logs that make the reports look like the paper forms used in the laboratory



Starting BLIS

To start the Basic Laboratory Information System, you must click on the bookmark saved on the web browser e.g. Google Chrome or Mozilla Firefox. You will then see a page requesting login information. You must then enter your credentials to proceed.



Bungoma District Hospital Laboratory

Username

Password

[User Guide](#) | [Comments?](#)

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If you have forgotten your password, kindly contact the lab-in-charge for help



Administrator's Guide

Manager (Administrator) Overview

The manager interface gives you the ability to add, edit, and delete users as well as change laboratory configuration settings. As a manager, you can also generate and print reports. When you log in as an administrator, you see the Manager home page.

BLIS v2.5 - Kenya

superadmin

Home

Bungoma District Hospital Laboratory

Search

Home

Lab Configuration

Test Catalog

Quality Control

Reports

Director's Note

Organizational Chart

Laboratory Master Calendar

Wall of Fame/Shame

NIHON KOHDEN

Celltac F

USAID

Full Haemogram machine - CELLTAC F.

To switch to technician view, click the **Work as Technician**; a dropdown on the user link at the top right of the page. To go back to the manager view, click the **Work as Manager** link that will be in the same place on the screen.



Lab Configuration

To switch to technician view, click the Work as Technician link at the top right of the page. To go back to the manager view, click the Work as Manager link that will be in the same place on the screen. The various pages of this section are explained in the following pages:

Summary

This page displays information about lab, specimen types, and test types. It also lists technicians' logins and privileges.

Facility Name	Bungoma District Hospital
Location	Bungoma
Lab Manager	superadmin
Specimen Types	Ascitic Tap Aspirate CSF Dried Blood Spot High Vaginal Swab Nasal Swab Plasma Plasma EDTA Pleural Tap Pus Swab Rectal Swab Semen Serum Water

Tests

Specimen/TestTypes

Allows you to set the specimen and test types as appropriate for your country. Click **Show** to reveal and **Hide** to close the list. Check the box for each specimen type collected or test done at this facility, and click **Submit** to save.

<input checked="" type="checkbox"/> Ascitic Tap	<input checked="" type="checkbox"/> Aspirate	<input checked="" type="checkbox"/> CSF
<input checked="" type="checkbox"/> Dried Blood Spot	<input checked="" type="checkbox"/> High Vaginal Swab	<input checked="" type="checkbox"/> Nasal Swab
<input checked="" type="checkbox"/> Plasma	<input checked="" type="checkbox"/> Plasma EDTA	<input checked="" type="checkbox"/> Pleural Tap
<input checked="" type="checkbox"/> Pus Swab	<input checked="" type="checkbox"/> Rectal Swab	<input checked="" type="checkbox"/> Semen
<input checked="" type="checkbox"/> Serum	<input checked="" type="checkbox"/> Skin	<input checked="" type="checkbox"/> Sputum
<input checked="" type="checkbox"/> Stool	<input checked="" type="checkbox"/> Synovial Fluid	<input checked="" type="checkbox"/> Throat Swab
<input checked="" type="checkbox"/> Urethral Smear	<input checked="" type="checkbox"/> Urine	<input checked="" type="checkbox"/> Vaginal Smear
<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Whole Blood	

Target TAT

Displays turnaround times for tests. To enter or change turnaround time, click **Edit**. The number and unit (such as 24 hours) change to a text field and a drop-down list. Enter the desired number and choose **Hours** or **Days**. When finished, click the **Submit** button to save changes, or **Cancel** to discard changes. These options are below the list.



The screenshot shows the 'Tests' configuration page. On the left, a sidebar menu includes 'Home', 'Lab Configuration' (which is selected and highlighted in red), 'Tests', 'Search', 'Reports', 'Barcode Settings', 'User Accounts', 'Registration Fields', 'Export Configuration', 'Test Catalog', 'Quality Control', and 'Reports'. The main content area is titled 'Tests' and has tabs for 'Specimen/Test Types', 'Turnaround Time' (which is selected), and 'Results Interpretation'. A sub-section titled 'Target TAT' contains a table with 'Test Type' and 'Turnaround Time' columns. The table lists several items:

Test Type	Turnaround Time
ALAT	Hours
Albumin	Hours
Alkaline Phosphate	Hours
ASAT	Hours
Ascitic tap for biochemistry	Hours
Ascitic tap for culture & sensitivity	Hours
Ascitic tap for microscopy	Hours

Results Interpretation

Allows you to specify the interpretation for multiple ranges of values for each test type. To view or edit an existing tests result, choose the test type from the drop-down list and click the **Search** button. The current interpretation appears. Edit using the text boxes.

Click the **Submit** button to save changes, **Cancel** to discard them.

Search

This section allows you to configure what results are displayed for each patient when a search is executed. It also allows you to change how many results are displayed on each page.

The screenshot shows the 'Configure Fields for search results' page. On the left, a sidebar menu includes 'Home', 'Lab Configuration' (selected and highlighted in red), 'Tests', 'Search', 'Reports', 'Barcode Settings', 'User Accounts', 'Registration Fields', 'Export Configuration', 'Test Catalog', 'Quality Control', and 'Reports'. The main content area is titled 'Configure Fields for search results' and includes fields for 'Patient Number' and 'Patient's Age', both with checkboxes. Below these is a dropdown menu for 'Number of Results Per Page' set to 4, and a 'Submit' button.

Reports

Infection Report

Generates an aggregate report of laboratory test results for a particular period for one or all lab sections. The tests listed in the report are the ones checked to include on the Specimen/Test Types page. Click **Edit** to make changes to the details reported. When finished, click **Submit** button to save changes, **Preview** to view the report, **Cancel** to discard changes.



Test	Setting
Group By Gender	Yes
Group By Age	No
BS for mps	No range configuration required.
ALAT	No range configuration required.
ASAT	No range configuration required.
Ascitic tap for microscopy	
Aspirate for culture and sensitivity	
Stool for O/C	
Albumin	No range configuration required.
Alkaline Phosphate	No range configuration required.

Test/Specimen Count Reports

Allows you to set the test and specimen count report content and layout. Click **Edit** to make changes. When finished, click the **Submit** button to save changes, or **Cancel** to discard changes.

