

openXdata 1.16

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Getting Started

Requirements

Hardware and software requirements for openXdata web application.

Software

openXdata runs on freely available open-source tools. To run openXdata server you will need:

- Apache Tomcat 6 or 7
- MySQL

Hardware

The above software can run on a very low spec machine. OpenXdata has been successfully run on virtual machines with a 4GB hard drive and 384MB RAM running Ubuntu Linux (using Sun VirtualBox OSE). Any laptop or PC less than 5 years old with more than 1GB of hard disk free and 512MB RAM should be sufficient to run openXdata. However, a full hard drive or other programs running with intensive requirements may affect performance.

If you wish your phones to connect via GPRS you will require a public IP address. Contact your internet service provider to find about this service. They may call it "dedicated IP" or "static IP."

- If you are part of an organization you should discuss this with your IT team as if you don't know what you are doing, deploying openXdata could open up your computer network to the outside world. (This is not because of openXdata but because you are deploying a web-based service.)
- There are also Dynamic DNS services which can give you a static domain even if you have a dynamic IP. To use services like this at home, you may need to configure your internet modem / wireless router.

If you wish to use SMS to receive data you will need an SMS gateway/modem. This can be as simple as a phone connected to your server with a USB cable but there are also custom pieces of hardware that act as SMS gateways. The use of sms is currently not widespread throughout the openXdata community so we welcome contributions on experiences, set-up and use of sms.

Installing pre-requisites (Windows)

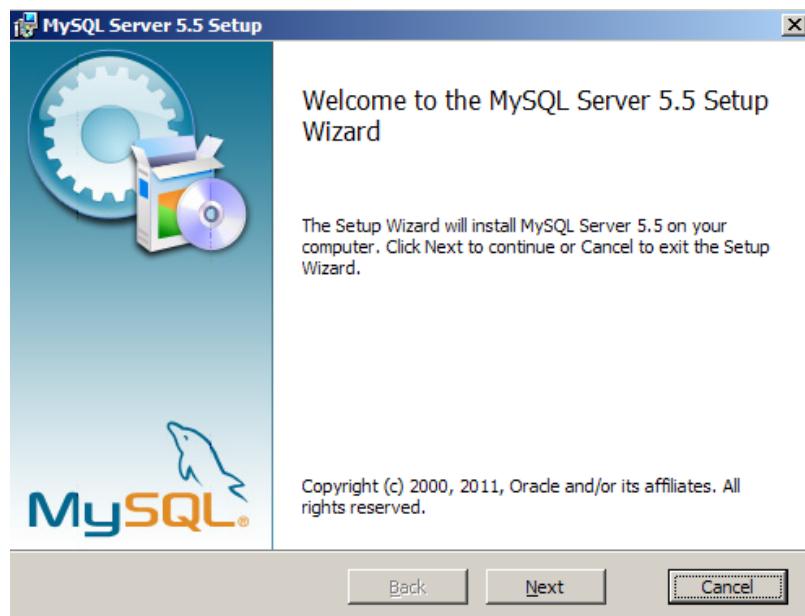
Installing MySQL & Tomcat on Windows.

Download MySQL Installer

MySQL is available to download from <http://dev.mysql.com/downloads/>

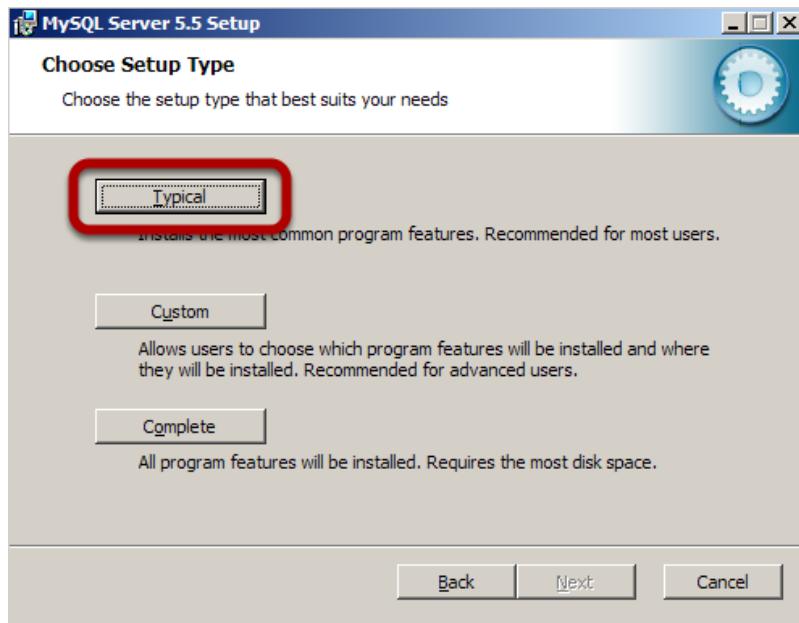
You can select the MySQL Community Server or the MySQL Installer for Windoes (All MySQL Products). The following instructions are based on MySQL Community Server (32-bit - MSI Installer)

Run MySQL Installer



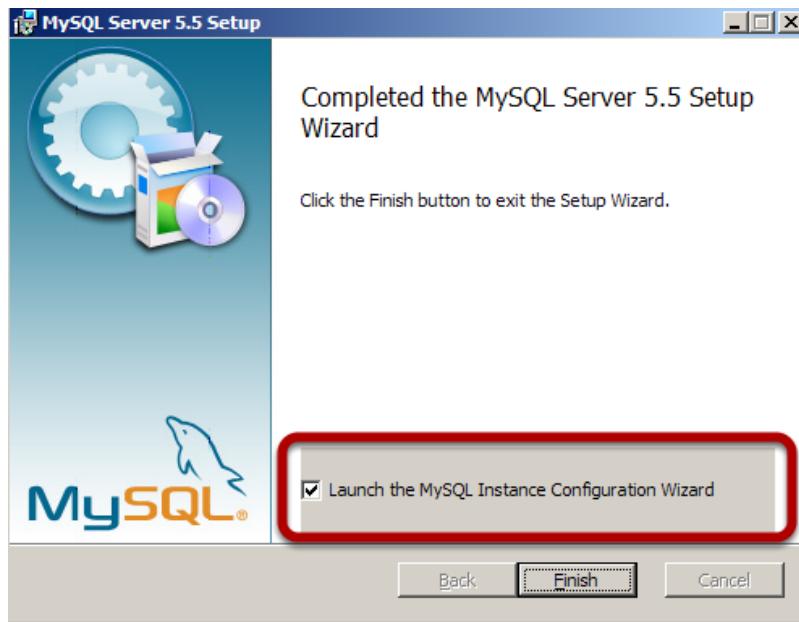
Click Next, and "Accept" the License Agreement

Typical Installation



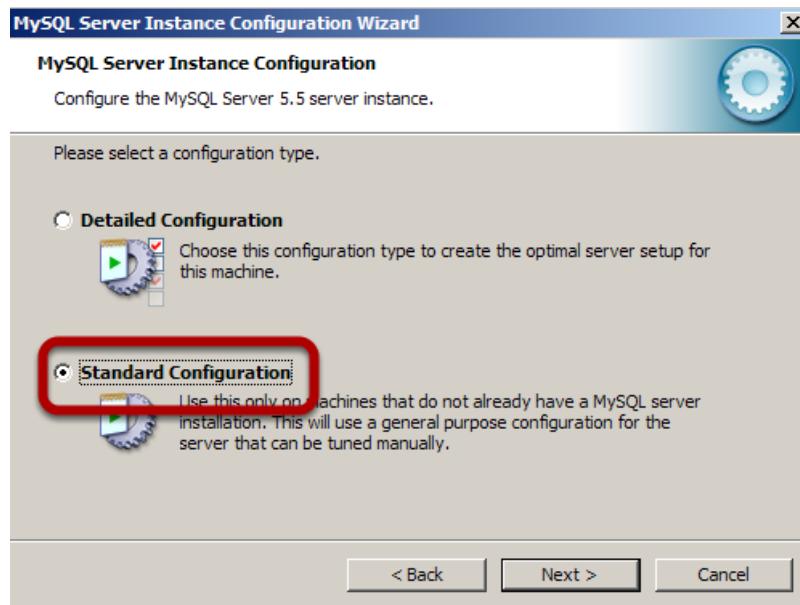
A "Typical" installation is fine for openXdata

Launch the MySQL Instance Configuration Wizard



Leave the checkbox ticked to Launch the MySQL Instance Configuration Wizard so that we can set our root password.

Use Standard Configuration unless



If you haven't set-up MySQL before, this will be fine.

Set the Windows Options



Ensure the settings are as shown.

Set your root password & save it



Enter a SECURE password for your root password. This password allows the user to control all of your MySQL including deleting any openXdata databases set-up. General rules of thumb for a good password:

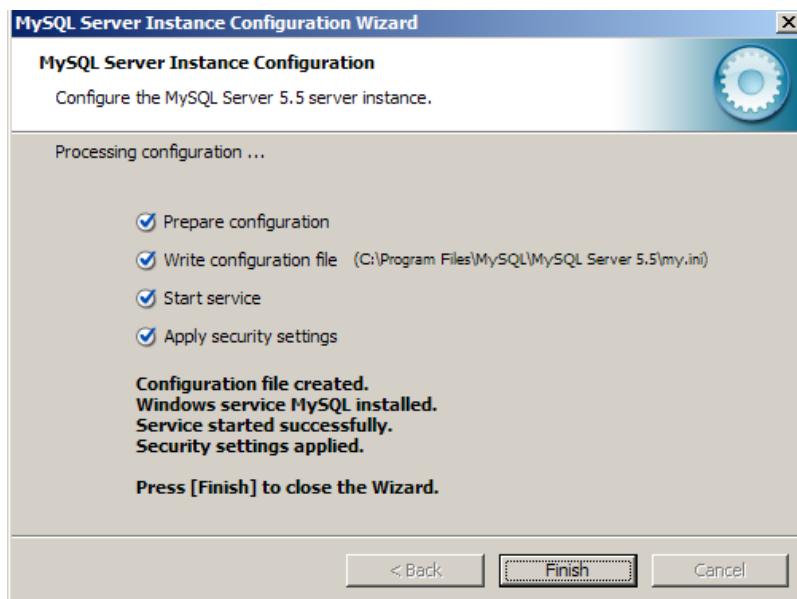
- At least 8 characters
- A mix of upper and lowercase
- Add in non-standard characters like *&!\$
- Use a random selection - do not use "openxdata" or op3nx4t4 or "password" or "p455word" etc.
- It should not be the same as any other password you use.

Leave "Enable root access from remote machines" unchecked. It is not needed for openXdata and reduces the opportunities for unauthorized access.

Do not create An Anonymous Account.

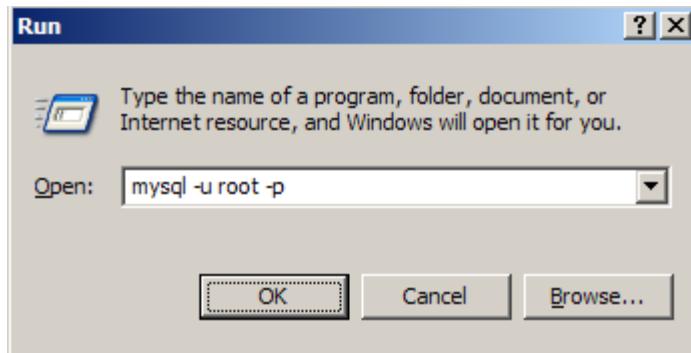
Write the password down for later use and KEEP IT SAFE. You will need it and you can end up completely locked out of your databases if you lose it.

Finish



MySQL will now run as a service on your windows machine. It should start automatically on boot.
To access services. Go to Control Panel -> Administrative Tools -> Services

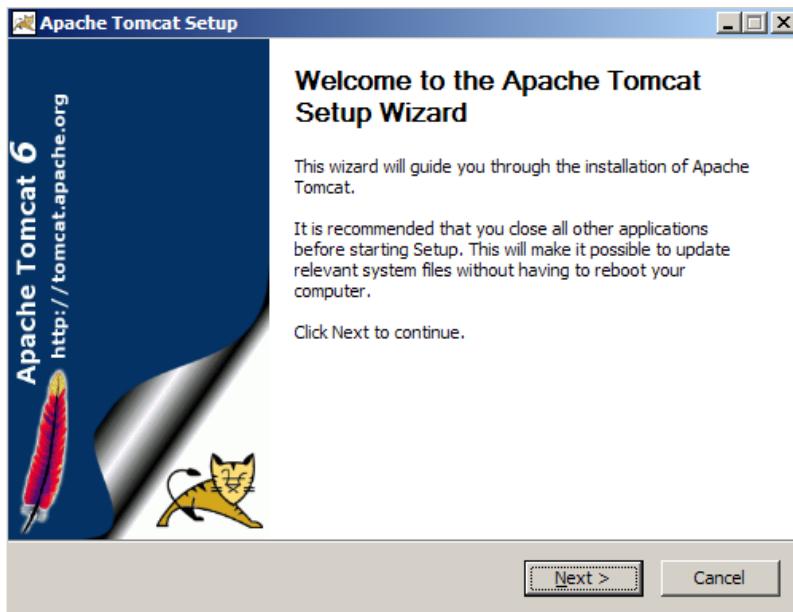
To access MySQL



To access MySQL, you have three options:

1. Start -> Run. For the root user, enter the command as shown above. For other users enter "mysql -u myuser -p"
2. Start -> Run then enter "cmd" From the command prompt you can then enter the commands as in option 1
3. In your programs menu, you should see an option MySQL Command Line Client

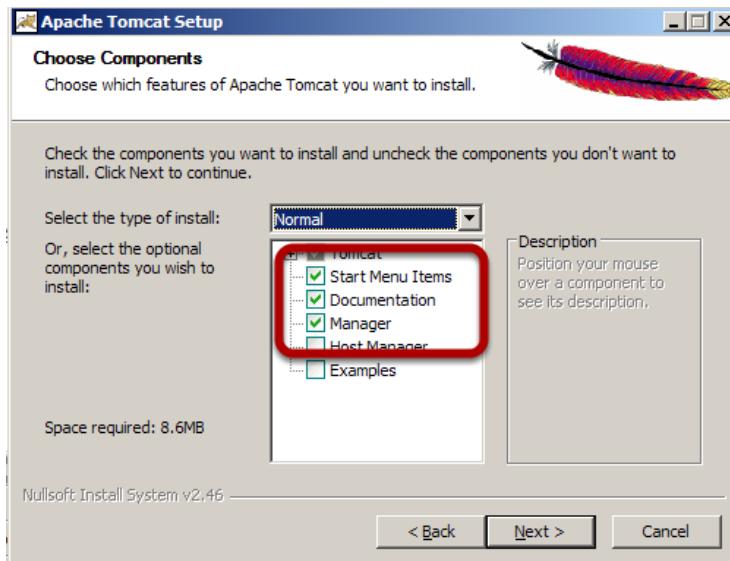
Download & Run Tomcat 6 Installer



From <http://tomcat.apache.org/download-60.cgi> download "32-bit/64-bit Windows Service Installer"

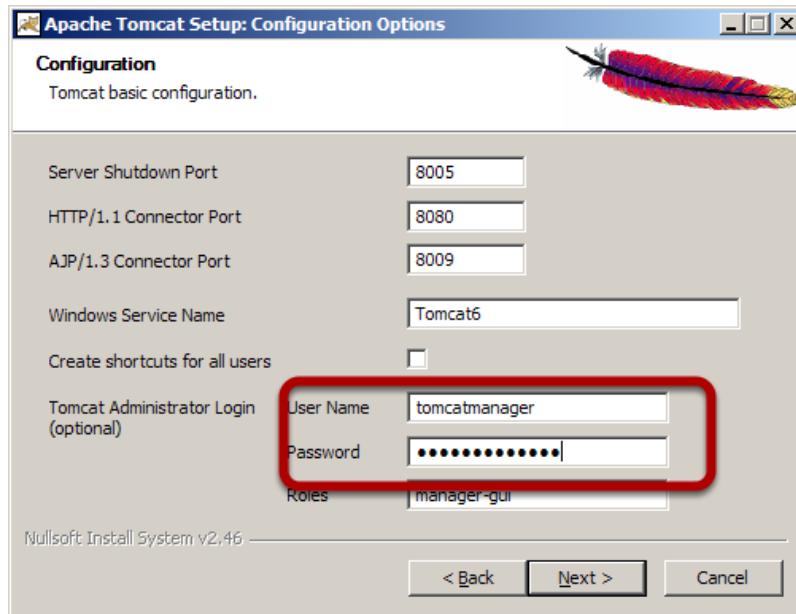
and run the downloaded .exe

Ensure that Manager is installed



Accept the License. Then, on the Choose Components screen, select a "Normal" Install and ensure that the Manager is installed. You do not need the Manager, but all subsequent openXdata tutorials explain deploying openXdata through the Manager interface.