Test Count (Grouped) Report Settings:	
Group By Lab Section	Yes
Group By Gender	Yes
Group By Age	Yes
Age Range (Years)	0-4 4-9 9-14 14-19 19-24 24-29 29-34 34-39 39-44 44-49 49-54 54-59 59-64 64+
Counts to Display	All registered tests

Specimen Count (Grouped) Report Settings:	
Group By Gender	Yes
Group By Age	Yes
Age Range (Years)	0-4 4-9 9-14 14-19 19-24 24-29 29-34 34-39 39-44 44-49 49-54 54-59 59-64 64+

Daily Report Settings

Allows you to set the layout of the Patient Report, Daily Log of Specimens, and Daily Log of Patients. Use the drop-down to select the report type, and click **Search**. Edit report settings, and add or change a logo to appear on the report. Check or un-check boxes to show or hide patient, specimen, and test information. When finished, click the **Submit** button to save changes, or **Cancel** to discard changes. These options are below the list.

Report Type: Patient Report

Search



Worksheet

Allows you to create templates to gather patient data in the lab. In lab settings where data are not entered at the point of service, the data entry staff enter patient information and the tests ordered, then print the worksheet so that lab technicians can write test results and other data to be entered into BLIS. Select the **Lab Section** and **Test Type** and click **Search** to edit the report format. To edit a custom report, click **Edit** to the right of the report. To create a new custom worksheet, click the **Add Custom Worksheet** link at the bottom of the list.

Worksheet

Lab Section: All

Test Type: ALAT

Search

Alignment: Left Center Right

Header: Worksheet - ALAT

Title:

Footer:

Designation:

Margins (%): Top: 5 | Bottom: 0 | Left: 5 | Right: 0

Landscape mode: Yes No

Page Help

Barcode Settings

To alter the encoding format, barcode width, barcode height and text size. Click **Barcode Settings** on the left menu to make changes and **Submit** to save

Configure Barcode Format Settings

Encoding Format: code128

Barcode Width: 2

Barcode Height: 30

Text Size: 11

Submit

Page Help

User Accounts

This page shows all the users with access to the system. It allows you to create new user accounts, edit account settings, delete accounts, and monitor account activity.

Click **Add New Account** to enter a new user.



Lab Configuration

- Tests
- Abbreviations
- Search
- Reports
- Barcode Settings
- User Accounts
- Registration Fields
- Export Configuration

Test Catalog

Quality Control

Reports

+ Add New Account **Import from HMIS/EMR**

#	Username	Type	Recent Activity	Edit	Delete
1.	adolfo	Lab Technologist			
2.	afton	Lab Technologist			
3.	agripina	Lab Technologist			
4.	alec	Lab Technologist			
5.	alejandra	Lab Technologist			
6.	alfreda	Lab Technologist			
7.	angelica	Lab Technologist			
8.	arthur	Lab Technologist			
9.	ashton	Lab Technologist			
10.	awilda	Lab Technologist			
11.	ayako	Lab Technologist			

Recent Activity opens a new browser page to show the user's activity by location, specimen entry, and results. To view activity by date, enter or edit the start and end dates of the range you wish to see and click **View**. When you are finished, click **Print** or **Close This Page**.

Click **Edit** for a user to edit user account details or to reset password. **User Type** dictates the access the user has in the system. **Reset Password** allows you as administrator to enter a new password for this user. Click **Submit** button to save changes, **Cancel** to discard.

To remove a user account, click the **Delete** link for that user. A confirmation box appears. Click **OK** to complete the deletion, **Cancel** to keep that users information.

Registration Fields

This page shows the configuration of the patient registration page. It allows you to create mandatory fields and hide the fields that are not used, per your country's protocols. It also allows for creation of certain custom fields for Patient registration and new Specimen addition which may be needed by certain labs only. To customize fields, click **Edit** to make changes: check the box to display a field, uncheck to hide. Set fields as required. After editing, click **Update** button below the fields to save changes, **Cancel** to discard. To create new fields, choose the **Add New** link for which to add, and enter field name and type. Click **Submit** button to save changes, **Cancel** to discard.



The screenshot shows the 'Lab Configuration' section of the software. On the left, a sidebar lists various configuration options: Home, Lab Configuration (which is selected and highlighted in red), Tests, Search, Reports, Barcode Settings, User Accounts, Registration Fields (selected), Export Configuration, Test Catalog, Quality Control, and Reports. The main content area is titled 'Registration Fields' and contains a table of fields and their status. At the bottom, there are sections for 'Custom Fields - Specimens' and 'Custom Fields - Patients'.

#	Name	Type
1.	Patient type	Drop-down Options

Export Configuration

Use this feature to export all configuration settings to Microsoft Word. Clicking this link opens a new browser tab with a preview showing all preset and custom fields as well as report settings. The preview has three buttons at the top: Print, Export as Word document, and Close. Click the **Print** button to open the print dialog box; Export as Word document to create a file named **blisreport_[date of report].doc**, which you may open or save, or **Close** to close this browser tab.



Test Catalog

Lab Sections

This provides the option to add a new section. Click Add New to add a new section , Submit to save and Cancel to discard. On the right of the section list click **Edit** to make changes and **Delete** to remove the section

Section Name	Edit	Delete
BACTERIOLOGY		
BIOCHEMISTRY		
BLOOD TRANSFUSION		
CLINICAL CHEMISTRY		

Test Types

This is the place to **add** or **edit** test types used in your laboratory. Click **Add New** to enter a new test type.

#	Test	Lab Section	Action(s)
1.	ALAT	BIOCHEMISTRY	
2.	Albumin	BIOCHEMISTRY	
3.	Alkaline Phosphate	BIOCHEMISTRY	
4.	ASAT	BIOCHEMISTRY	

Required fields are **Name**, which is a text box; **Lab** , a drop-down list that includes an option to add a new section ; **Measures**, which are editable; and **Compatible Specimens**, which allows you to check one or more specimens that can be used for this test. Optional fields include **Description** (text box), **Clinical Data**, **Panel Test** (a checkbox, checked for Yes), **Hide Patients Name in report** (drop-down Yes/No), **Prevalence Threshold** (text box), and **Target TAT** (text box).To edit the information about a test type, find the one you wish to edit on the list and then click the **Edit** link in the far-right column. Click **Submit** button to save changes, **Cancel** to discard.

New Test Type | Cancel

Name *: SEROLOGY

Lab Section *: BIOCHEMISTRY

Description:

Clinical Data [?]:

Panel Test?

Measures *:

- \$sub*38/\$BA
- \$sub*38/\$LY
- \$sub*38/\$NE
- Albumin
- ASAT
- Ascitic tap for culture & sensitivity
- Asot
- Aspirate for culture and sensitivity
- Bacteria
- Bilirubin
- Blood
- Blood Grouping
- Borrelia
- \$sub*38/\$EO
- \$sub*38/\$MO
- ALAT
- Alkaline Phosphate
- Ascitic tap for biochemistry
- Ascitic tap for microscopy
- Asot Titration
- Aspirate for microscopy
- Baso#
- Bleeding time test
- Blood Culture & sensitivity
- Blood sugar
- Brucella



Specimen Types

This is the place to **add** or **edit** specimen types used in your laboratory. Click Add New to enter a new specimen type.

Specimen Type	Edit	Delete
Ascitic Tap		
Aspirate		
CSF		
Dried Blood Spot		
High Vaginal Swab		
Nasal Swab		

Required fields are Name, which is a text box for entering the name of the specimen, and Compatible Tests, which allows you to check the tests that can be performed using that specimen. Ctrl-F opens the Find function to search for a test. You may enter a Description of the specimen type, which is optional. To edit the information about a specimen type, find the one you wish to edit on the list and then click the Edit link in the far-right column. Click Submit button to save changes, Cancel to discard.

Name *	Description	Compatible Tests * [?]
<input type="text"/>	<input type="text"/>	<input type="checkbox"/> ALAT <input type="checkbox"/> ASAT <input type="checkbox"/> Ascitic tap for microscopy <input type="checkbox"/> Aspirate for culture and sensitivity <input type="checkbox"/> Baso# <input type="checkbox"/> Blood <input type="checkbox"/> Blood sugar <input type="checkbox"/> BS for mps <input type="checkbox"/> calcium <input type="checkbox"/> cell count <input type="checkbox"/> Creatinine <input type="checkbox"/> CSF for biochemistry <input type="checkbox"/> culture
		<input type="checkbox"/> Albumin <input type="checkbox"/> Ascitic tap for biochemistry <input type="checkbox"/> Asot <input type="checkbox"/> Aspirate for microscopy <input type="checkbox"/> Bilirubin <input type="checkbox"/> Blood Culture & sensitivity <input type="checkbox"/> Borrelia <input type="checkbox"/> calcium <input type="checkbox"/> CD4 <input type="checkbox"/> Chloride <input type="checkbox"/> Cross Match <input type="checkbox"/> CSF for microbiology <input type="checkbox"/> culture
		<input type="checkbox"/> Alkaline Phosphate <input type="checkbox"/> Ascitic tap for culture & sensitivity <input type="checkbox"/> Asot Titration <input type="checkbox"/> Bacteria <input type="checkbox"/> Bleeding time test <input type="checkbox"/> Blood Grouping <input type="checkbox"/> Brucella <input type="checkbox"/> CALCUM <input type="checkbox"/> cell count <input type="checkbox"/> Clotting time test <input type="checkbox"/> CSC <input type="checkbox"/> CULTURE <input type="checkbox"/> CULTURE



Lab Technician's Guide

Technician Overview

When you log in as a technician, you see the home page below:

Users with Technician rights can edit their profile; add or change email, phone number, and profile picture. Username cannot be changed. Hover on the top right side of the top bar where you see your username e.g. Wasike. Click on the username to open a dropdown menu with **Edit profile** and **Logout** items as shown. Once you click on **Edit profile**, you'll get the following form

Update your details as appropriate and click on the **Update** button To change your password, use the **Change password** link on the **Edit profile** form as shown.

Fill in the form carefully and save the changes using the **Update** button. Do not share your password with anyone



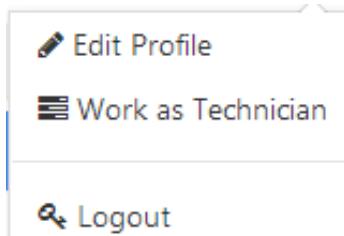
else and please do not forget your password.



Patient Registration

To register a patient, login as an administrator

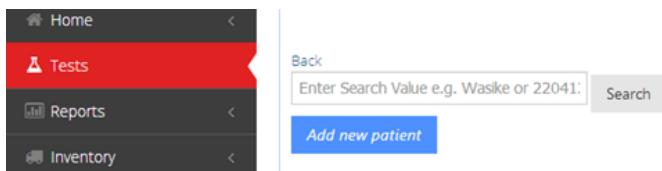
On the top right of the screen click your username (superadmin in this case) and click Work as Technician from the drop down



Click Tests on the side bar menu and click Search/Register



Click Add new patient



Enter the Patient Name, Gender and either Date of Birth or Age

The form fields are as follows:

- Registration Number *
- Patient Name *
- Gender *:
 - Male
 - Female
- Date of Birth
- Age

At the bottom are two buttons: **Submit** (green) and **Cancel** (red).

Click **Submit**



Sample Collection

Receive Request

If you don't see the request among the listed, SEARCH for the patient using the PATIENT NUMBER or the PATIENT NAME as captured below. Press 'Enter' after giving the search value

Search: 257054		Status: All						
Specimen ID	Date Ordered	Patient No	Visit No	Patient Name	Specimen Type	Test	Order Stage	Status
	2014-03-14 10:58:57	257054	496716	Reyna Tessman (F 44)		BS for mps	In-patient	Not Received Receive request

Receive the request using the 'Receive request' button on the far right of the row to get the following display

✎ Specimen Registration | Lab No: 20140523-9 X

Tests Requested	Requesting Clinician	Date Requested
BS for mps	Emelina Davisson	2014-03-14 10:58:57

Specimen Type *	Whole Blood
Tests *	BS for mps X
Lab Receipt Date *	2014-05-23
Lab receipt time *	15:59
Physician	Emelina Davisson

* Mandatory Field

Submit Cancel

After submitting the details using 'Submit' button, the following will appear to confirm successful submission

Specimen ID	Date Ordered	Patient No	Visit No	Patient Name	Specimen Type	Test	Order Stage	Status
	2014-03-14 10:58:57	257054	496716	Reyna Tessman (F 44)		BS for mps	In-patient	Not Collected Accept View Details

Accepting a Specimen

Once you have received the request, you'll need to check the specimen for acceptance.

Specimen ID	Date Ordered	Patient No	Visit No	Patient Name	Specimen Type	Test	Order Stage	Status
	2014-03-14 10:58:57	257054	496716	Reyna Tessman (F 44)		BS for mps	In-patient	Not Collected Accept View Details



If acceptable, click the **Accept** button to be directed to the following page.

Specimen ID	Date Ordered	Patient No	Visit No	Patient Name	Specimen Type	Test	Order Stage	Status
CLI-1342	2014-03-14 10:58:57	257054	496716	Reyna Tessman (F 44)	BS for mps	In-patient	Pending	<input checked="" type="checkbox"/> Start Test

You'll get the specimen number in the format: PAR-0001. PAR identifies the laboratory section the specimen shall be worked on and 0001 represent the actual specimen identifier. Label the specimen with that specimen number provided. Sort the specimens ready for dispatch to the sections.