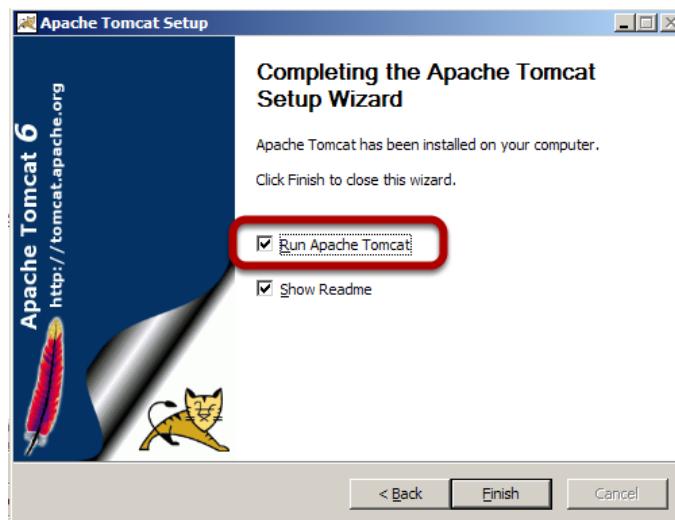
Set the Manager username and password



Choose a username and password for the tomcat manager. Again, make sure this password is unique and secure and note it down for use later. Keep it somewhere safe, but losing this password is less fatal than losing your MySQL root password.

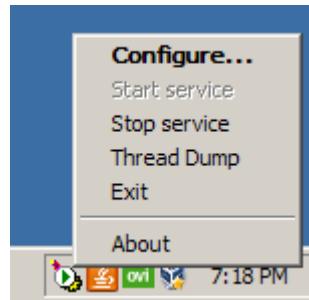
Leave the Roles unchanged from the default "manager-gui". All other defaults should be fine unless you want to run on a non-standard port.

Finish



You can leave the rest as defaults and install tomcat. Ensure that Run Apache Tomcat is selected and click Finish

Stopping and Starting Tomcat



Like MySQL, this process has setup tomcat as a service on your windows machine that you can access through the control panel.

In addition, by default, a tomcat status icon will appear in your System Tray. And by right clicking on the icon shown above you get a menu to start, stop or configure Tomcat.

Further Help

This tutorial was made in XP. For further assistance on setting up Tomcat or MySQL, please see their respective documentation at:

- Tomcat - <http://tomcat.apache.org/tomcat-6.0-doc/setup.html>
- MySQL - http://dev.mysql.com/usingmysql/get_started.html

Installing pre-requisites (Linux)

Installing MySQL & Tomcat on Ubuntu Linux

Installing MySQL

Full instructions regarding the install and running of MySQL can be found at the [MySQL home page](#). MySQL is a very widely used database and you should find many, many resources online.

In ubuntu, to install MySQL

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

During the installation process you will be asked to set a root password. For your own security:

1. do not leave this blank
2. do not set this to be the same as your computer's user or root password
3. make the password secure and keep it safe

Once installed, to access mysql type

```
$ mysql -u root -p
```

you will be prompted for your root password that you set during installation and you will then enter the mysql command line environment where you will be able to use commands to administer your mysql databases.

Installing Tomcat

Again, full instructions can be found on the apache tomcat website <http://tomcat.apache.org>. On Ubuntu, Tomcat and the Tomcat Web Application Manager (useful if you're not a fan of the command line) can be installed as follows:

```
$ sudo apt-get install tomcat6 tomcat6-admin
```

To use the Web Application Manager you will need to set-up a user to do this.

Browse to tomcat6 conf directory

```
$ cd /var/lib/tomcat6/conf
```

Edit the file tomcat-users.xml (you need to be root to do this on a default Ubuntu installation)

```
$ sudo nano -w tomcat-users.xml
```

Modify the file so it looks like this (replacing TOMCATUSER and PASSWORD for your own secure choices):

```
<tomcat-users>
    <role rolename="manager"/>
    <user username="TOMCATUSER" password="PASSWORD" roles="manager"/>
</tomcat-users>
```

On Ubuntu (this may vary by distribution), once tomcat is installed via the package manager apt (method described above), then you can access all the required folders through the folder /var/lib/tomcat

1. Tomcat logs (If you're having problems you may be asked for output from files in this folder)
- /var/lib/tomcat6/logs -> /var/log/tomcat6
2. Tomcat configuration (Find files to configure custom aspects of your tomcat setup such as custom port configuration) - /var/lib/tomcat6/conf -> /etc/tomcat6
3. Tomcat webapps directory (The directory where all your web applications live, including openXdata) - /var/lib/tomcat6/webapps

On Ubuntu to start and stop tomcat you will need sudoer privileges and the commands are:

To start tomcat

```
$ sudo /etc/init.d/tomcat6 start
```

To stop tomcat

```
$ sudo /etc/init.d/tomcat6 stop
```

To restart tomcat

```
$ sudo /etc/init.d/tomcat6 restart
```

If you do a manual installation by downloading the tomcat zip file from the tomcat website, when you unzip it all the the folders listed above will be found in whichever location you extract your zip file. To start/stop/restart tomcat from a manual installation use /path/to/tomcatfolder/bin and then startup.sh and shutdown.sh e.g.

```
$ cd /home/myhome/tomcat/bin
$ ./startup.sh
```

Creating MySQL database and user (All Platforms)

A run through of the command line steps required to add a new database and user for openXdata on your MySQL. A variety of graphical interfaces for MySQL exist for various platforms including MySQL Administrator and phpMyAdmin, there are a wide number of resources online to cover these programs.

Enter MySQL command line

Add a new user

```
mysql> CREATE USER 'myoxduser'@'localhost' IDENTIFIED BY 'securepassword';
```

Don't forget the ; at the end of the line. If successful, you will see:

- Query OK, 0 rows affected (x sec)

Add a new database

```
mysql> CREATE DATABASE myopenxdatadb;
```

Don't forget the ; at the end of the line. If successful, you will see:

- Query OK, 1 row affected (x sec)

Grant new user access to new database

```
mysql> GRANT ALL ON myopenxdatadb.* to 'myoxduser'@'localhost';
```

```
mysql> FLUSH PRIVILEGES;
```

Don't forget the ; at the end of the line. If successful, after each command you will see:

- Query OK, 0 rows affected (x sec)

Exit MySQL

```
mysql> quit
```

To confirm your setup worked re-enter MySQL as your new user

From the command line / command prompt:

```
~$ mysql -u myoxduser -p
```

(then enter the password created in step 2)

```
mysql> USE myopenxdatadb;
```

If you get the response "Database changed" then your setup has worked

Installating openXdata on your server or desktop (All Platforms)

If you have not done so already, follow the lessons on installing pre-requisites and setting up your MySQL database.

Pre-requisites

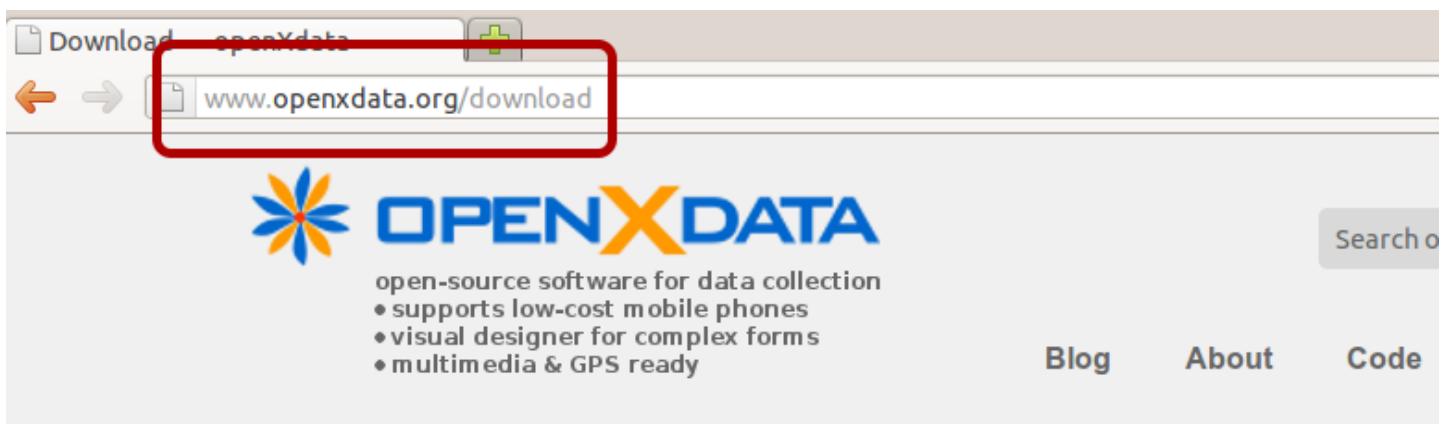
Installing v1.3.4 on a server or desktop requires:

1. MySQL installed with database and user set-up
2. Apache Tomcat Web Application Manager (or knowledge of how to manually deploy Tomcat Web Applications)
3. Knowledge of the location of the webapps directory for your Tomcat installation

The default location for the webapps directory is:

- Windows - C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps
- Ubuntu Linux - /var/lib/tomcat6/webapps

Download web application from openXdata Download Site



The screenshot shows the openXdata website's download page. At the top, there is a browser-like header with a 'Download' button, the 'openXdata' logo, and a search bar containing 'www.openxdata.org/download'. A red box highlights this search bar. Below the header is the main openXdata logo and the tagline 'open-source software for data collection'. It lists features: '• supports low-cost mobile phones', '• visual designer for complex forms', and '• multimedia & GPS ready'. To the right are links for 'Blog', 'About', and 'Code'. A 'Search' input field is also visible.

Download

openXdata comes in two parts, the openXdata server and the mobile phone client.

openXdata server v1.3.4

Installation instructions are available [here](#). Download this file and save as "openxdata.war"



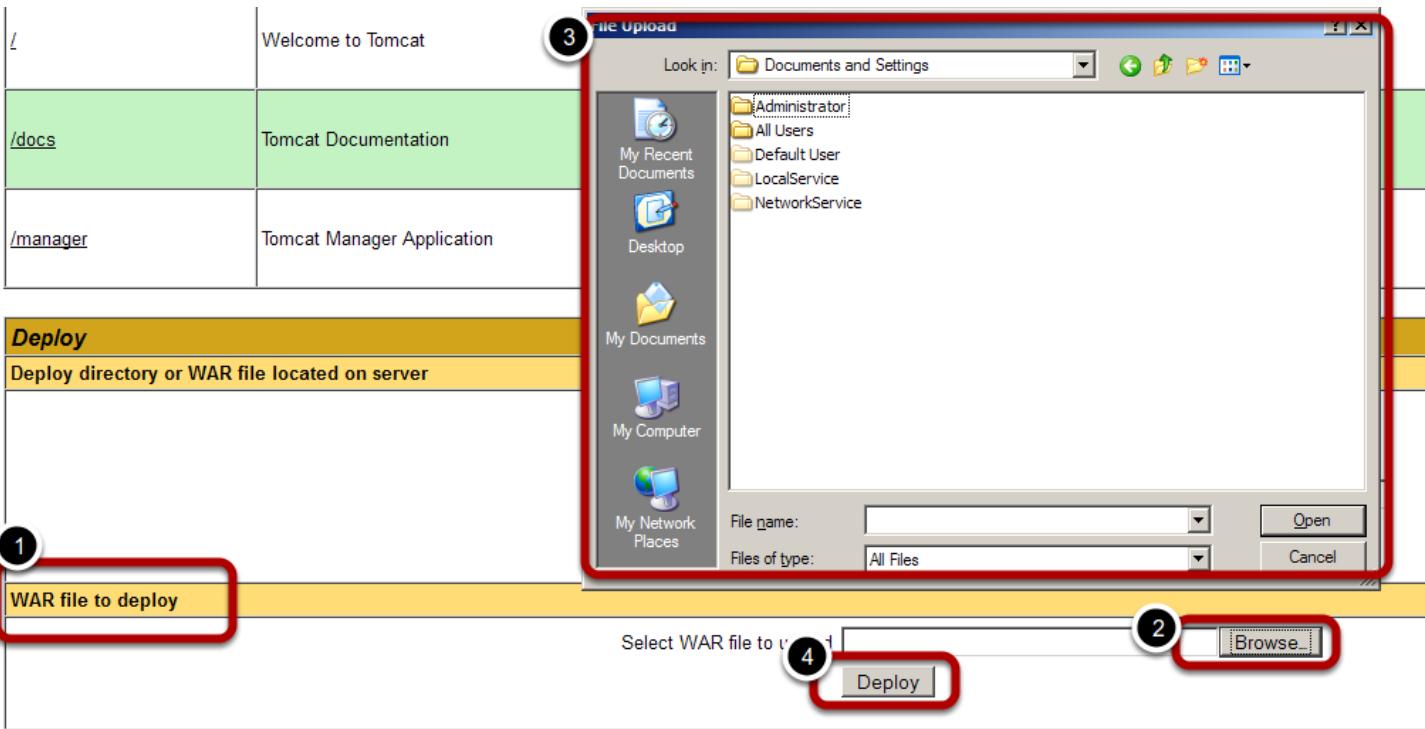
([Nightly Build](#) available at bottom of page)

openXdata mForms (mobile client)

Go to www.openxdata.org/download and select Download openXdata server 1.3.4. Then Save File As **openxdata.war** (you will need to change the file name from the default webapp-1.3.4.war).

By default, the name of the .war will correspond to your URL. For example, if I use openxdata.war, then my URL will be <http://www.myserver.com:8080/openxdata> or if I use the default webapp-1.3.4.war then my URL will be <http://www.myserver.com:8080/webapp-1.3.4>

Deploy openxdata.war in Tomcat Web Application Manager



Go to the Tomcat Web Application Manager at <http://localhost:8080/manager/html> (if you are remote from your server, replace localhost with your server IP address).

You will be asked for the username and password that you setup when you installed Tomcat.

1. Scroll down to the "WAR file to deploy" section
2. Select Browse
3. Locate the openxdata.war that you have saved
4. Click Deploy

Note, if you are deploying to a remote server it will take a while to upload the war (~40MB) to your server.

Application does not start - this is correct

Applications				
Path	Display Name	Running	Sessions	Commands
/		true	0	Start Stop Expire
/docs	Tomcat Documentation	true	0	Start Stop Expire
/examples	Servlet and JSP Examples	true	0	Start Stop Expire
/host-manager	Tomcat Manager Application	true	0	Start Stop Expire
/manager	Tomcat Manager Application	true	1	Start Stop Expire
/openxdata	OpenXData 1.3.4 (build 149)	false	0	Start Stop

Deploy	
Deploy directory or WAR file located on server	
Context Path (required):	<input type="text"/>
XML Configuration file URL:	<input type="text"/>

Once the .war has uploaded, the screen will refresh. You should see your new application, but it's Running status should be listed as "false." If it is true, you may already have a database on your system with the default openxdata settings. You can still follow the next steps to point your new openXdata instance at your new openxdata database.

Edit openXdata settings file

```

OPENXDATA_SETTINGS.properties ✘
1 #####
2 # DEFAULT OPENXDATA SETTINGS
3 #####
4
5 # Connection Properties
6 hibernate.connection.username=test
7 hibernate.connection.password=test
8 openxdata.database_type=mysql
9 hibernate.connection.driver_class=com.mysql.jdbc.Driver
10 hibernate.connection.url=jdbc:mysql://localhost:3306/openxdata?
    autoReconnect=true&useUnicode=true&characterEncoding=UTF8
11
12 #Exporter connection properties
13 exporter.host=localhost
14 exporter.port=3306
15 exporter.database=openxdata
16 exporter.username=test
17 exporter.password=test
18
19 # Hibernate specific connection/debug properties
20 hibernate.show_sql=false
21 hibernate.format_sql=true
22 hibernate.lazy=true
23 hibernate.dialect=org.hibernate.dialect.MySQLDialect
24 hibernate.connection charset=UTF8

```

The code block shows the contents of the `OPENXDATA_SETTINGS.properties` file. Three specific lines are highlighted with red boxes and numbered circles: 1) Line 6: `hibernate.connection.username=test`, 2) Line 10: `hibernate.connection.url=jdbc:mysql://localhost:3306/openxdata?`, and 3) Line 15: `exporter.database=openxdata`.