Rejecting a Specimen

A specimen may fall short of the standards required for a test, might be unlabeled, insufficient or due to other reasons. If so, search for the specimen and on the corresponding row of the specimen, press the **Reject** button.

Specimen ID	Date Ordered	Patient No	Visit No	Patient Name	Specimen Type	Test	Order Stage	Status
CLI-1342	2014-03-14 10:58:57	257054	487335	Felix Watson (F 44)	Whole Blood	Blood sugar	Out-patient	<input type="button" value="Not Collected"/> <input checked="" type="button" value="Accept"/> <input type="button" value="Reject"/>

Fill in the form appropriately and click the **reject** button

00 records found

Specimen Rejection

Patient ID	Delay between specimen collection and arrival in the laboratory
Patient Number	Duplicate specimen received
Patient Name	Empty Container
Specimen Type	Haemolysis
Tests	Inappropriate specimen for the test
Reasons for Rejection	Inappropriate specimen packing
Person Talked To	Inappropriate test for the clinical condition
	Insufficient Sample
	Leaking
	Lipaemic
	Mismatched information on request form and specimen container.
	Mismatched sample and form labelling
	Missing collection date on specimen / request form.
	Missing Information Required
	Missing Labels on container and tracking form
	Name and signature of requester missing
	No Label

You have successfully rejected the specimen as captured below.

Specimen ID	Date Ordered	Patient No	Visit No	Patient Name	Specimen Type	Test	Order Stage	Status
CLI-1342	2014-05-26 13:45:15	257054	487335	Felix Watson (F 44)	Whole Blood	Blood sugar	Out-patient	<input checked="" type="button" value="Rejected"/> <input type="button" value="View Details"/> <input type="button" value="Print Report"/>



Testing

Starting a Test

Search for the patient, test or specimen OR filter using the dropdown under **Status** select box for **Pending**.

Specimen ID	↓ Date Ordered	↓ Patient No	↓ Visit No	↓ Patient Name	↓ Specimen Type	↓ Test	↓ Order Stage	↓ Status	
PAR-1335	2014-05-23 16:04:34	257054	496716	Felix Watson (F 44)	Whole Blood	BS for mps	In-patient	Pending	<input checked="" type="button"/> Start Test

Click on the **Start test** button

The status will change to **Started** as captured

Specimen ID	↓ Date Ordered	↓ Patient No	↓ Visit No	↓ Patient Name	↓ Specimen Type	↓ Test	↓ Order Stage	↓ Status	
PAR-1335	2014-05-23 16:04:34	257054	496716	Felix Watson (F 44)	Whole Blood	BS for mps	In-patient	Started	<input type="button"/> Enter Results

Proceed to perform the test

Entering Test Results

Once through with the tests and results are out, Search the patient or specimen. Go to the corresponding row and click on **Enter results** A pop-up form will be provided to be filled in appropriately.

Results form - BS for mps

BS for mps:	<div style="border: 1px solid #ccc; padding: 5px; width: 100%; height: 100%;"></div>																																																		
Result Interpretation	<div style="border: 1px solid #ccc; padding: 5px; width: 100%; height: 100%;"></div>																																																		
Summary <table border="1"> <tr> <td colspan="4">Specimen details</td> </tr> <tr> <td>Type</td> <td colspan="3">Whole Blood</td> </tr> <tr> <td>Specimen Number</td> <td colspan="3">PAR-1335</td> </tr> <tr> <td>Patient details</td> <td colspan="3">Felix Watson (F 44 Years)</td> </tr> <tr> <td>Visit number</td> <td colspan="3">496716</td> </tr> <tr> <td>Lab Receipt Date</td> <td colspan="3">23-05-2014</td> </tr> <tr> <td>Tests</td> <td colspan="3">BS for mps</td> </tr> <tr> <td>Physician</td> <td colspan="3">Emelina Davisson</td> </tr> <tr> <td colspan="4">Previous tests</td> </tr> <tr> <td>Type</td> <td>Lab Receipt Date</td> <td>Status</td> <td></td> </tr> <tr> <td>BS for mps</td> <td>23-05-2014</td> <td>Results Pending</td> <td>Details</td> </tr> <tr> <td>Blood sugar</td> <td>23-05-2014</td> <td>Not Collected</td> <td>Details</td> </tr> </table>				Specimen details				Type	Whole Blood			Specimen Number	PAR-1335			Patient details	Felix Watson (F 44 Years)			Visit number	496716			Lab Receipt Date	23-05-2014			Tests	BS for mps			Physician	Emelina Davisson			Previous tests				Type	Lab Receipt Date	Status		BS for mps	23-05-2014	Results Pending	Details	Blood sugar	23-05-2014	Not Collected	Details
Specimen details																																																			
Type	Whole Blood																																																		
Specimen Number	PAR-1335																																																		
Patient details	Felix Watson (F 44 Years)																																																		
Visit number	496716																																																		
Lab Receipt Date	23-05-2014																																																		
Tests	BS for mps																																																		
Physician	Emelina Davisson																																																		
Previous tests																																																			
Type	Lab Receipt Date	Status																																																	
BS for mps	23-05-2014	Results Pending	Details																																																
Blood sugar	23-05-2014	Not Collected	Details																																																
<div style="text-align: right;"> Send to Sanitas Cancel </div>																																																			

Once done, submit the results using the **Submit** button to get the following confirmation

Specimen ID	↓ Date Ordered	↓ Patient No	↓ Visit No	↓ Patient Name	↓ Specimen Type	↓ Test	↓ Order Stage	↓ Status	
PAR-1335	2014-05-23 16:04:34	257054	496716	Felix Watson (F 44)	Whole Blood	BS for mps	In-patient	Tested	Edit Verify View Details

Editing Test Results

Search for the patient, test or specimen OR simply filter using the dropdown under **Status** select box for **Tested**.



Refresh:	Search: 257054	Status: Tested							
<hr/>									
Specimen ID	↓ Date Ordered	↓ Patient No	↓ Visit No	↓ Patient Name	↓ Specimen Type	↓ Test	↓ Order Stage	↓ Status	

CLI-1336 2014-05-26 257054 487335 Felix Watson (F 44) Whole Blood Blood sugar Out-patient Tested [Edit](#) [Verify](#) [View Details](#)

On the corresponding row, click on **Edit** to open a pop-up form with pre-filled data

Update the results as appropriate and save the changes by using the **submit** button.

Results form - BS for mps

BS for mps:	Positive																																																				
Result Interpretation	-																																																				
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Send to Sanitas Cancel																																																					

Results Verification

USER ACTIVATION BY THE SYSTEM ADMINISTRATOR

On the side menu Click Lab Configuration and under it Click User Accounts

Lab Configuration			+ Add New Account	Import from HMIS/EMR
#	Username	Type		
1.	adolfo	Lab Technologist	Recent Activity	Edit Delete
2.	afton	Lab Technologist	Recent Activity	Edit Delete
3.	agripina	Lab Technologist	Recent Activity	Edit Delete
4.	alec	Lab Technologist	Recent Activity	Edit Delete
5.	alejandra	Lab Technologist	Recent Activity	Edit Delete

Click Edit on the row corresponding to the user you want activate



Can verify results?

Display Name at Results Entry? Yes

[Reset Password](#)

[Submit](#)

[Cancel](#)

Click the check box corresponding to Can verify results? and Submit

LAB TECHNICIAN'S GUIDE

Specific heads of lab sections are assigned results verification privileges.

The screenshot shows a search results page for a specimen. At the top, there are search fields for 'Search' (containing '257054') and 'Status' (set to 'Tested'). Below the search bar is a table header row with columns: Specimen ID, Date Ordered, Patient No, Visit No, Patient Name, Specimen Type, Test, Order Stage, and Status. A single result row is shown: CLI-1336, 2014-05-26, 257054, 487335, Felix Watson (F 44), Whole Blood, Blood sugar, Out-patient, Tested. To the right of the result are buttons for 'Edit', 'Verify', and 'View Details'.

To verify results, press the **Verify** button and the following pop-up will be displayed

Press the **Verify result** button to verify

The screenshot shows a 'Test Result' pop-up window. It has a header 'Test Result: Blood sugar'. Below it is a table titled 'Results' with columns: Test Name, Results, Remarks, Entered by, Specimen TT, Test TT, and Verified by. One row is present: Blood sugar, Normal, -, jerome, 0 d 00 hrs 00 min, 0 d 00 hrs 00 min, Verification Pending. To the right of the table is a green button labeled '✓ Verify result'. At the bottom right of the pop-up is a 'Close' button.

The name of the one who has verified will be displayed under 'Verified by'

The screenshot shows a simplified results table with a single row: Blood sugar, Normal, -, jerome, 0 d 00 hrs 00 min, 0 d 00 hrs 00 min, Verification Pending, and a green '✓ Verify result' button.

Close to see the verified status

The screenshot shows a specimen details page. At the top, there are fields for Specimen ID (CLI-1336), Date Ordered (2014-05-26), Patient No (257054), Visit No (487335), Patient Name (Felix Watson (F 44)), Specimen Type (Whole Blood), Test (Blood sugar), Order Stage (Out-patient), and Status (Verified). To the right are buttons for 'View Results' and 'View Details'.

Full Haemogram Test on celltac F Instrument

Search for the visit number or (patient number or patient name)

Click start test an perform the test

On the celltac F Instrument; press Print Results button to send the results from the Celltac F Instrument to the computer



On the computer:

Specimen ID	↓ Date Ordered	↓ Patient No	↓ Visit No	↓ Patient Name	↓ Specimen Type	↓ Test	↓ Order Stage	↓ Status	
MIC-1347	2014-05-28 12:18:50	259419	495860	Augustine Mcglamery (F 58)	High Vaginal Swab	HVS for culture and sensitivity	In-patient	Started	

Click Enter results to get the results entry pop-up

To enter results sent from the celltac F Instrument, Click Read results button

Results form - Full Haemogram ×

<input type="button" value="Read results"/>	Summary
WBC: <input type="text" value="42"/> (4.0-9.0) x10 ³ /µL	Specimen details
Neu#: <input type="text" value="1.2L"/> (42.0-85.0)	Type Whole Blood
Lym#: <input type="text" value="2.6"/> (11.0-49.0)	Specimen Number HAE-1346
	Patient details Christopher Brown (M 40 Years)
	Visit number 496709
	Lab Receipt Date 28-05-2014

The results will be loaded as shown

Results form - Full Haemogram ×

<input type="button" value="Read results"/>	Summary
WBC: <input type="text" value="42"/> (4.0-9.0) x10 ³ /µL	Specimen details
Neu#: <input type="text" value="1.2L"/> (42.0-85.0)	Type Whole Blood
Lym#: <input type="text" value="2.6"/> (11.0-49.0)	Specimen Number HAE-1346
	Patient details Christopher Brown (M 40 Years)
	Visit number 496709
	Lab Receipt Date 28-05-2014

Scroll to the bottom of the pop-up and Click Send to Sanitas button to submit the results

Result Interpretation



Culture and sensitivity test

LAB CONFIGURATION SET UP BY THE SYSTEM ADMINISTRATOR

To add drugs Click **Drug Types** under **Test Catalog** on the side menu

#	Drug	Action(s)
1.	Amikacin	Edit Delete
2.	Gentamicin	Edit Delete
3.	Kanamycin	Edit Delete
4.	Neomycin	Edit Delete
5.	Netilmicin	Edit Delete
6.	Paromomycin	Edit Delete

If not on the list Click **Add New** and enter the drug name and description

[New Drug](#) | [Cancel](#)

Name *

Description

[Submit](#) [Cancel](#)

To add organisms Click **Organisms** under **Test Catalog** on the side menu

#	Organism	Action(s)
1.	Gram-negative bacteria	Edit Delete
2.	Kapsikuku	Edit Delete
3.	Klebsiella	Edit Delete



If not on the list Click **Add New** and enter the organism name, description and compatible drugs

New Organism

Cancel

Name *	Staphylococcus aureus			
Description	T			
Compatible Drugs * [?]	<input type="checkbox"/> Amikacin	<input type="checkbox"/> Gentamicin	<input type="checkbox"/> Kanamycin	<input type="checkbox"/> Neomycin
	<input checked="" type="checkbox"/> Netilmicin	<input type="checkbox"/> Paromomycin	<input checked="" type="checkbox"/> Penicillin	<input type="checkbox"/> Tobramycin

Submit **Cancel**

Configure the test; on the side menu Click **Test catalog** and under it Click **Test Types**

Test Catalog

10 records per page

Search:

#	Test	Lab Section	Action(s)
1.	ALAT	BIOCHEMISTRY	Edit Delete
2.	Albumin	SEROLOGY	Edit Delete
3.	Alkaline Phosphate	BIOCHEMISTRY	Edit Delete