Next, go to the tomcat webapps folder. You will find a new directory `openxdata`, named because of the name of the file `openxdata.war`. Go into that directory, and you will find the file `OPENXDATA_SETTINGS.properties`. On a default windows installation, you will be able to open it in Notepad. On a default Ubuntu Linux installation, you will be able to open it in gedit, but you will need administrative/sudo/root permissions in order to edit it. (If you don't have administrative privileges on your server, consider installing tomcat in a non-standard directory).

In the `OPENXDATA_SETTINGS.properties` file, you need to enter the name of database, the database user and the user's password. Each needs to be entered twice in the places shown in 1,2 and 3. For #2 replace only the `openxdata` with the name of your database, make sure the line still reads `__localhost:3306/databasename?autoReconnect__`.

Once you've made the changes, save the file in its original location.

Start your web application

/manager	Tomcat Manager Application	true	1	Start Stop Expire sessions
/openxdata	OpenXData 1.3.4 (build 149)	false	0	Start Stop Expire sessions

Return to the Tomcat Web Application Manager and on the row for your web application, click Start (Click "Yes" to "Are you sure?" prompt.).

The first time you start openXdata it may take a few minutes as a new database has to be built.

All OK, Go to your new openXdata

TOMCAT WEB APPLICATION MANAGER

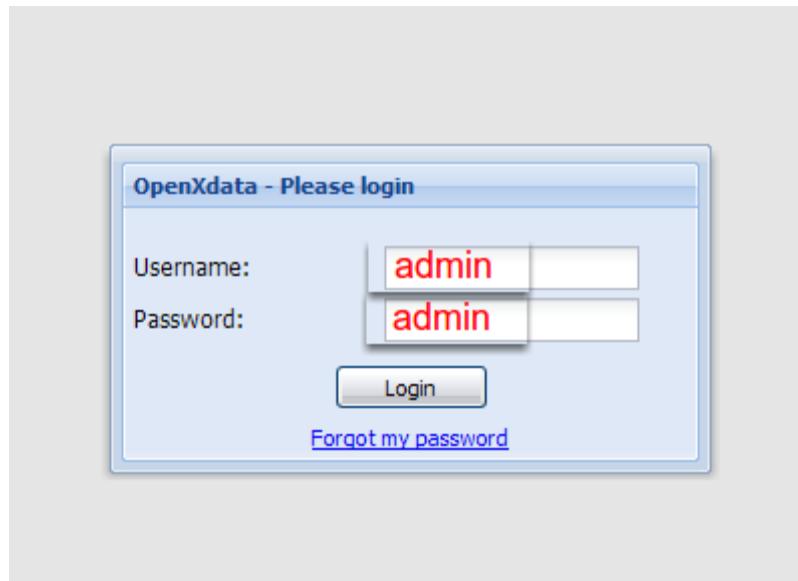
Message:	OK - Started application at context path /openxdata 1			
Manager				
List Applications		HTML Manager Help		Manager Help
Applications				
Path	Display Name	Running	Sessions	Commands
/		true	0	Start Stop Reload Expire sessions
/docs	Tomcat Documentation	true	0	Start Stop Reload Expire sessions
/examples	Servlet and JSP Examples	true	0	Start Stop Reload Expire sessions
/host-manager	Tomcat Manager Application	true	0	Start Stop Reload Expire sessions
/manager	Tomcat Manager Application	true	1	Start Stop Reload Expire sessions
3 /openxdata	OpenXData 1.3.4 (build 149)	true	2 0	Start Stop Reload Expire sessions

The Tomcat Web Application Manager page should refresh

1. Check the Message to see that it says "OK - Started application..."
2. Your web application will now be listed as "true" under the column Running.

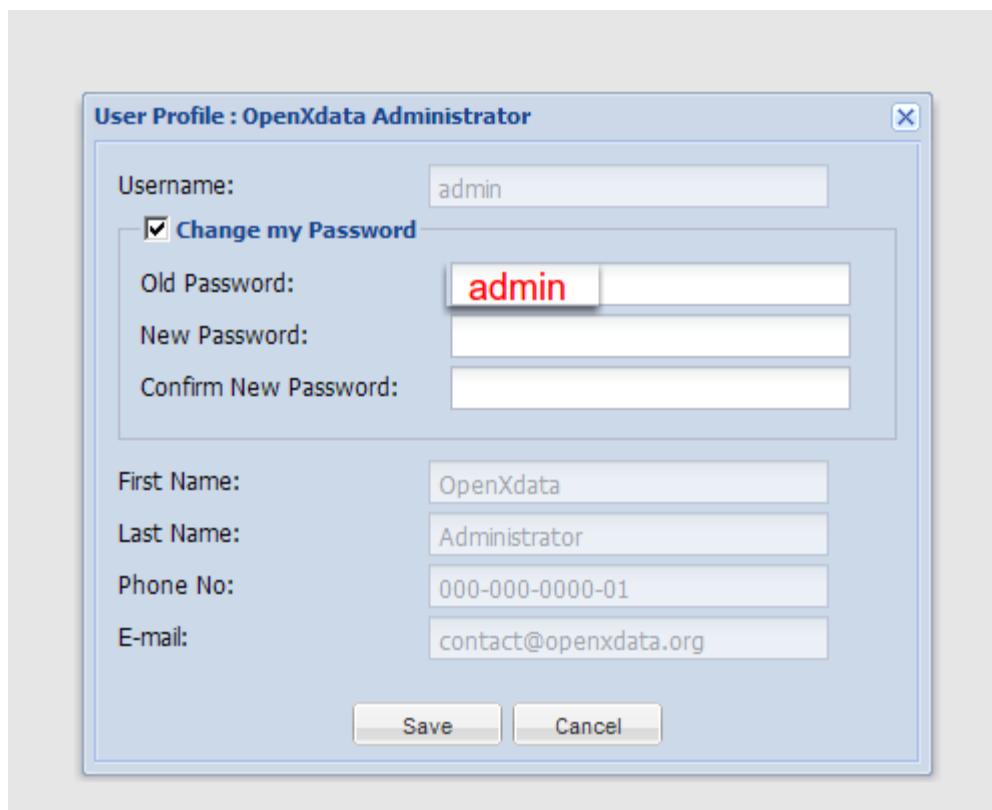
3. Click the link to go to your new instance of openXdata

Default username & password



By default the username and password to openXdata are admin / admin

First time login - change admin password



Enter a new password for the admin user. If you do not you will continue to get warnings every time you log in to openXdata.

Later if you do not wish to use the default admin user, you can disable it. See section on managing users for further information.

Video



The video shows the above process along with creating a new database and user in MySQL on Ubuntu Linux. The steps in the Tomcat Web Application Manager are the same for Windows and Linux systems.

Running multiple openXdata servers

Running multiple openXdata servers on the same tomcat installation is easy.

You may want to do this for a variety of reasons. For example, you have two teams running two completely separate data collection projects with two different sets of users and two project administrators. If you run these on one openXdata server, which is perfectly possible you would need to give both of the project administrators permissions to manage users and they could accidentally modify a user of the other project. To avoid this we just give them their own kingdom.

To install a new openXdata instance the steps are exactly the same as for installing your first openXdata instance.

The main change is that before you start, you should rename your openxdata.war file to the name you would like for your new instance. For example if you would like to run 3 instances at:

- http://my-public-ip:8080/project1
- http://my-public-ip:8080/project2
- http://my-public-ip:8080/project3

make 3 new openXdata.wars called project1.war, project2.war, project3.war

You must create separate MySQL databases for each openXdata instance and, ideally, separate users for each database (to enhance security).

Then when it comes to editing your OPENXDATA_SETTINGS.properties file, you will find the file under each instances webapps folder. For instance, in Ubuntu linux: the properties file for project1 would be found at

/var/lib/tomcat6/webapps/**project1**/OPENXDATA_SETTINGS.properties; for project 2 at /var/lib/tomcat6/webapps/**project2**/OPENXDATA_SETTINGS.properties and so on.

Language support

Forms

It is possible to design forms in many different languages and scripts. If your language has non-roman characters, you should make sure your database must be set-up to handle the storage of your character set. UTF8 works well.

To enable support for other encoding formats, the OPENDATA_SETTINGS.properties file has to be changed to reflect the desired encoding format the user wishes to use.

The OPENXDATA_SETTINGS.properties file, found under your webapp directory, can be changed like this.

- hibernate.connection.url=jdbc:mysql://localhost:3306/openxdata?autoReconnect=true&useUnicode=true&characterEncoding=UTF8
- hibernate.connection.createdb.url=jdbc:mysql://localhost:3306/?autoReconnect=true&useUnicode=true&characterEncoding=UTF8

Please note that we are appending/changing these two parameters in each URL:

- &useUnicode=true
- &characterEncoding=UTF8

That will enable the system to run with the specified character encoding.

With table settings set to utf8_unicode, urdu characters have been successfully downloaded onto a phone, entered as free text data, uploaded to the database and viewed in dashboard.

Important to Note

Some MySQL database versions might not be able to support the specified encoding format. Be sure to cross check that the version of MySQL supports the encoding format specified or else the system will not start.

Mobile client

It is also possible to translate the mobile client using the menu_forms.properties text file. This has been tested in spanish and found to work, but did not work when briefly tested in Urdu (similar to the Arabic character script).

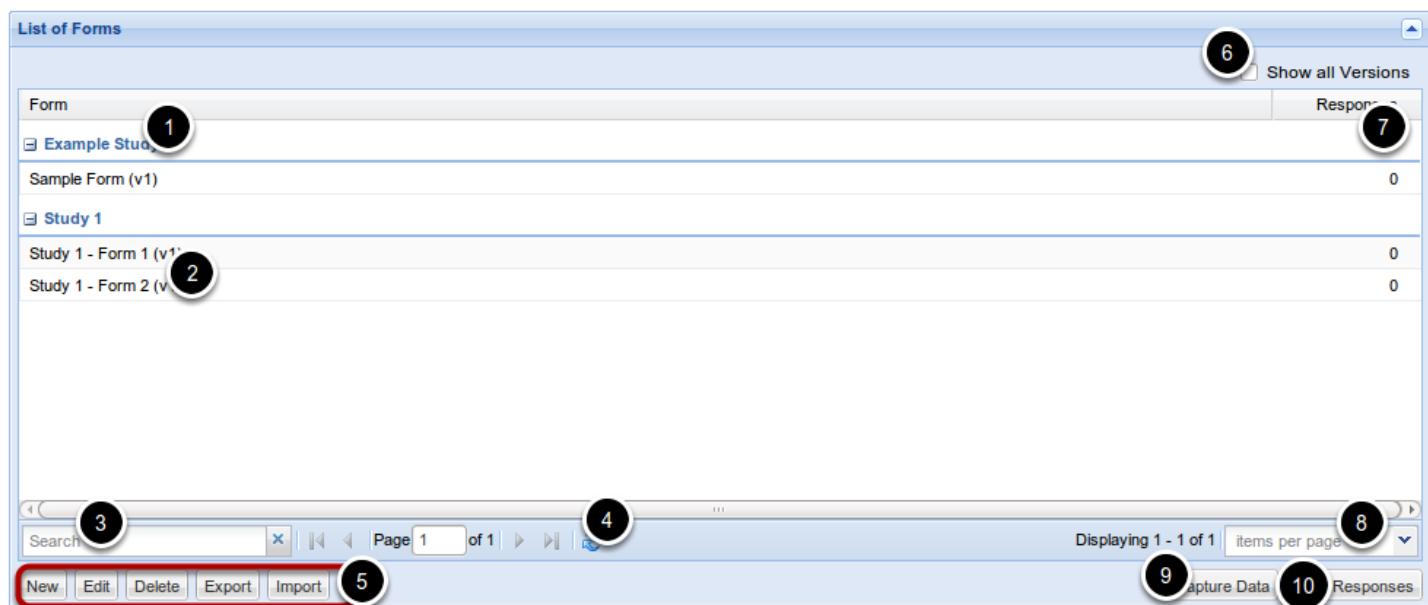
Forms - Management

Form Management Features

In openXdata, forms are grouped into Studies. You can have one study with many forms, or many studies with many forms. Users can be assigned to Studies, the whole group of forms, or individual forms (details in User Management). Forms can have versions. If you wish to change your form *after* you've started collecting data into it, you must create a new version - openXdata will prompt you.

On the web dashboard, after logging in, the first screen a user sees is a list of studies they have access to, by clicking on a study, they then see the list of forms in the study.

List of Forms box



The screenshot shows a 'List of Forms' interface with the following elements:

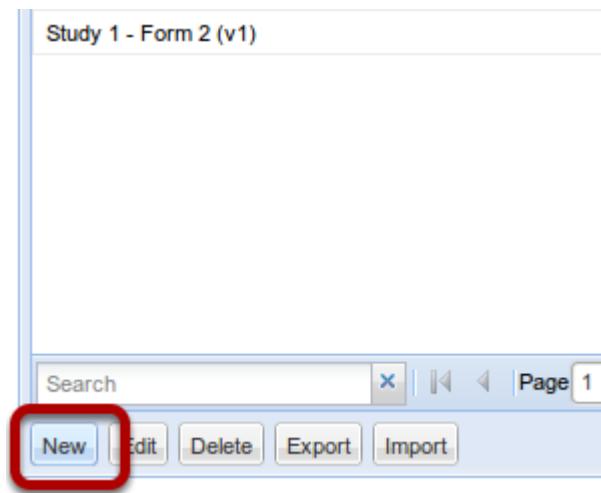
- Header:** 'List of Forms' (top left), 'Show all Versions' (top right).
- Form Headers:** 'Form' (top left), 'Responses' (top right).
- Study Headers:** 'Example Stud...' (Study 1) and 'Study 1' (Study 2).
- Form Details:** 'Sample Form (v1)' (Responses: 0), 'Study 1 - Form 1 (v1)' (Responses: 0), and 'Study 1 - Form 2 (v1)' (Responses: 0).
- Search Bar:** 'Search' (with a magnifying glass icon) and a dropdown menu.
- Page Navigation:** 'Page 1 of 1' with arrows and a refresh button.
- Bottom Buttons:** 'New', 'Edit', 'Delete', 'Export', 'Import' (highlighted with a red border), 'Capture Data' (with a camera icon), and 'Responses'.
- Callouts:** Numbered circles 1 through 10 point to specific UI elements: 1 (Study header), 2 (Group of Forms), 3 (Search bar), 4 (Page navigation), 5 (Import button), 6 (Show all Versions), 7 (Responses column), 8 (Items per page dropdown), 9 (Capture Data), and 10 (Responses button).

1. Study header - Note this is not selectable, for many activities you need to have selected a form
2. Group of Forms
3. Search by Form Name (not Study Name)
4. Refresh the list of Forms - (including the number of responses)
5. Form Actions
6. Show All Versions - allows you to see "Unpublished Forms"
7. Responses column
8. Change the number of forms loaded per page
9. Capture Data
10. View Responses

Form Actions - New (Study, Form or Version)

Clicking on "New" in the Form Actions area allows you to create a New Study, Form or Form Version. The Wizard can also be used to edit User access (covered in User Management). NOTE: As of 1.8.4, the Wizard does not allow you to create a new Form Version - see "Edit" for how to create a new Form Version.

Start the Wizard



Click New

openXdata can auto-populate some fields if you know which Study or Form you want to add to.
Before clicking New

- Select any Form within a Study Group, to autopopulate the Study
- Select the exact Form you wish to add to to autopopulate the Form

Add a new Study, or select existing study to add a new Form

New Study, Form or Version (Step 1 of 3)

Add a new study

Study Name

Study Description

Or, select an existing study

Study Name

Study Description

Set User Access To Study (changes are saved immediately)

Next >> **Cancel**

Note "Next >>" is greyed until you select one or other option.

Add a new Study

1 Add a new study

2 Study Name

3 Study Description

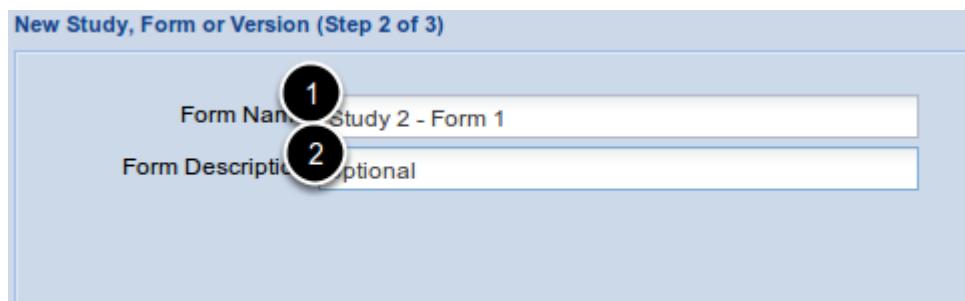
Or, select an existing study

1. Click Add a new study
2. Enter Study Name - Note if you enter a Study name that already exists, an error will appear
3. Optional - Enter a Study Description

Click Next to advance to the Next step - note you must add a New form, you cannot add a Study without a form

Add a new Form

New Study, Form or Version (Step 2 of 3)



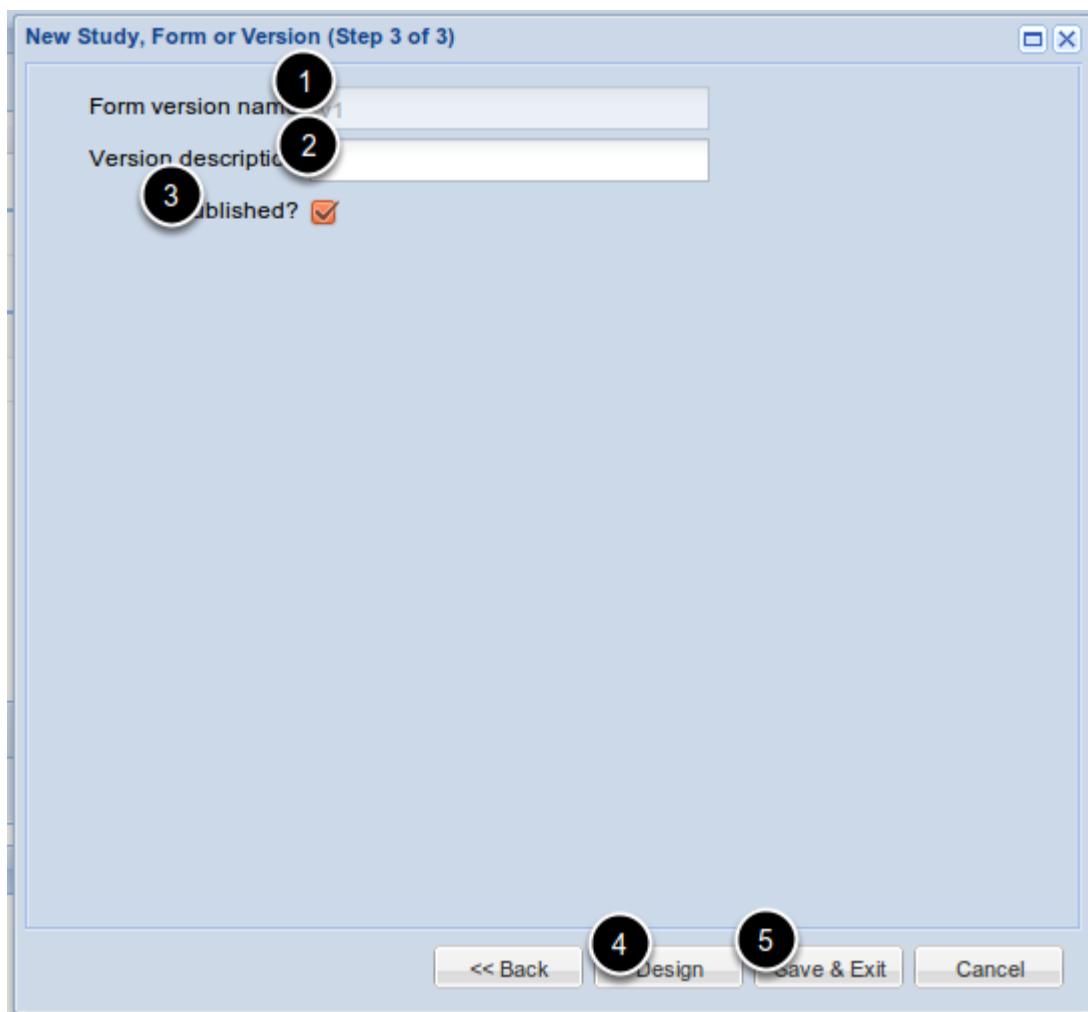
Form Name	Study 2 - Form 1
Form Description	Optional

1. Enter Form Name
2. Optional - Enter Form description

Note you can have a Form with the same name as a Form from another Study. But you cannot repeat form names within a study.

Click Next to create a New version - you must add a Form version.

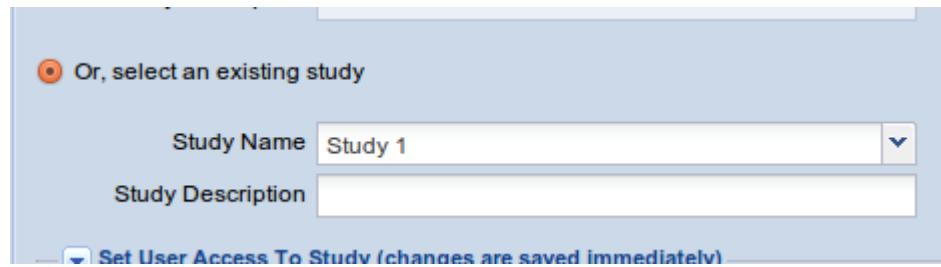
Add a new Version



1. The Form version name e.g. v1, v2, v3 is automatically created for you, you cannot edit it
2. Optional - Add a description of the form version
3. Select whether the form is Published* or not
4. Select "Design", to go straight to designing the form, your new Study, Form, and Version will be Saved
5. Select "Save & Exit" to return to the Dashboard

*See Glossary for explanation of Published and Unpublished forms

Add a form to an Existing Study



① Or, select an existing study

Study Name: Study 1

Study Description:

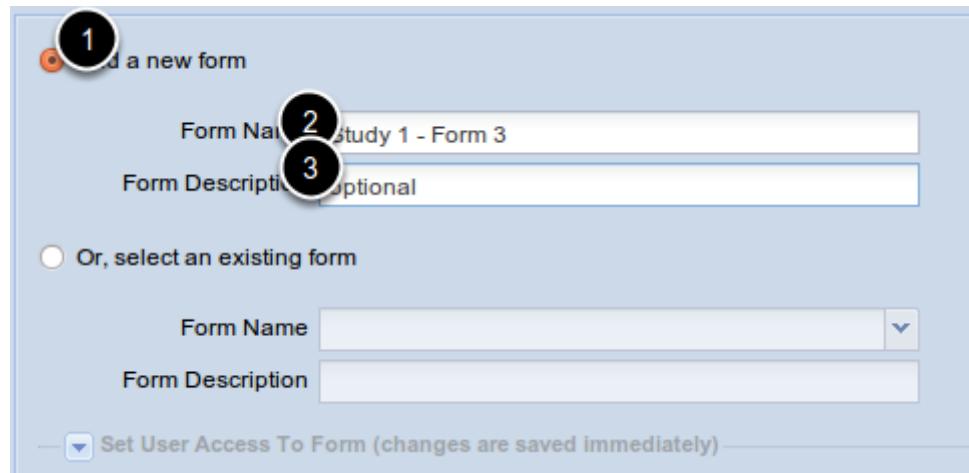
[Set User Access To Study \(changes are saved immediately\)](#)

Optional - Select a form (by clicking the form row) in the existing Study that you want to add a Form to

Click the "Or, select an existing study" button and select the Study Name from the dropdown box.

Click Next

Add a new Form



① Add a new form

Form Name: study 1 - Form 3

Form Description: Optional

Study Name:

[Set User Access To Form \(changes are saved immediately\)](#)

1. Select Add a new form
2. Enter a form Name - must be unique within the study or you will receive an error
3. Optional - enter a form description

If you select "Or, select an existing form" you will create a new form version - however this is broken in 1.8.4 - use "Edit" to create a New Form Version

Form Actions - Edit (Study, Form or Version)

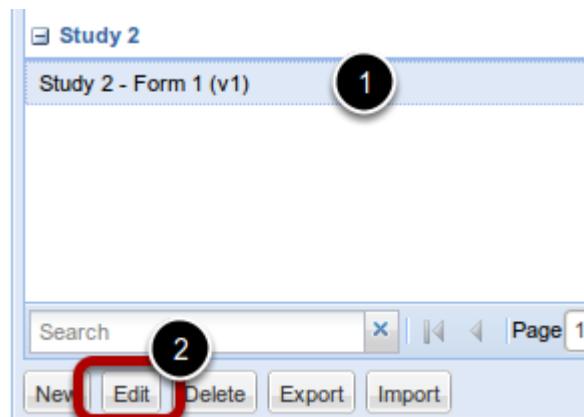
With the Edit function you can:

- Go to the Form Designer
- Publish or Unpublish form Versions
- Change the names and descriptions of the Study, Form, and Form Version
- Change the User permission for the Study and Form

The Wizard follows the same pattern as the New function - Study, Form, Form Version - but each window has a shortcut to go straight to the Designer for the Form you selected, as this is the most common reason to use the Edit Button.

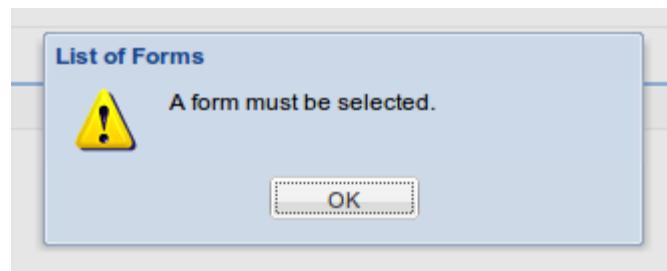
NOTE: The first time you Design a form by opening the Form Designer, the form_binding (see Glossary) is set. It is not advisable to change a form_binding once it is set

Start the Wizard



1. Select a form by clicking its row
2. click Edit to start Wizard

You must select a form



If you do not select a row, you will see this error message

Go straight to Designer, or edit Study properties

Edit Study, Form or Version (Step 1 of 3)

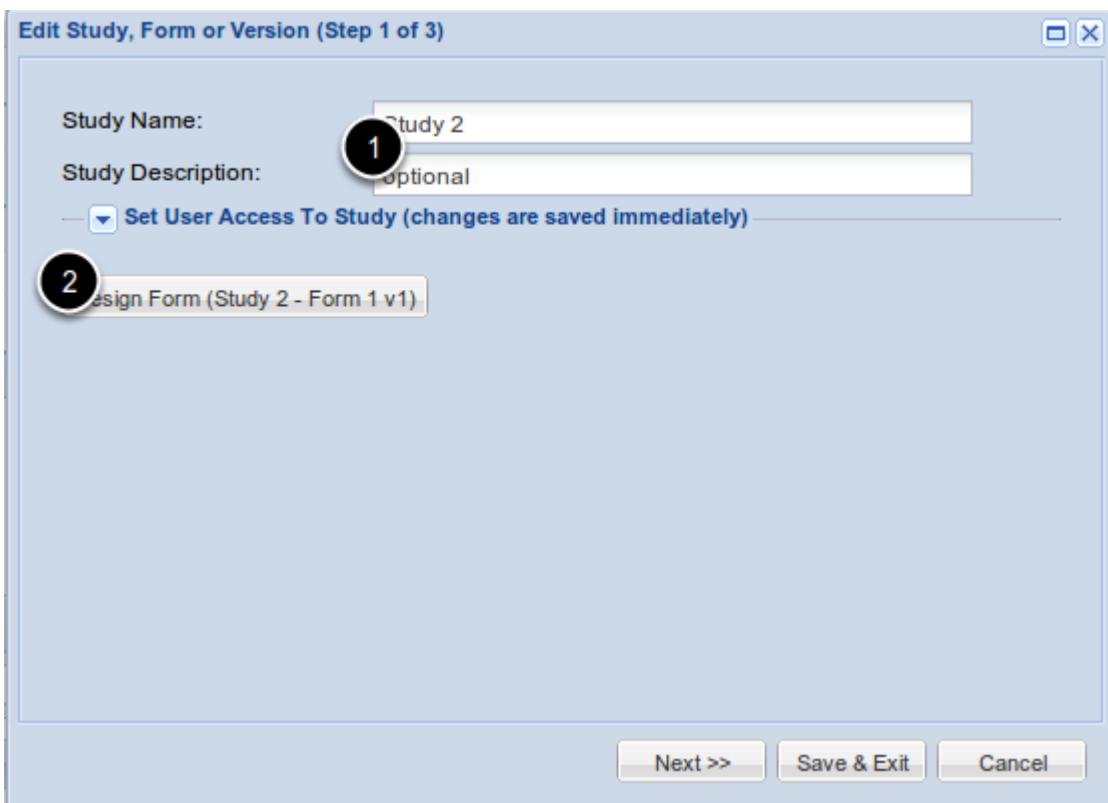
Study Name: **Study 2** 1

Study Description: optional

Set User Access To Study (changes are saved immediately)

2 Design Form (Study 2 - Form 1 v1)

Next >> Save & Exit Cancel



1. Edit the Study properties for the study of the form you selected
2. Or, go straight to designing the form you selected

Go to Designer, or edit Form properties

Edit Study, Form or Version (Step 2 of 3)

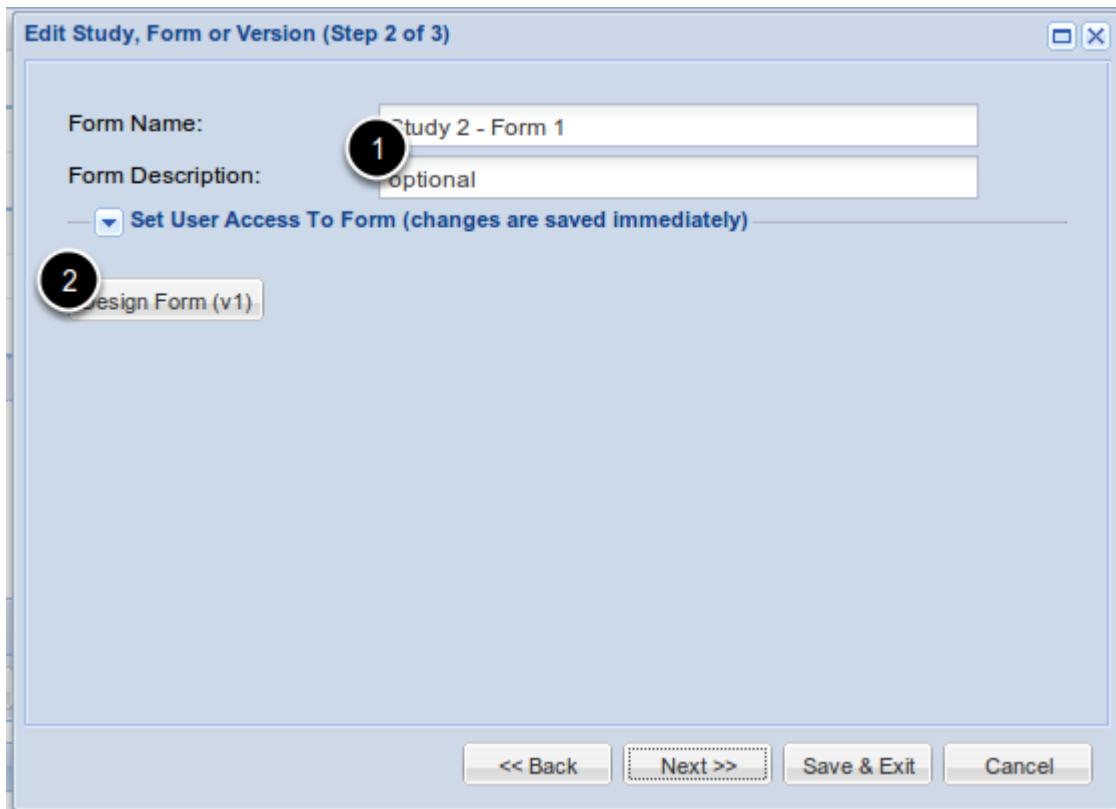
Form Name: 1

Form Description:

Set User Access To Form (changes are saved immediately)

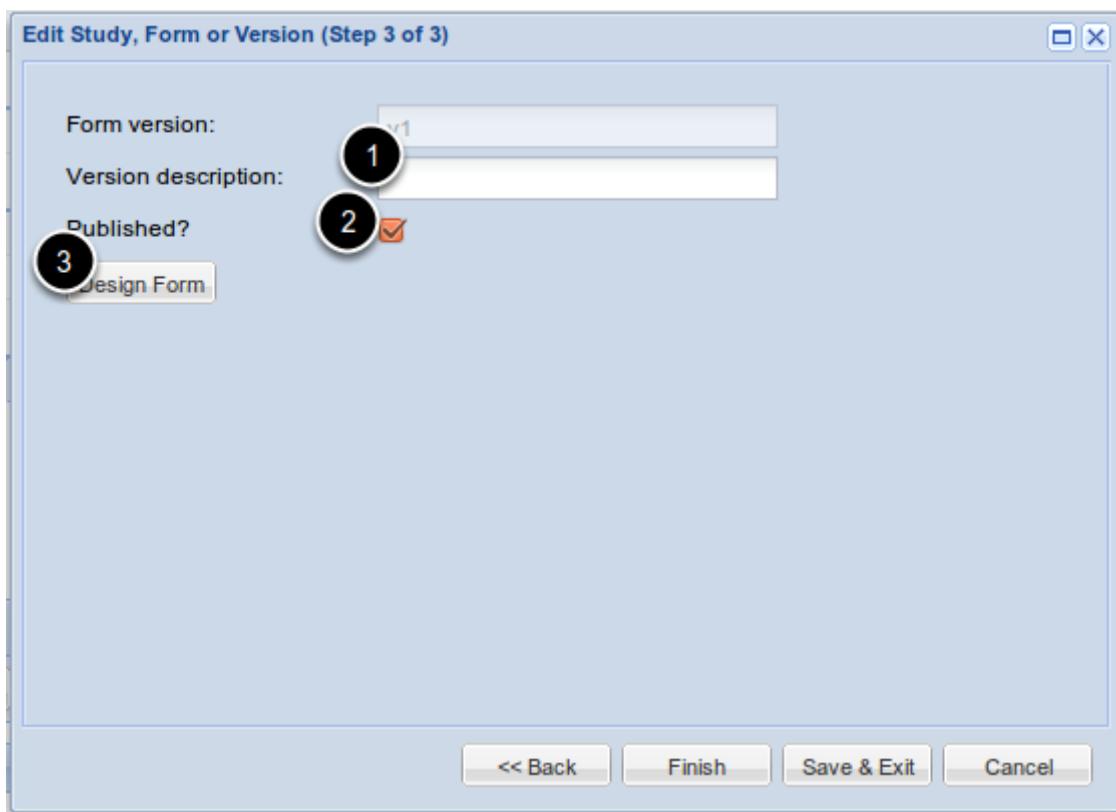
2 Design Form (v1)

<< Back Next >> Save & Exit Cancel



1. Edit the Form properties for the study of the form you selected
2. Or, go to designing the form you selected

Go to Designer, edit or publish Form Version



1. Edit the Form properties for the study of the form you selected
2. Uncheck to Unpublish* the form
3. Or, go to designing the form you selected

* See Glossary for explanation of published & unpublished

Form Actions - Delete (Study, Form or Version)

It is not possible to delete a form or study which has data in it.