Search for the test name (in this case; HVS for culture and sensitivity) by typing all or part of it and press Enter

10 records per page

Search: Hvs

#	Test	Lab Section	Action(s)
52.	Hvs for culture and sensitivity	MICROBIOLOGY	Edit Delete

Click Edit and scroll down to **Show culture worksheet** Option

Show culture worksheet?	<input type="checkbox"/>
Cost to Patient	0 / 0 Ksh
Submit Cancel	

Check the **Show culture worksheet** Box to load the applicable Organisms and check appropriately



Target TAT	0.00			
Show culture worksheet?	<input checked="" type="checkbox"/>			
Applicable Organisms * [?]	<input type="checkbox"/> Gram-negative bacteria <input checked="" type="checkbox"/> Kapsikuku <input type="checkbox"/> Klebsiella <input checked="" type="checkbox"/> Staphylococcus aureus			
Cost to Patient	0	/	0	Ksh
	<input type="button" value="Submit"/> <input type="button" value="Cancel"/>			

Click submit to save

LAB TECHNICIAN'S GUIDE

Search for the visit number or (patient number, patient name or test)

Specimen ID	♦ Date Ordered	♦ Patient No	♦ Visit No	♦ Patient Name	♦ Specimen Type	♦ Test	♦ Order Stage	♦ Status		
MIC-1347	2014-05-28 12:18:50	259419	495860	Augustine Mcglamery (F 58)	High Vaginal Swab	HVS for culture and sensitivity	In-patient	Pending	<input checked="" type="button"/> Start Test	<input type="button"/> View Details

Click start test and start performing the test

Specimen ID	♦ Date Ordered	♦ Patient No	♦ Visit No	♦ Patient Name	♦ Specimen Type	♦ Test	♦ Order Stage	♦ Status		
MIC-1347	2014-05-28 12:18:50	259419	495860	Augustine Mcglamery (F 58)	High Vaginal Swab	HVS for culture and sensitivity	In-patient	Started	<input type="button"/> Enter Results	<input type="button"/> View Details

Click Enter Results to open the results entry form

For the Observations and work-up; add the observation and click save on the right of the entry to save it

CULTURE OBSERVATION AND WORKUP

Date	Initials	Observations and work-up	Action
just now	superadmin	----	
Just now	superadmin	<input type="text"/>	<input type="button"/> Save



POSSIBLE ISOLATED ORGANISMS (Select Applicable)

<input type="checkbox"/> Kapsikuku	<input checked="" type="checkbox"/> Staphylococcus aureus
------------------------------------	---

Susceptibility Test Results

Organism: Staphylococcus aureus		
Drug	Zone (mm)	Interpretation (S,I,R)
Penicillin	9.2	I ▾

Save Results

Enter other values available at the time and (scroll down to see) click Send to Sanitas to save the whole form

	Send to Sanitas	Cancel
--	-----------------	--------

After which you will see the status of tested for that entry

Specimen ID	Date Ordered	Patient No	Patient Name	Specimen Type	Test	Order Stage	Status	Tested	Edit	Verify	View Details
MIC-1347	2014-05-28 12:18:50	259419	495860 Augustine Mcglamery (F 58)	High Vaginal Swab	HVS for culture and sensitivity	In-patient	Tested	<input checked="" type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>

To enter additional observations and values click Edit, and after changing and/or entering new values, click Send to Sanitas to save

Viewing Results

To view test results, search for the verified test results

Test Queue - All Sections											
31 records found.											
Refresh: <input type="button"/> Search: <input type="text"/> Status: <input type="button"/>											
Specimen ID	Time Collected	Patient ID	Visit No	Patient Name	Specimen Type	Test	Order Stage	Status	View Results	View Details	View Details
PAR-6	224881	CATHERINE MIHESO LUCIA (F14)		Whole Blood	BS for mps	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
HEM-6	224881	CATHERINE MIHESO LUCIA (F14)		Whole Blood	Full Haemogram	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
PAR-2	224875	LILIAN NANJALA (F18)		Whole Blood	BS for mps	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
PAR-1	224783	test ttttt (F4)		Whole Blood	BS for mps	Out-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
PAR-17	225045	TOPISTA SITUMA NGUTUKU (F49)		Whole Blood	BS for mps	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
PAR-16	225135	DORICUS NALIKA MASABULE (F 18)		Whole Blood	BS for mps	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
PAR-15	169450	MARY DOREEN KARENDA (F 9)		Whole Blood	BS for mps	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
SER-12	122327	CAROLINE NAFLA BARASA (F 27)		Serum	VDRL	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
CLI-114	2013-11-01 14:28:11	20348 Jesch Maalo (F 61)		Urine	Blood sugar	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>
CLI-112	2013-11-01 15:30:49	WINROSE NABWILE NAMUNJU (F 16)		Urine	Urinalysis	In-patient	Verified	<input type="button"/>	<input type="button"/>	<input type="button"/>	<input type="button"/>



You will see a **View results** button. Click on the button and a form containing the results of the test shall pop-up

The screenshot shows the 'Test Queue - All Sections' page with a search bar and a table of test results. A modal window titled 'Test Result: BS for mps' is open, displaying the following details:

Specimen ID	Test Name	Results	Remarks	Entered by	Specimen TT	Test TT	Verified by
PAR-6	BS for mps	Negative	NO MPS SEEN	beatrice	0 d 00 hrs 00 min	0 d 00 hrs 00 min	nyongesa

Below the modal, there is a table of test results with columns: Specimen ID, Time Collected, Patient, Test Name, Results, Remarks, Entered by, Specimen TT, Test TT, Verified by, and View Details buttons.

Close the pop-up when done to continue navigating the system.

Viewing Specimen Details

Search for the specimen, patient or test. On the corresponding row, click on the **View details** on the far right column of the table. Details of the specimen shall be presented in a pop-up form.

The screenshot shows the 'Test Queue - All Sections' page with a search bar and a table of test results. A modal window titled 'Specimen Details' is open, displaying the following details:

Type	Whole Blood	Get Report
Specimen Number	PAR-2	Track Actions
Lab No.	20131030-12	
Patient	LILIAN NANJALA (F 18 Years) Profile	
Lab Receipt Date	30-10-2013	
Registered By	wasike	
Tests	BS for mps	
Physician	wilson ogucha	

Below the modal, there is a table of registered tests with columns: Test, Results, Remarks, Entered By, Verified By, Turnaround time, and View Details buttons.