Select a row to begin deletion



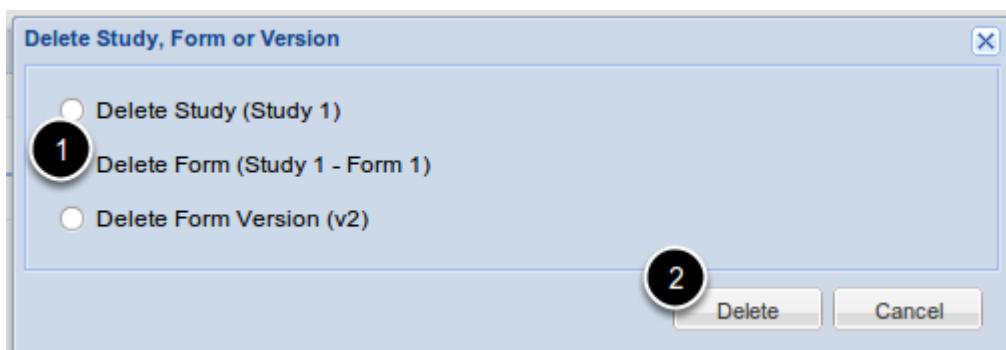
The screenshot shows a list of items under a heading 'Study 1'. The list contains the following entries:

- Study 1 - Form 1 (v1)
- Study 1 - Form 1 (v2) [red arrow pointing to this item]
- Study 1 - Form 2 (v1)

If you want to:

- Delete a specific form **version** - select the row corresponding to that version
- Delete a specific **form** - select any version of that form
- Delete a **study** - select any row in the study

Select & delete required element

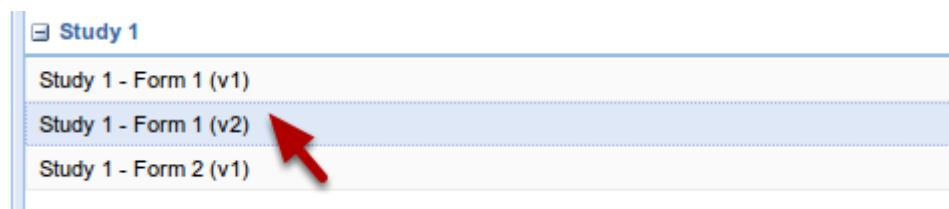


Form Actions - Export (Study, Form or Version)

The Export function allows you to save a complete xml file to your computer which contains all the information about your Study, Form or Version definition. It is useful for users to be able to back up their Study and Form designs (without needing to go into the openXdata database) and for sharing Studies and Form templates with others.

This does NOT export your data. To export Data, use the View Responses dialog.

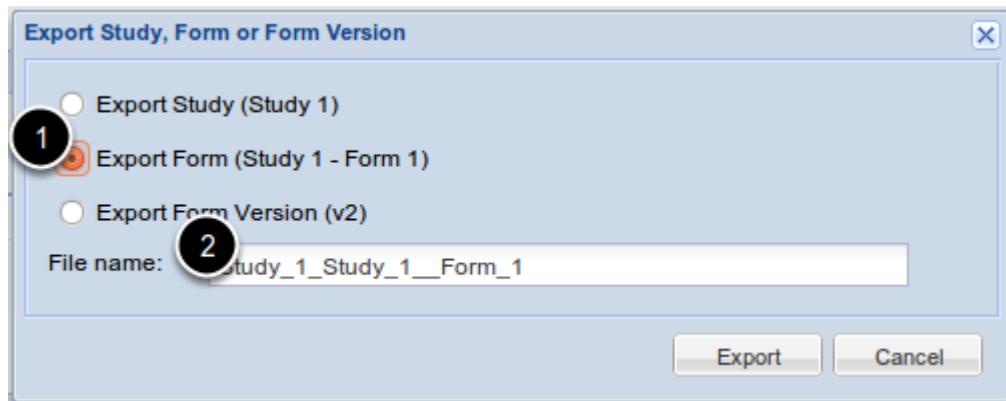
Select a row to begin export



If you want to:

- Export a specific form **version** - select the row corresponding to that version
- Export a specific **form** - select any version of that form
- Export a **study** - select any row in the study

Export



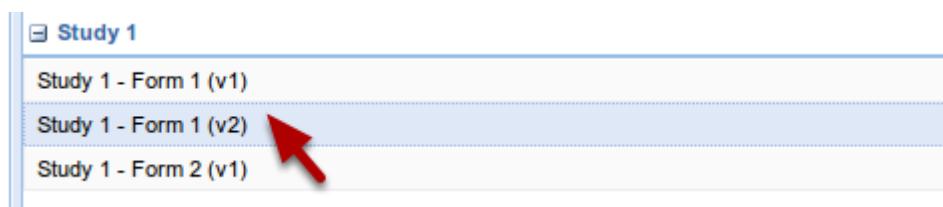
1. Select which element you'd like to Export
2. Optional - change the default download name

Click Export to save to your computer

Form Actions - Import (Study, Form or Version)

You can use the Import functionality to bring in studies, forms or form versions from work done elsewhere.

Select a row to begin import



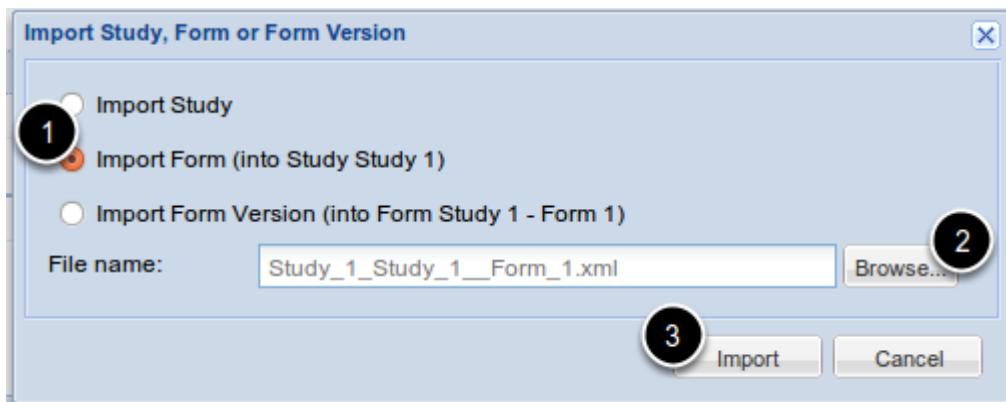
The screenshot shows a list of items under a category named 'Study 1'. The items listed are 'Study 1 - Form 1 (v1)', 'Study 1 - Form 1 (v2)', and 'Study 1 - Form 2 (v1)'. The 'Study 1 - Form 1 (v2)' item is highlighted with a red arrow pointing to it, indicating it is selected for import.

If you want to:

- Import a specific form **version** - select any version of that form
- Import a specific **form** - select any row in the study
- Import a **study** - select any row

(Note this is different to Delete and Export)

Select what to import and find file



- Select where you want the import to go to
- Select Browse to find the file on your local machine
- Import

Note: If you have mismatched your destination and the xml then you will receive an error message. For example, if you have previously exported a form *version*, but have asked to import a *study* in the above dialog - the error message "This is a Form version, not a Study. Try "Import Form version" instead." will appear

Warning about importing items with the same names as existing items

List of Forms	
Form	Responses
Example Study	
Sample Form (v1)	1
Sample Form (v1)	1

In 1.16, if you export a Study or a Form from your database, and then re-import that study or form immediately, duplicate forms will be created.

These duplicate forms will be given a unique form_definition_version_id and so they will appear as two separate rows in your List of Forms, as shown above.

When you Capture data, that data will be captured under the separate form_definition_version_ids and so each form will have its own count, as shown in the above picture.

However, if that form had the same form binding as the original form, then it will attempt to export data to the same table as the first form. This will result in either data not being able to be exported if you change a form, or the confusing picture below where two rows of data are shown where only one is expected.

Audit details					
	Date	Capturer	patient_id	title	first
1	2 Aug 2012 21:49:27	admin			
2	2 Aug 2012 21:49:41	admin	12345AB		

You should take care when importing a Form or Study that openXdata is going to do what you expect.

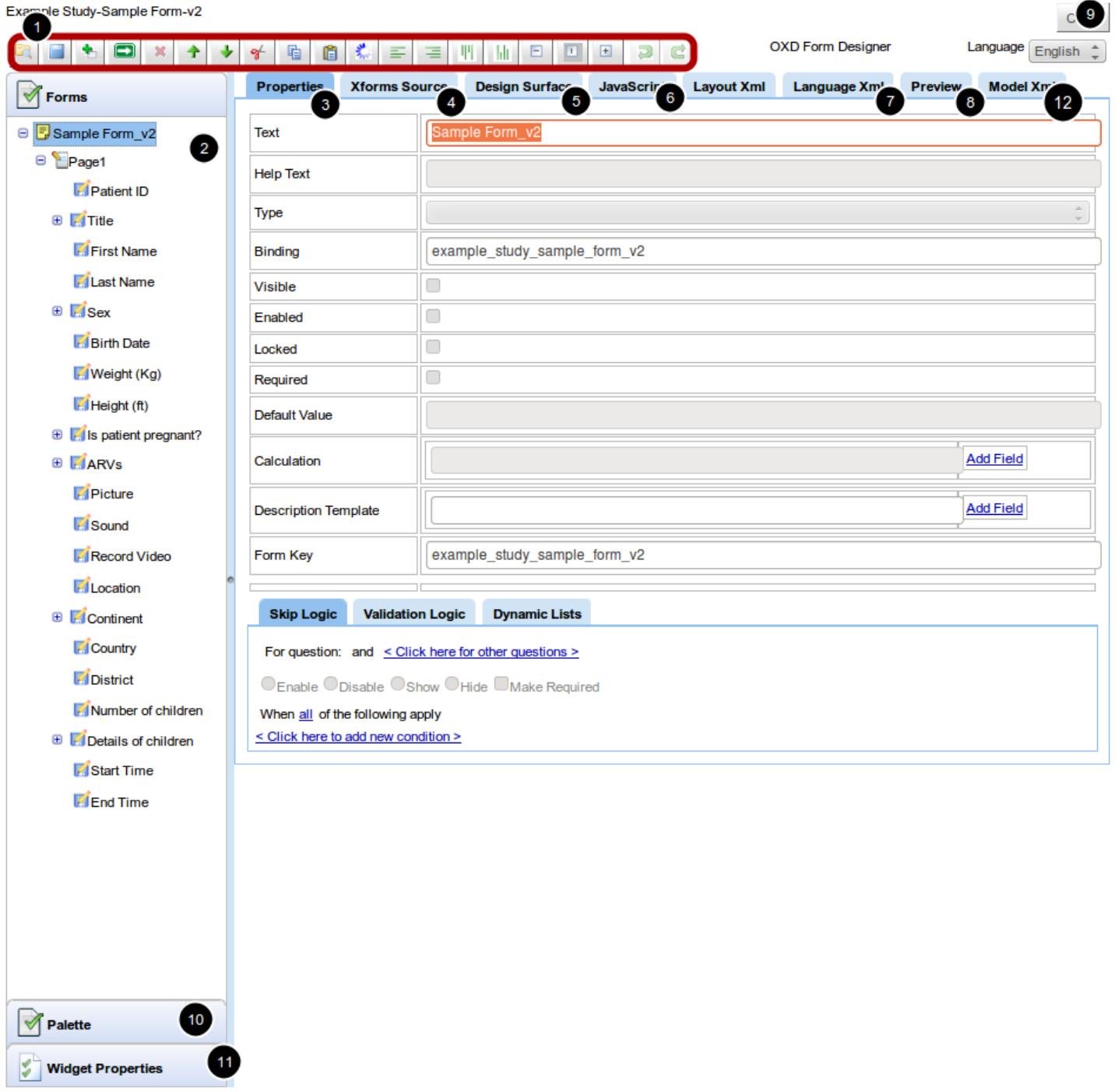
A ticket has been raised about this issue [here](#) and will hopefully be fixed in future versions.

Additional information on how openXdata stores your data is available in "[How openXdata stores your data](#)"

Forms - Designing

Introduction to the Form Designer & the Properties Tab

Parts of the Form Designer



After you select to Design your form in the [Edit](#) dialog you will be presented with the Form Designer window where you can do all your form designing for both mobile and web capture.

1. Toolbar
2. Question List - add new questions, move them up and down, copy and paste them in this

window

3. Properties tab - all the question properties are edited here
4. XForms Source - lets you view and edit the raw xform
5. Design Surface - this is where you create a web form
6. Javascript - add extra functionality to your web form
7. Layout XML - the XML for your web form layout
8. Preview - preview your web form and its functionality
9. Close - Exit the Form Designer - confirms you want to leave and offers you the option to Save
10. Palette - brings up a new left window used for editing your web form
11. Widget Properties - edit properties of elements in your web form
12. ModelXML - if you press Submit in the Preview tab while testing your form, the ModelXML tab will open and display the xform data as it will end up on the server

Note the Language XML and Language Drop Down are not currently used in openXdata

Toolbar



1. Open / Import - used to update the form based on the XML in the XForms source
2. Save - use often!
3. Add New - adds something at the same level as what you have already highlighted
4. Add New Child - adds something one level below what you have highlighted if possible. If not possible, produces the same functionality as using Add New
5. Delete - deletes a page, question, option, or widget
6. Move Up - move a question, page or option Up
7. Move Down
8. Cut - cut a question (to then paste it)
9. Copy - copy a question
10. Paste - Paste a question you have cut or copied
11. Refresh - Reloads the form from the server - useful for confirming all your changes have been saved
12. Align Left - used for aligning widgets in Design Surface
13. Align Right
14. Align Top
15. Align Bottom
16. Make Same Width - used for making widgets the same width in Design Surface
17. Make Same Height

18. Make Same Size - make both height and width the same in the Design Surface
19. Undo - used in Design Surface only
20. Redo - used in Design Surface only

Properties Tab - 1/2

Text	Start Time
Help Text	
Type	Time
Binding	start_time
Visible	<input checked="" type="checkbox"/>
Enabled	<input checked="" type="checkbox"/>
Locked	<input type="checkbox"/>
Required	<input type="checkbox"/>
Default Value	
Calculation	Add Field

Going down the table, the Properties tab allows you to define the following:

- Text - the main title for a question - this is what appears in the list of questions on the mobile client and is what the Design Surface will default as the question label
- Help Text - this will scroll along the top of the mobile phone screen when the user is in the question or will be the default tooltip for the question when the user is in web capture
- Type - lets you change the question type, the options are (Text, Number, Decimal, Date, Time, DateTIme, Boolean, Single Select, Multiple Select, Repeat, Picture, Video, Audio, Single Select Dynamic, GPS, Barcode) (note Barcode is non-functional in 1.16)
- Binding - the binding is a very important concept in form designing. The question binding is used as the column name in the form's data table, it is also the xml tag identifier in the raw xml. The binding for an option in a single or multiselect question becomes the value stored for that question in the xml.
- Visible* - if checked the question is visible on the phone by default, and if not it is not. The default setting is used by the Design Surface auto-layout to place questions on a page
- Enabled* - if a question is enabled it is "active"
- Locked* - if a question is locked a user cannot interact with it.
- Required - if a question is required a form cannot be submitted without a value
- Default Value* - automatically fills a value for the user such as a number, text, or a date/time

- also see [Start, End time and today's date](#)
- Calculation - calculate values for the field - this is only supported by the mForms mobile client, not on the web

* Visible, Locked, Required, Default Value are discussed in more detail in [Skip Logic, Validation and Calculation](#)

Properties Tab - 2/2

Skip Logic	Validation Logic	Dynamic Lists
Question: Start Time is valid when: Error Message: <input type="text"/>		
When <u>all</u> of the following apply < Click here to add new condition >		

Skip Logic

Skip Logic allows you to enable and disable questions based on a user's answers to previous questions. On a paper form, it is usually done through instructions like "If Yes, go to question 4, if No go to Question 5" With openXdata you can do this and more complicated skip logic using multiple question values and numerical values. In the sample form the Is Patient Pregnant question uses skip logic to become enabled only if the patient is Female.

Validation Logic

Validation logic allows you to bring some initial data quality measures into your form by ensuring that your user enters appropriate data. Examples of validation logic include ensuring a date is not in the future, or that a numerical value is between two appropriate values. In the Sample Form, Birth Date, Weight, Height, and Details of Children questions all use validation logic.

Dynamic Lists

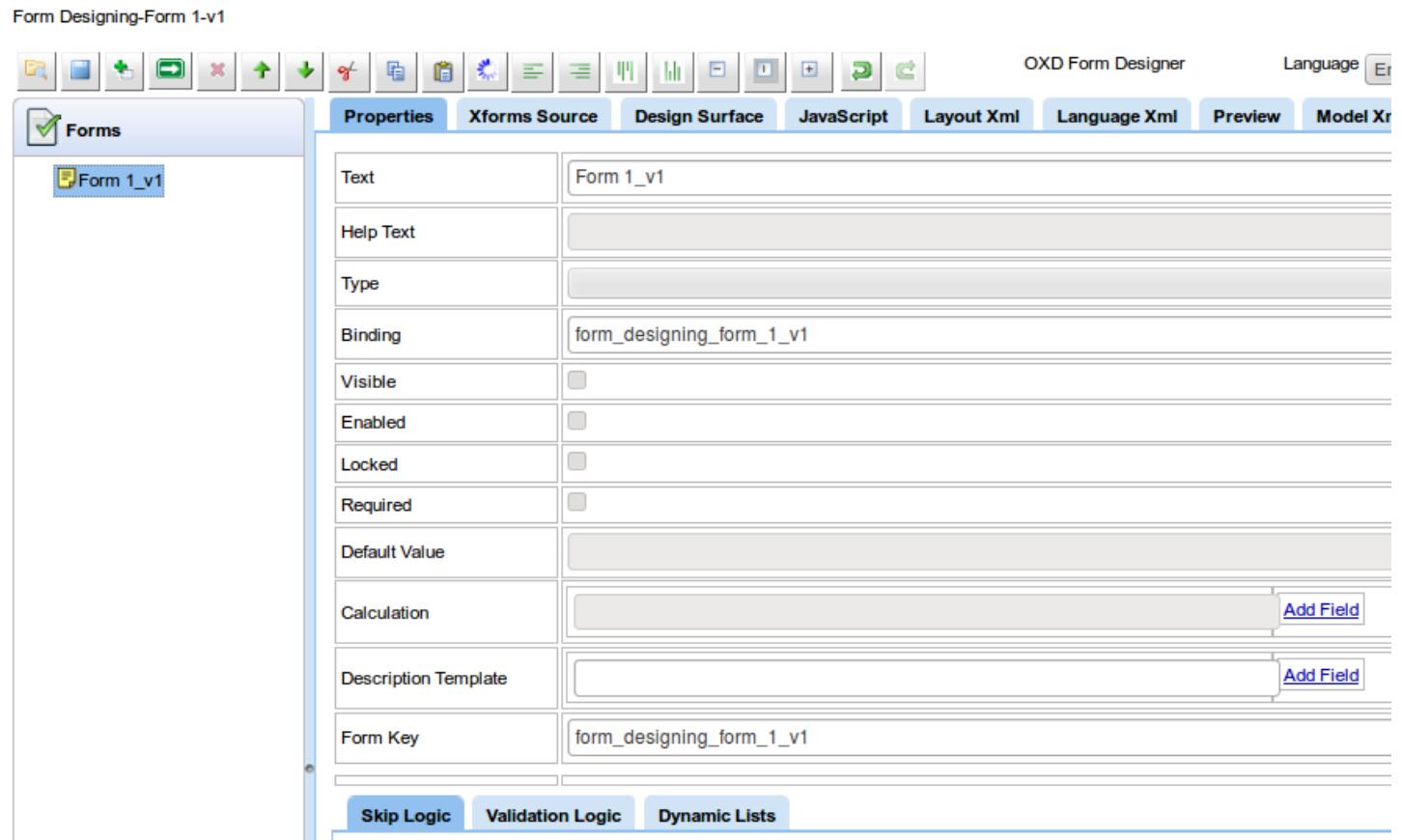
This tab is used to enter the options for a Single Select Dynamic Question

Adding Questions

REMEMBER - In the Form Designer, if you didn't press Save it isn't Saved

Blank Form

Form Designing-Form 1-v1



Text	Form 1_v1
Help Text	
Type	
Binding	form_designing_form_1_v1
Visible	<input type="checkbox"/>
Enabled	<input type="checkbox"/>
Locked	<input type="checkbox"/>
Required	<input type="checkbox"/>
Default Value	
Calculation	Add Field
Description Template	Add Field
Form Key	form_designing_form_1_v1

Skip Logic Validation Logic Dynamic Lists

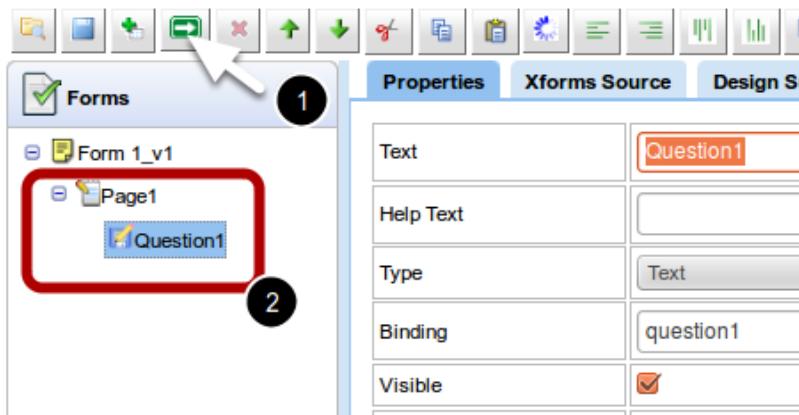
When you first design a form the form designer will open like the above picture.

Note the extra fields Description Template and Form Key that appear when you select a Form in the left window as opposed to a question.

The Description Template is used to display more meaningful list of forms to a user on the mobile phone. For example, if they are collecting data in the Sample Form and there is nothing in the Description Template then, on the phone, each form will be given a default name "Data1", "Data2" and so on.

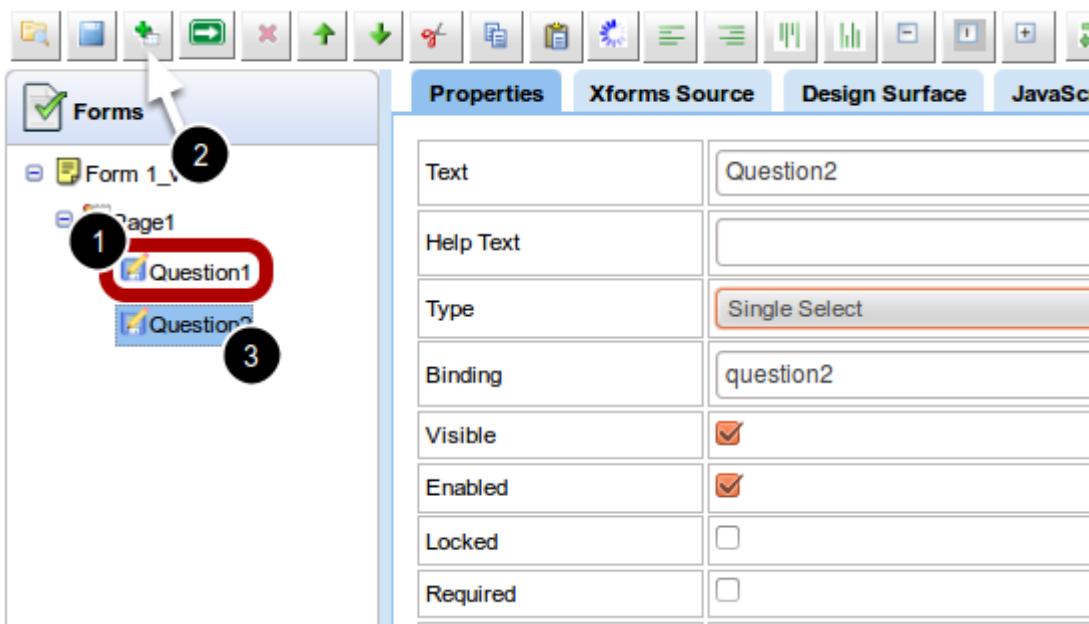
However, you can use the description template to display a field from the form such as "Last name" or "Patient ID" so the list of saved data could read: "Smith ID 123", "Jones ID 345" etc.

Add First Page and Question with Add New Child



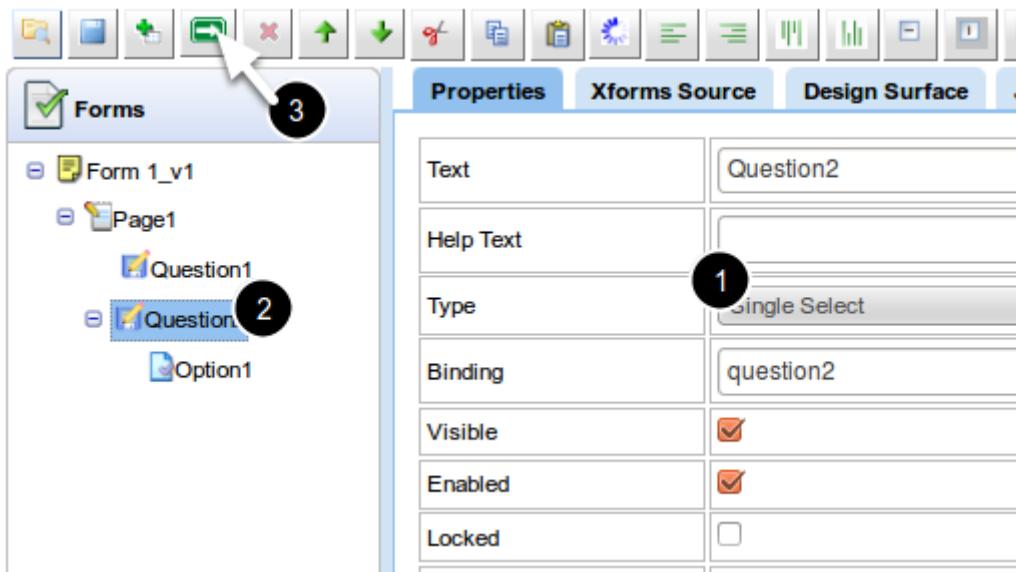
1. With the Form selected, press the Add New Child Button
2. The Form Designer will automatically add your first page and first question

Add Another Question



1. Click on Question 1 so it is highlighted
2. Click Add New
3. Another Question will appear

Add question options

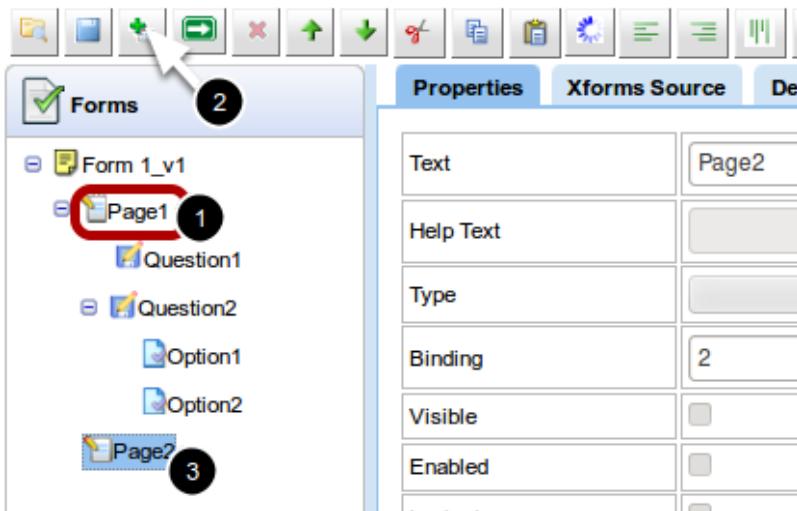


1. Change your question to a question type that accepts options - Single Select, Multiple Select
2. Ensure the Question is Selected
3. Press Add New Child to add an option.

If you press *Add New* when the question is selected, then it will add another *Question* not an option.

You can keep pressing Add New Child to add as many options you like. Or you can select the option and then press Add New to add more options (because now you are at the Option level not the Question level)

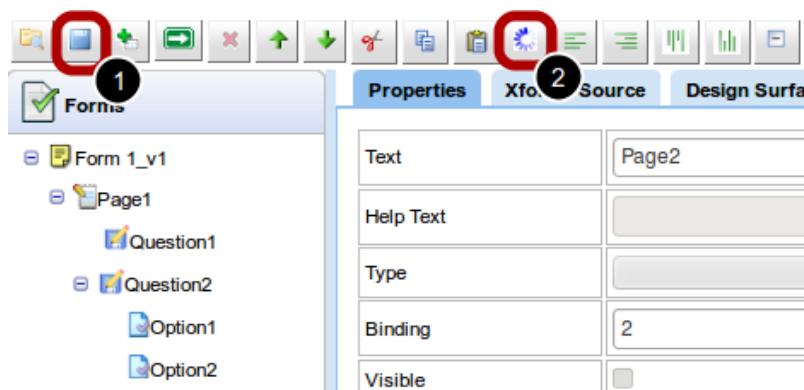
Add another page



Pages are useful to group sets of questions. Pages are like tabs on the web view and are separate lists of questions on the mobile client.

1. Select the Page you wish to add a new page after
2. Click Add New
3. Your new page will appear

Save and Refresh often



If you have not pressed (1) Save, your changes have not been Saved.

If you press (2) Refresh before you press Save your form will be restored to what is currently saved on the server. This can be useful for undoing some changes if something went wrong.

Video from older version



This video from an older version of openXdata still applies covering all the principles of adding questions to a form:

(00:00 – ~00:45) Adding your first question to a new form

(~00:45 – ~10:15) Question types: Text, Number, Decimal, Date, Time, Date and Time, Boolean, Single Select, Multiple Select, GPS, Picture, Audio, Video, Barcode (not yet enabled)

(~10:15 – ~11:15) Getting the Start Time and End Time of form entry.

(~11:15 – end) Moving questions, copy and pasting questions.

Question Types Explained

The best way to understand the different question types is to open up the Sample Form which has a question of each type

Text

A text field. Allows you to enter free text as the data input.

The mobile and web client will allow you to enter as much text as you want, and it will get saved to the database. However, you will not be able to process responses greater than 255 characters (i.e. you will see the red warning for unprocessed data and you will not be able to see your responses in the Dashboard). See [Known Issues](#) for further information.

Number

Accepts integers or whole numbers - so 1235 is valid but 12.23 is not. Negative numbers are accepted. Only ne

There is a limit to the size of integer accepted that is documented [here](#) as with Text a number longer than 10 digits will be accepted and saved, it just can't be exported by default.