Patient Report

On the pop-up form presented when viewing details, there is **Get Report** link. Click on that link to open a printable report on a new browser tab

From - -
(dd-mm-yyyy) Portrait Landscape Include Pending Tests View

To - -
(dd-mm-yyyy)



BUNGOMA DISTRICT HOSPITAL LABORATORY
BUNGOMA TOWN, HOSPITAL ROAD
OPPOSITE POLICE LINE/DISTRICT
HEADQUARTERS
P.O. BOX 14,
BUNGOMA TOWN.
Phone: +254 055-30401 Ext 203/208



LABORATORY REPORT

Date: 14-02-2014

Patient Name	lillian kisuya10/5/19	Patient Sex	F
Patient Number(Sanitas)	242003	Patient Age	31 Years
Lab Number [Serial No.]	436 [20140212-1]	Requesting Department/Facility	Bungoma District Hospital

Specimens Not Found

.....
Authorized by: Antony Sangolo
(Technical Supervisor)

.....
Reviewed by: Joan Wasike
(Lab-in-charge)

Form No. BDHL-QUA-017F3

Version 1

Proceed to print the report if you so wish for a hard copy of the same.



External Quality Assurance (EQA)

EQA sample should be treated as a patient sample with EQA as patient name.

Register EQA as a patient

Patient Name *

Gender *

Male
 Female

Date of Birth

Age



<	25	26	27	28	29	30	31	>
Su	Mo	Tu	We	Th	Fr	Sa		
1	2	3	4	5	6	7		

Submit to load the page below

Request the tests required for the EQA and Submit

Specimen Type *

Tests *

Lab Receipt Date * 

Lab receipt time * 

Physician

Referral sample Referred Out Referred In

Patient details

Registration Number	978
Name	Eqa
Gender	M
Date of Birth	04-06-2014

* Mandatory Field

[Add Another Specimen »](#)

Receive the specimen, start the test and enter results of the test

These results are then available for retrieval to be sent to the Proficiency Testing Provider

Received evaluation result from Proficiency Test Provider should be kept by paper based filing



Reports

Any user (Technician or Manager) can generate reports.

Daily Reports

The Patient Report and Daily Log should be run every day.

Patient Report

Search for the patient by Patient Name, Patient Number, or Patient ID. Click the Search button to start search. Select the patient you want from the list if more than one patient matches your search criteria. Click **View Report** to see all data for that patient, or Select **Tests** to see tests ordered and the results for that patient. You can edit the report to show activity within a date range, include pending tests for which results are not available, set printing information, or export to Word using the controls at the top of the page.

This screenshot shows the Patient Report interface. On the left, there's a navigation menu with 'Home', 'Tests', and 'Reports' (which is highlighted). The main area has a title 'Patient Report' and a search bar with placeholder text 'Enter Search Value e.g. Wasike'. Below the search bar is a 'Search' button. To the right, there's a 'Tips' box with the text 'Select Patient Name, Number or ID to retrieve patient's lab reports'.

Daily Log

Set the date range to reflect the log to print. You can run a report of the days activity by patients seen (by clicking **Patient Records**), or by tests run (by clicking **Test Records**). If you choose Test Records, You can choose to run a log for one lab section or for one type of test. The default settings are test records, all sections, and all tests. The report opens in a new browser tab and has **Print** and **Export** controls at the top of the page.

This screenshot shows the Daily Log interface. On the left, there's a navigation menu with 'Home', 'Tests', 'Reports' (highlighted), 'Daily Reports' (with 'Patient Report' and 'Daily Log' options), 'Aggregate Reports' (with 'Prevalence Rate', 'Counts', 'Turnaround Time', and 'Infection Report' options), and 'Inventory'. The main area has a title 'Daily Log' and several search parameters: 'From' (set to 2014-02-24), 'To' (set to 2014-02-24), 'Records' (radio buttons for 'Test Records' and 'Patient Records' with 'Patient Records' selected), 'Lab Section' (dropdown set to 'All'), and 'Test' (dropdown set to 'All'). A 'Submit' button is at the bottom. To the right, there's a 'Tips' box with the text 'Print all records handled on a given day.'

Daily Reports

The Patient Report and Daily Log should be run every day.

Patient Report

Search for the patient by Patient Name, Patient Number, or Patient ID. Click the Search button to start search. Select the patient you want from the list if more than one patient matches your search criteria. Click **View Report** to see all data for that patient, or Select **Tests** to see tests ordered and the results for that patient. You can edit the report to show activity within a date range, include pending tests for which results are not available, set printing information, or export to Word using the controls at the top of the page.



The screenshot shows the Patient Report interface. On the left is a navigation sidebar with Home, Tests, and Reports sections. The main area has a search bar with placeholder text "Enter Search Value e.g. Wasike" and a "Search" button. A "Tips" box on the right says "Select Patient Name, Number or ID to retrieve patient's lab reports".

Daily Log

Set the date range to reflect the log to print. You can run a report of the day's activity by patients seen (by clicking **Patient Records**), or by tests run (by clicking **Test Records**). If you choose Test Records, You can choose to run a log for one lab section or for one type of test. The default settings are test records, all sections, and all tests. The report opens in a new browser tab and has **Print** and **Export** controls at the top of the page.

The screenshot shows the Daily Log report configuration page. It includes fields for "From" (2014-02-24) and "To" (2014-02-24). Under "Records", "Patient Records" is selected. Under "Lab Section" and "Test", both are set to "All". A "Submit" button is at the bottom. A "Tips" box on the right says "Print all records handled on a given day."

Aggregate Reports

Prevalence Rate

Gives the prevalence of a particular laboratory test result based on the number of tests done and the results. Set a date range to view infection graph and prevalence rates. Click **Submit** to run the report, which will open in a new browser tab. You can also view the trends of the laboratory test results for the defined period, as a graph, by clicking the **Trends** option after the report is displayed.

Counts

Generates a report for a particular time period of the number of tests, specimens, or doctor statistics. Set a date range and choose **Test Count**, **Specimen Count**, or **Doctor Statistics** to run the desired report.

The screenshot shows the Counts report configuration page. It includes fields for "From" (2013-12-09) and "To" (2014-06-11). Under "Count Type", "Test Count (Ungrouped)" is selected. Other options include "Test Count (Grouped)", "Specimen Count (Ungrouped)", "Specimen Count (Grouped)", and "Doctor Statistics". A "Submit" button is at the bottom. A "Tips" box on the right says "Select date range and type of count required".

Turnaround Time

Allows you to see actual turnaround times between test order and completion for all or specific tests. Set a date range and choose whether to include **Impending Tests**. The default is completed tests only. It also generates a graph of the statistics.