Decimal

Accepts numbers including numbers with decimals like 123.345

Date

Accepts a date.

On the mobile client, a prompt with a Select Day option will be available that takes the user to a calendar, the exact format depends on your phones settings
On the web form, a pop-up calendar will appear

The display and submit Date Format can be changed through the Admin Console -> Settings

Time

Accepts a time.

On the mobile client the format is HH:MM or HH:MM AA (where AA = am or pm) - depending

on your phone settings

On the web form the format is HH:MM:SS AA

The display and submit Time Format can be changed through the Admin Console -> Settings

Date and Time

Both Date and Time must be recorded for one question answer

Boolean

Yes / No - user must select one or the other. Using this is the same as creating a Single Select question with two options "Yes" and "No." It is a useful shortcut for english forms, but as the Yes and No are not editable it is not useful for non-English forms.

Single Select

Add a series of options to this question type and the user can only pick one.

On the mobile phone it is presented as a list with a "radio" button

On the web form it is presented as a dropdown box

Multiple Select

Add a series of options to this question type and the user can pick as many as they want

Repeat

A repeat question contains a group of questions that can be repeated multiple times. Clicking Add Child will add a new question. In a web form, repeats are shown by default as rows of a table where new rows can be added

On the mobile client, the option New is available which takes the user into a new list of questions, this can be repeated as many times as necessary

Tip: it is possible to validate the "length" of a repeat question to see how many rows or sets of answers you have - see the sample form for an example.

Picture

Image question

On the mobile phone this accesses the phones camera functionality
On the web capture, this allows the upload of a picture

Video

Video question - video format must be 3gp

On the mobile phone this accesses the phones camera in movie mode
On the web capture, this allows upload of a file - it does not check on upload whether the file is the correct format or not.

Audio

Audio question - audio format must be 3gp

On the mobile phone this accesses the phones microphone
On the web capture, this allows upload of a file - it does not check on upload whether the file is the correct format or not.

Single Select Dynamic

Single Select Dynamic questions present a shortlist of a longer list of options, based on answers to previous questions. Single select dynamic questions require a Single Select Question to be present before they can be used.

A simple example is to narrow down a list of countries by first selecting a continent. The continent question would be a standard single select question. The country question would be a Single Select Dynamic question. You add all the countries of the world, but you map them to a continent. Once the user has selected a continent, only countries in that continent are displayed.

Single Select Dynamic questions appear like Single Select Questions

There is no limit to the nesting of Single Select Dynamic questions
e.g. to narrow down all the pupils in school in the entire world:
Continent -> Country -> District -> Village -> School -> Teacher -> Pupil

GPS

Get or enter the GPS co-ordinates (longitude, latitude, altitude) for a place

On the mobile phone, if GPS functionality is available it will launch the GPS to get the current location. If GPS functionality is not available it will present three windows to enter the data

On the web form, a single text box is presented which doesn't validate that the input is a valid GPS co-ordinate.

Barcode

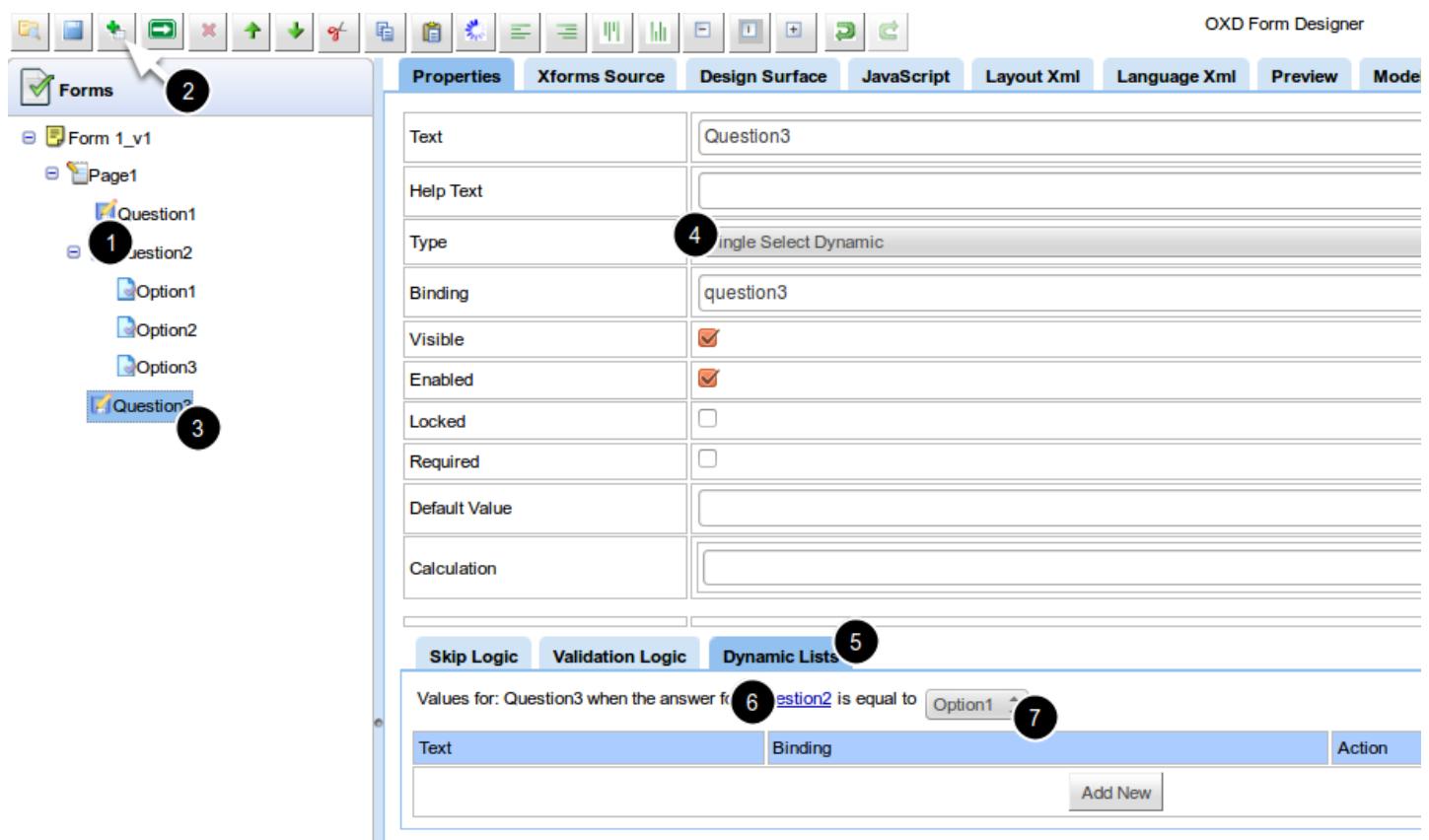
Not implemented in 1.16, but available in ~1.18 onwards

On the web form it just presents a free text box.

On the mobile client, if you have the -barcode midlet which includes a barcode reader, the barcode reader is launched which then uses mobile phone's camera to take an image and process the barcode.

Adding Single Select Dynamic

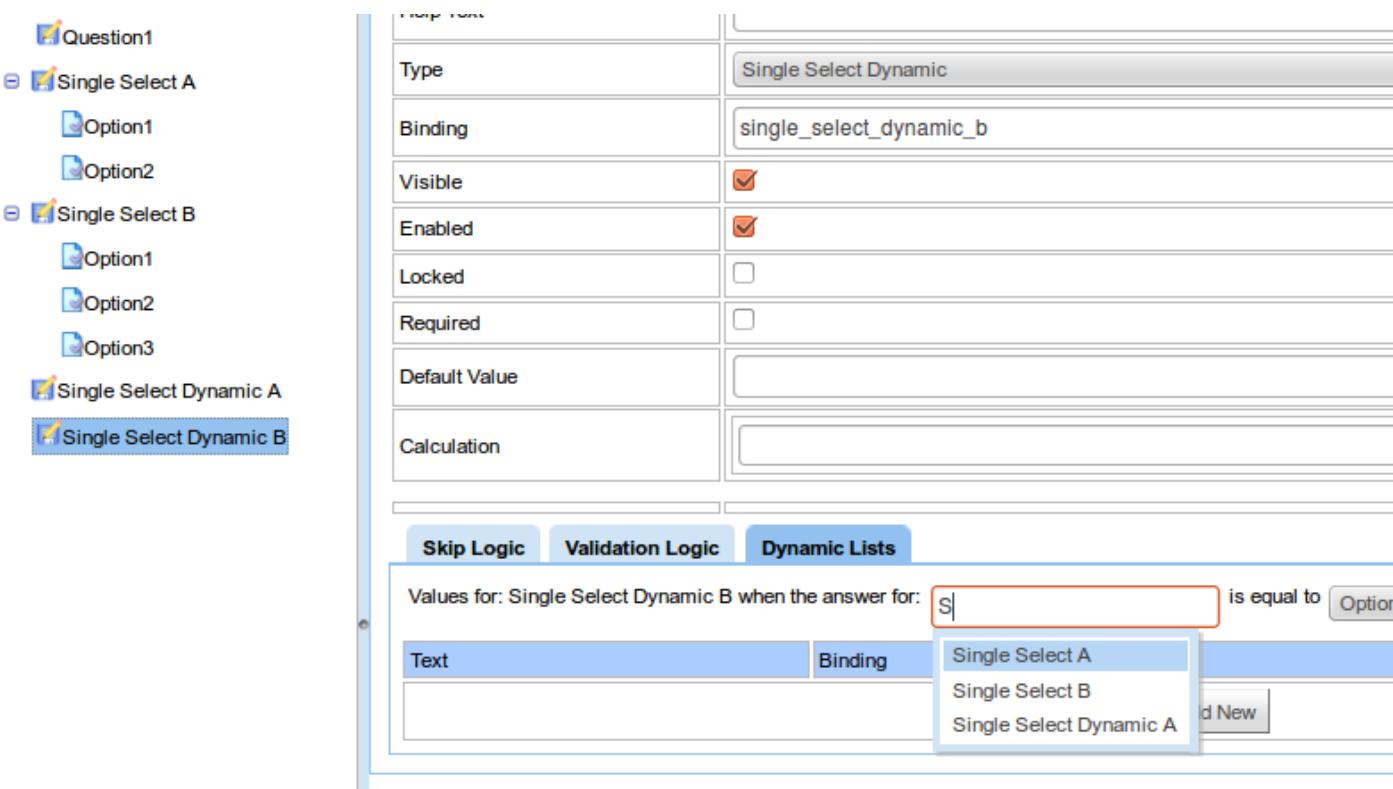
Create Single Select Dynamic question



1. Create a single select question with two or more options
2. With your Single select question selected, press Add New as normal to add a new question
3. Question 3 appears, select it
4. Change the Question type to Single Select Dynamic
5. The Dynamic Lists tab will automatically pop-up
6. If you only have one Single Select question in your list it will be pre-populated here
7. The first option of the selected Single Select question is automatically displayed

(Note Single Select Dynamic questions cannot be used inside a repeat question)

Changing the Question that is being referred too



The screenshot shows the Form Designer interface. On the left, a tree view lists questions: Question1, Single Select A (with children Option1 and Option2), Single Select B (with children Option1, Option2, and Option3), Single Select Dynamic A, and Single Select Dynamic B (selected). The main area displays the properties of 'Single Select Dynamic B'. The 'Type' is set to 'Single Select Dynamic' and the 'Binding' is set to 'single_select_dynamic_b'. The 'Visible' and 'Enabled' checkboxes are checked. The 'Default Value' and 'Calculation' fields are empty. Below the properties, there are three tabs: 'Skip Logic', 'Validation Logic', and 'Dynamic Lists'. Under 'Dynamic Lists', it says 'Values for: Single Select Dynamic B when the answer for: S is equal to Option'. A dropdown menu shows 'Single Select A', 'Single Select B', and 'Single Select Dynamic A', with 'Single Select A' currently selected. There is also a 'New' button.

A Single Select Dynamic Question can refer to another Single Select Dynamic question or to a Single Select question to get the value on which to filter its own list.

To edit the question that is being referred to, click the [question title](#) that is written in link style between "...the answer for:" and "is equal to..."

On doing this a text box appears, delete the text in the text box and start typing the Question Text of the question you wish to refer to. the Form Designer will present a list of all valid choices.

Add your new options under each old option

Skip Logic Validation Logic Dynamic Lists

Values for: Single Select Dynamic B when the answer for: [Single Select A](#) is equal to 1

Text	Binding	Action		
presented when option 1 is select - 1	presented_when_option_1_is_select_-_1			
presented when option 1 is select - 2	presented_when_option_1_is_select_-_2			
presented when option 1 is select - 3	presented_when_option_1_is_select_-_3			
Add New 2				

1. Ensure you are on the correct option
2. Click Add New
3. Enter the Option values - Text (the binding will be automatically generated, but you can change to any valid binding)

You can also use delete and up, down to move the options around

Repeat this for each of the options in your original question

Sample Form Example

Look at the standard sample form example that comes with openXdata. That has Single Select Dynamics that

- select Country (from Single Select question Continent)
- then select District (from Single Select Dynamic question Country)

Start, End time and today's date

Using 'now()' for start time and today's date



If we use the special syntax 'now()' in the **default value** we can get a date and timestamp of the date and time "now"

Note the single quotes around 'now()', these are necessary.

'now()' is used in two common ways:

1. Start time - sometimes we want to capture the time that a user started to enter data into a form. This can be hidden from the user by making the question Enabled but not visible. Used with endtime this can be very helpful for monitoring field workers. To just capture the time, set the question type to time. Note that this is better than submission time, because it is perfectly legitimate for a user to only upload all their forms at once in the evening - perhaps because they are now back in cell phone range. It is less likely, for example, that it is appropriate for them to be *collecting* all their data in quick succession in the evening.
2. Default date - to reduce errors and reduce data entry time, we may want fill in today's date for a user. 'now()' can also be used for this. If you only want the date, set the question type to Date

Endtime



Endtime is used to capture when a form is saved.

To capture endtime, you must specify the question **binding** as endtime - no quotes

Skip Logic, Validation and Calculation

Visible, Enabled, Locked

Visible	<input checked="" type="checkbox"/>
Enabled	<input checked="" type="checkbox"/>
Locked	<input type="checkbox"/>

The Visible and Enabled settings that you check when you design a form are the initial defaults when a form is opened. They can then be modified through skip logic.

Disabled is the opposite of Enabled, if you un-check the Enabled box, we will refer to that as Disabled.

Disabled and Locked are similar but distinct properties:

- Locked means that the user can not edit the value, but any default or calculated values will be shown (if the question is visible) stored on save.
- Disabled, means that no data for that question will be stored, it is regarded as skipped. A disabled question also can't be edited.

Say the following:

Question1 Locked with default 'now()' would store the value generated

Question2 Disabled with default 'now()' would not store the value generated.

To the data capture user, the effect would be similar: They can't edit the question. But the data that is uploaded is different.

Note the implementation of Locked is not always perfect - check your forms to see they perform as you expect.

Skip Logic - new thinking

Remittance basis

Substantial changes were made to the remittance basis of taxation from 6 April 2008. Read pages RRN 10 to RRN 14, covering boxes 27 to 35, and pages RRN 18 to RRN 22 in the notes before completing this section.

<p>27 If you are making a claim for the remittance basis for 2010-11, put 'X' in the box <input type="checkbox"/></p> <p>28 If your unremitted income and capital gains for 2010-11 is less than £2,000, put 'X' in the box <input type="checkbox"/></p> <p>29 If you were UK resident for 2010-11 and for seven or more of the preceding nine tax years, put 'X' in the box (you must also complete boxes 27, 31 and 32 - see notes) <input type="checkbox"/></p> <p>30 If you were under 18 on 5 April 2011, put 'X' in the box <input type="checkbox"/></p>	<p>31 Amount of income you are nominating - please provide details in box 35 <input type="text"/> £ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> + <input type="text"/> 0 <input type="text"/> 0</p> <p>32 Amount of capital gains you are nominating - please provide details in box 35 <input type="text"/> £ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> + <input type="text"/> 0 <input type="text"/> 0</p> <p>33 Adjustment to payments on account for capital gains <input type="text"/> £ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> + <input type="text"/> 0 <input type="text"/> 0</p> <p>34 If you have remitted any nominated income or gains during 2010-11, put 'X' in the box <input type="checkbox"/></p>
--	---

Any other information

Boxes 13, 14, 20, 21, 24, 31 and 32 and the 'Dual residents' and 'Temporary non-residents and the remittance basis' sections of the notes all contain information where further information in box 35 may be required. Please refer to the notes on these boxes.