Infection Report

Allows you to generate reports of infections by patient age and gender. Set a date range and select one **Lab section**, or all sections to see all test results. The report opens in a new browser tab. It also provides an option to create a Word document of the generated report.

The screenshot shows the 'Infection Report' page. On the left is a navigation sidebar with 'Reports' selected. The main area has 'From' and 'To' date fields both set to '2014-02-25'. A 'Lab Section' dropdown is set to 'All'. A 'Submit' button is at the bottom. A 'Tips' box on the right says: 'Select Date range and lab section to view the Infection report'.

User Statistics

Provides user report for a particular time period. For Collective User Statistics Click **Collective User Stats** then use check boxes; **Patients Registered, Specimens Registered, Tests Registered** and **Results Entered** to determine the report content. And for Individual User Logs Click **Individual User Logs** and use the check boxes to determine the report content. Submit to get a report

The screenshot shows the 'User Statistics' page. The sidebar is identical to the 'Infection Report' page. The main area has 'From' and 'To' date fields both set to '2014-02-25'. A 'Stat Type' radio group has 'Collective User Stats' selected. Below it, a 'Count Type' section has four checkboxes checked: 'Patients Registered', 'Specimens Registered', 'Tests Registered', and 'Results Entered'. A 'Submit' button is at the bottom. A 'Tips' box on the right says: 'Display user specific statistics and user activity logs.'



Appendix

BLIS Installation

Installing BLIS-Kenya on XAMPP for Windows

1. Install XAMPP
2. Start the XAMPP Control Panel, Start the Apache and MySQL components. You can also start the other components, if you plan to use them. Verify the Apache install, by clicking on the Apache administrative link in the Control Panel. Verify the MySQL installation, by clicking on the MySQL administrative link in the XAMPP Control Panel. If the verification steps are successful, XAMPP should be successfully installed on your PC. Open a browser and enter "localhost" on your address bar. You will be redirected to a page telling you that you've successfully installed xampp on your system
3. Put the [BLIS-Kenya folder in a subdirectory of your installation named htdocs.](#)

C:\xampp\htdocs\

4. Create databases

blis_301

and

blis_revamp_prod

Import tables and basic operations information from [SQL files of the same names](#)

5. Set up a static IP address for other computers on your network to view the server you have created
6. Login with the username: **superadmin** and password: **admin123**, be sure to change this password after logging in

Installing LAMP on Linux

Install Apache

To start off install Apache

1. Open up the Terminal (Applications > Accessories > Terminal).
2. Copy/Paste or type the following line of code into Terminal and then press enter:

```
sudo apt-get install apache2
```

3. The Terminal will then ask you for your password, type it and then press enter.

Testing Apache

Test Apache to ensure it is working properly.

1. Open up any web browser and then enter the following into the web address:

```
http://localhost/
```



2. You should see a folder end apache2-default/. Open it and you will see a message saying "It works!"

Install PHP

1. Open up the Terminal (Applications > Accessories > Terminal).
2. Copy/Paste or type the following line into Terminal and press enter:

```
sudo apt-get install php5 libapache2-mod-php5
```

3. In order for PHP to work and be compatible with Apache, restart Apache. Type the following code in Terminal to restart:

```
sudo /etc/init.d/apache2 restart
```

Test PHP

To ensure there are no issues with PHP, give it a test run.

1. In the terminal copy/paste or type the following line:

```
sudo gedit /var/www/testphp.php
```

This will open up a file called testphp.php.

2. Copy/Paste this line into the phptest file:<?php phpinfo(); ?>
3. Save and close the file.
4. Open the web browser and type the following into the web address:

```
http://localhost/testphp.php
```

It will show you the page that has all information about your php. Apache and PHP are now installed

Install MySQL

1. Open up the Terminal and copy/paste or type this line:

```
sudo apt-get install mysql-server
```

2. (optional). In order for other computers on your network to view the server you have created, you must first edit the "Bind Address". Begin by opening up Terminal to edit the my.cnf file.

```
gksudo gedit /etc/mysql/my.cnf
```

Change the line

```
bind-address = 127.0.0.1
```

bind-address = 127.0.0.1 And change the 127.0.0.1 to your IP address. The, terminal itself may ask to the set password, But if it doesn't follow the step 3.

3. Type the following into the Terminal:



```
mysql -u root
```

Copy/paste or type this line:

```
mysql> SET PASSWORD FOR 'root'@'localhost' = PASSWORD('yourpassword');
```

(Make sure to change yourpassword to a password of your choice.)

4. Install phpMyAdmin. Copy/paste or type the following line into Terminal:

```
sudo apt-get install libapache2-mod-auth-mysql php5-mysql phpmyadmin
```

To get PHP to work with MySQL, open php.ini. Type the following:

```
gksudo gedit /etc/php5/apache2/php.ini
```

Uncomment the following line by taking out the semicolon (;). Change this line:

```
;extension=mysql.so
```

To look like this:

```
extension=mysql.so
```

Restart Apache and you are all set!

```
sudo /etc/init.d/apache2 restart
```



Glossary

Admin : Designation for a user that has control over lab configuration settings

Aggregate : Type of report that collects data over a period of time and presents it to the user

Barcodes : Used in inventory management to create printable 'barcode' labels for reagents

Director : Designation for a user that oversees many laboratories, typically at the country level. Manages lab configuration standardization

Grouped Reports : Reports that cover multiple types of information.

Inventory : Interface for managing reagents and supplies

Lab Configuration : Collection of customizable settings relating to the collection and storage of data

Manager : Another name for an Admin user

Patient : Entry for a patient whose specimens tests are performed on

Prevalence Rate : The percentage rate of occurrence of a particular result of tests

Reagent : Term used in inventory control in BLIS. Denotes any physical supply that requires tracking in the inventory system

Registration : The act of entering a patient into the BLIS program. Creates a unique patient entry that can be associated with specimens and tests

Reports : Pages that collect metrics for various types of data. The scope of these reports varies from individual patients to entire groups of laboratories

Results - The recorded outcome of tests performed on specimens

Specimen : An entry representing a physical specimen or reading taken from a patient.

Specimen Type : Classification for different types of specimens

Technician : A designation for a user who is tasked with entering data into BLIS

Test : An entry representing a test or reading taken from a specimen

Test Type : Classification for different types of tests.

Turnaround Time : A measurement of the time it takes to receive a result, once a specimen is collected.

User : Any person or entity that logs into the BLIS program

Verify : An action performed on test entries that validates the results for further use **Worksheet** : Customizable, printable sheets for improving the speed at which information is recorded in a physical sense (i.e. not entered directly into the BLIS program.)