When you look at a paper form, it will usually say things like "If you answered No to Question 4, skip to Question 8. If you answered Yes, continue at Question 5" e.g.

- Smoker? - Yes / No (if No, skip to Question "History of Cancer?")
- How many? - Conditional on "Smoker?"
- How often? - Conditional on "Smoker?"
- Want to quit? - Conditional on "Smoker?"
- History of Cancer?- Always required

One way we could do this in openXdata is the following:

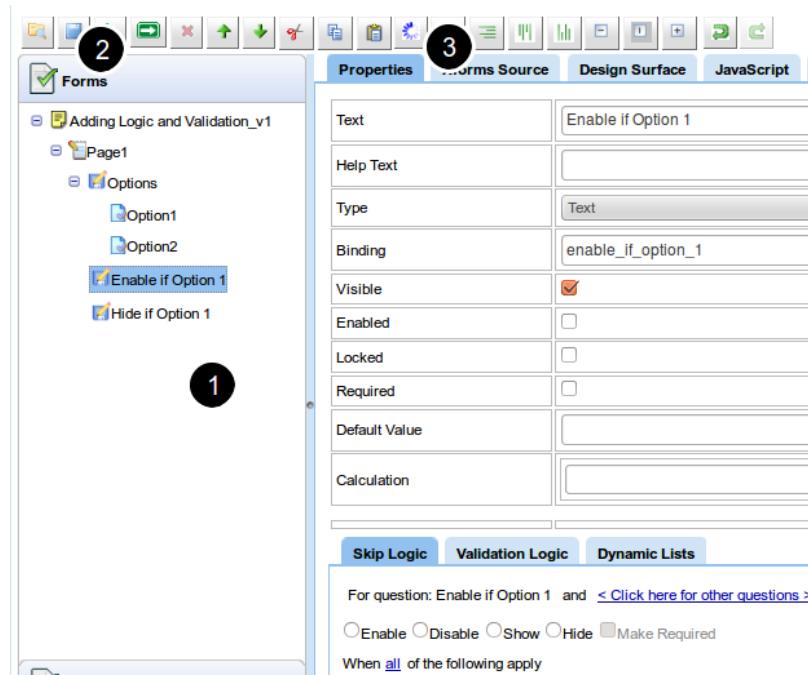
- For questions 5, 6 and 7 hide/disable them if the answer to question 4 is No - this may feel natural if translating from a paper form

However, it is often cleaner to do the reverse, which is not really possible with paper.

- Start out with questions 5,6 and 7 hidden so your form looks like this
- - Smoker?
- - History of Cancer?
- Then add logic so that if the answer to "Smoker?" is Yes the relevant questions appear
- - How many?
- - How often?
- - Want to quit?
- - History of Cancer?

Obviously, how you structure your form depends on your data, your users, and feedback from form testing

Adding Skip Logic



Once you have worked out how you want your form to look at the start and after the skip logic, adding the skip logic will be relatively simple.

Before you start adding skip logic:

1. Add all your questions,
2. Save your form and
3. Refresh the page

This ensures that all possible values are available to the logic builder

Select how conditions will apply

Skip Logic Validation Logic Dynamic Lists

For question: Enable if Option 1 and ≤

Enable Disable Show Hide

When all of the following apply

<input type="checkbox"/> Options	<input type="checkbox"/> all	<input type="checkbox"/> equal to _____
<input type="checkbox"/> < Click here for other questions >	<input type="checkbox"/> any	<input type="checkbox"/> new condition >
	<input type="checkbox"/> none	
	<input type="checkbox"/> not all	

Click on the all to edit

Conditions can apply

- all - all the conditions must be met for the skip logic to occur
- any - if any one of the following conditions occurs, the skip logic will happen
- none - if none of the following conditions are true then the skip logic will happen
- not all - if any of the following conditions does not occur, the skip logic will happen

Add conditions

Skip Logic Validation Logic Dynamic Lists

For question: Enable if Option 1 and [< Click here for other questions >](#)

Enable Disable Show Hide Make Required

When all of the following apply

Options is equal to _____

Options is equal to _____

[< Click here to add new condition >](#)

Once you click [< Click here to add new condition >](#) a question will be automatically filled in for you, in the above diagram it was Options, my first question.

When you click Options (or whatever your question Text is) it will open up a box where you can get the question you're looking for. To find the question you want, delete the text that's in the box and type the first few letters of the question you're looking for - a drop down will appear with the

possible questions in.

When you click [is equal to](#) you will get a dropdown that will give you different options depending on the question type. For a list:

- is equal to
- is not equal to
- is in list
- is not in list
- is null
- is not null

For a number or date value

- is equal to
- is not equal to
- is greater than
- is greater than or equal to
- is less than
- is less than or equal to
- is null
- is not null

For a text value

- is equal to
- is not equal to
- is null
- is not null
- starts with
- does not start with
- contains
- does not contain

Skip logic can't evaluate certain question types like Picture, Audio, Video.

When you click _____ you will either be shown a list of options in the case of a Select box (as pictured above) or a blank box with a checkbox Question value, as shown below

[=> Number is greater than](#) Question value

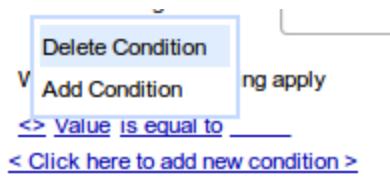
From this point, you can enter a number which will be a constant in your form. Or you can compare one number to another number from another question. To do the latter, check Question value and then click in the box and start typing to enter the name of the question

[<> Number is greater than](#) Question value
[< Click here to add new cond](#)

Repeat this process until you have all your conditions. Then save your form.

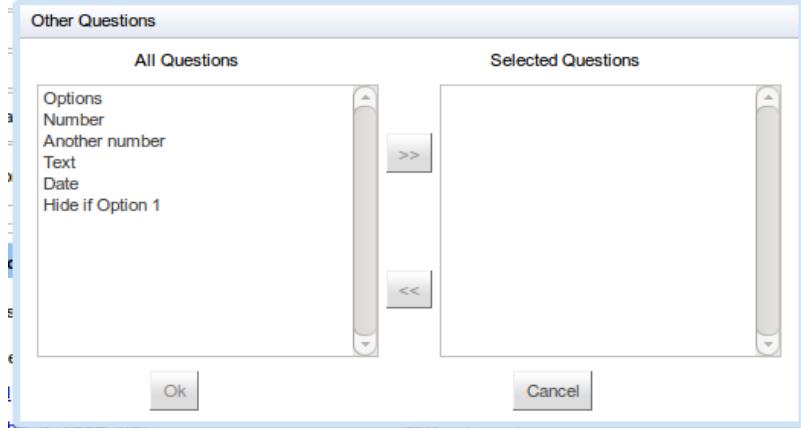
It is a good idea to back-up frequently when adding skip logic to a form

Delete a condition



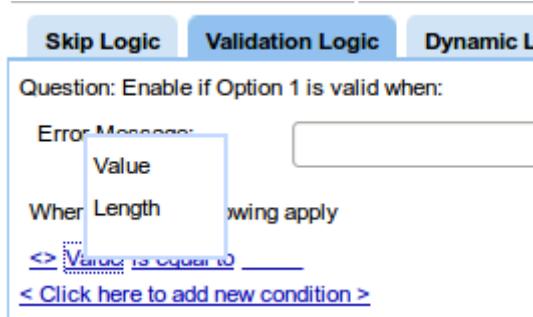
Click on <> to delete a condition

Adding skip logic to multiple questions at once



If, as in our earlier smoking example, you have a set of questions for which the same logic applies. Click on < Click here for other questions > to get a dialog that allows you to select multiple questions to apply the skip logic too.

Validation logic



The screenshot shows the 'Validation Logic' tab selected in a top navigation bar. Below it, a question is defined: 'Question: Enable if Option 1 is valid when:'. Under 'Error Message', there is a text input field. The condition is set to 'Value' and 'Length', with 'Length' being greater than or equal to 10. The condition is defined as ' \geq Value is equal to ____'. A link '[Click here to add new condition >](#)' is visible at the bottom.

The interface for validation logic is similar to that for Skip Logic.

Validation compares this question's Value or Length with another value. e.g. maybe you don't want a name longer than 10 characters - use a text question and validate with Length $>$ is than or equal to ≥ 10

Note that the conditions that you enter are the conditions that describe a valid value, and the error message is the message that appears when a user has done something wrong and the conditions are not met.

Check out the sample form to see how to prevent a future date from being added.

Calculations



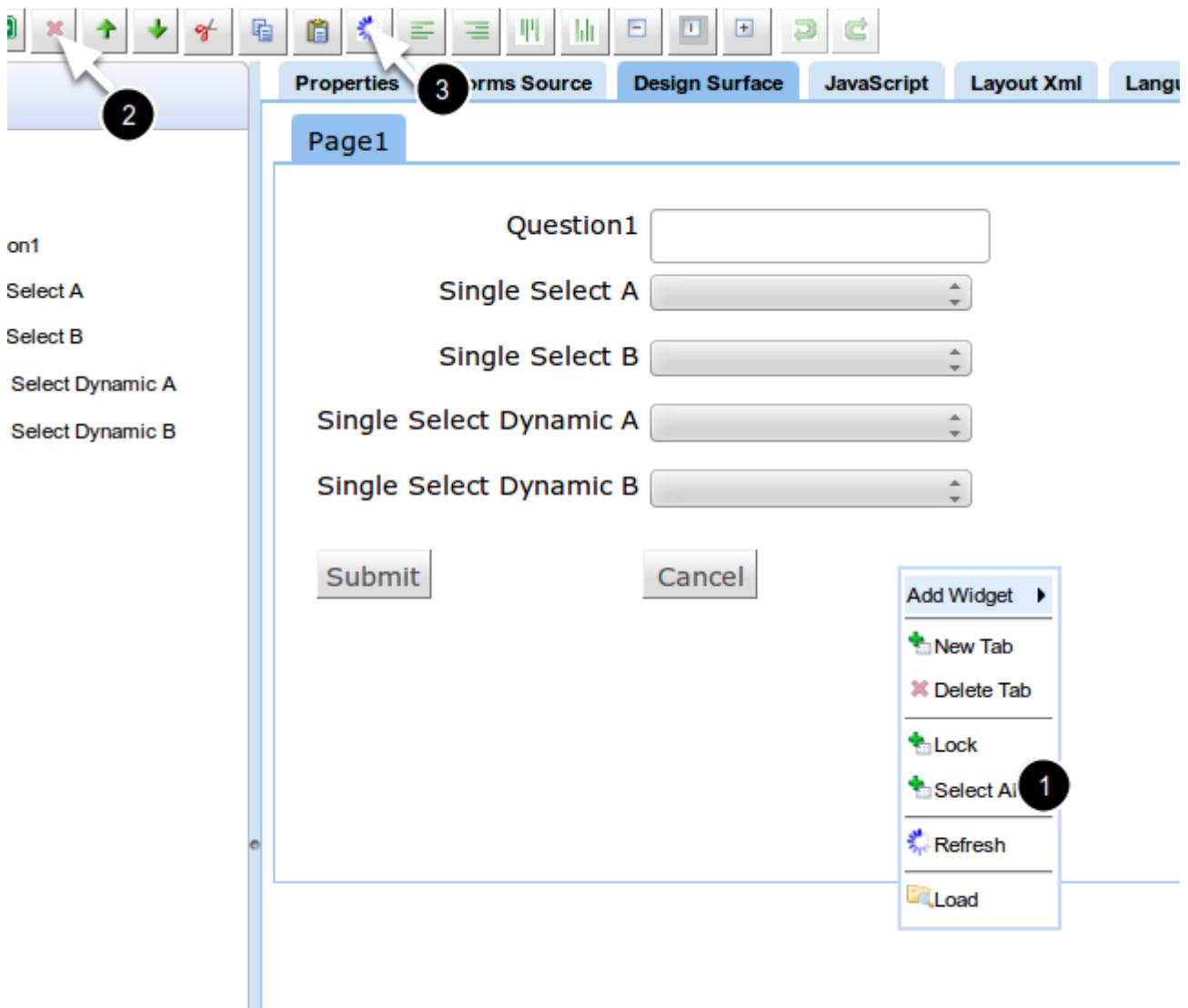
The screenshot shows a 'Calculation' field where users can enter calculations using question bindings. An 'Add Field' button is located in the top right corner of the input area.

The calculations field allows you to enter calculations using the questions bindings as a substitute for the value. Calculations only work on the mobile client at the moment. To run calculations on the web form use the [Javascript tab](#).

To help with the question bindings, click on Add Field and find questions these will then be added to the calculation field for you. You do not need = at the beginning of the row, like you do in excel. You can use mathematical operators like + * - to manipulate your values.

Designing Web Forms

Autogenerate layout



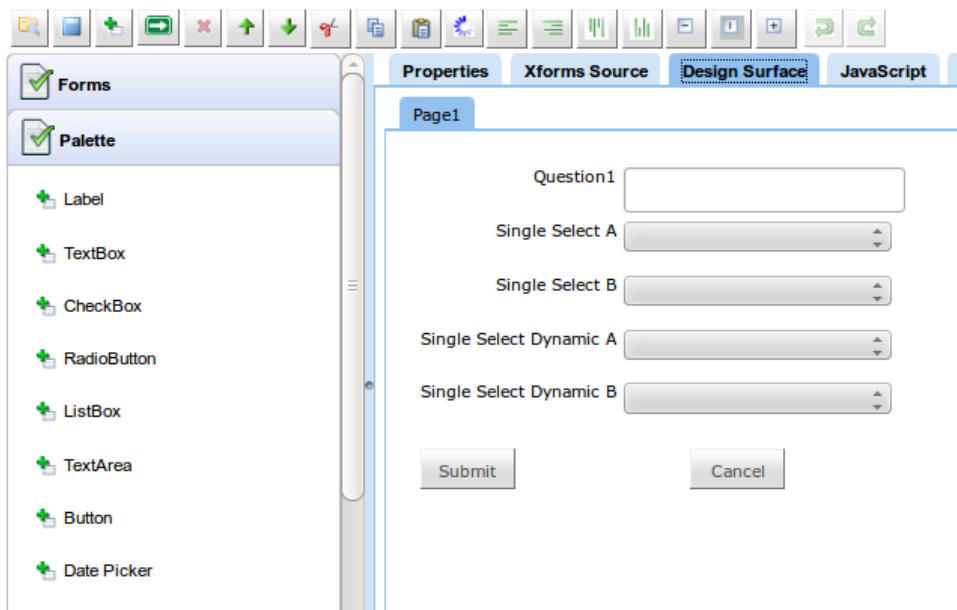
The first time you click on Design Surface, a form layout will be auto-generated for you.

If you have made some changes but want a new autogenerated layout:

1. Right click in your form and press Select All
2. Press Delete to Delete all widgets
3. Press refresh button

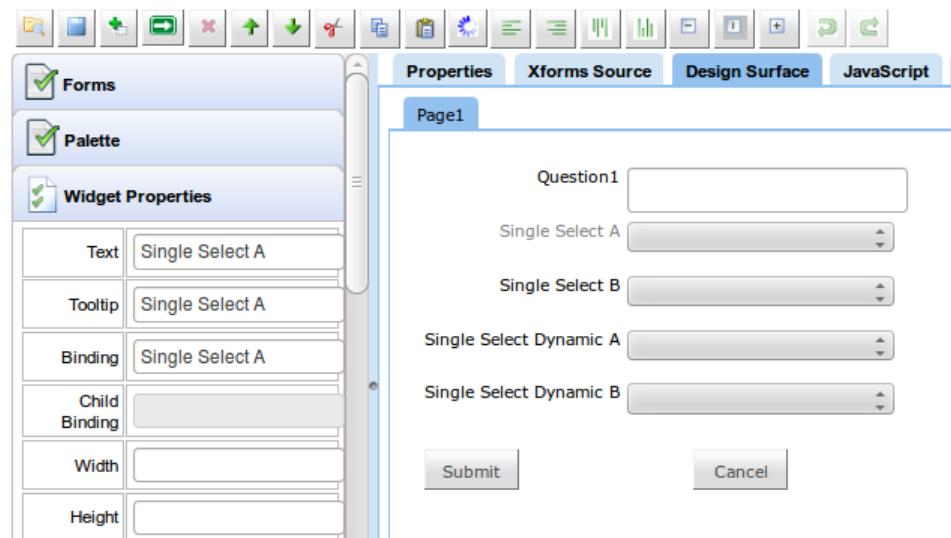
Note, hand designing web forms can be tedious and time consuming. Where possible use the autogenerated layout to save yourself time when your form gets a new question later down the line

Use Palette to add items manually



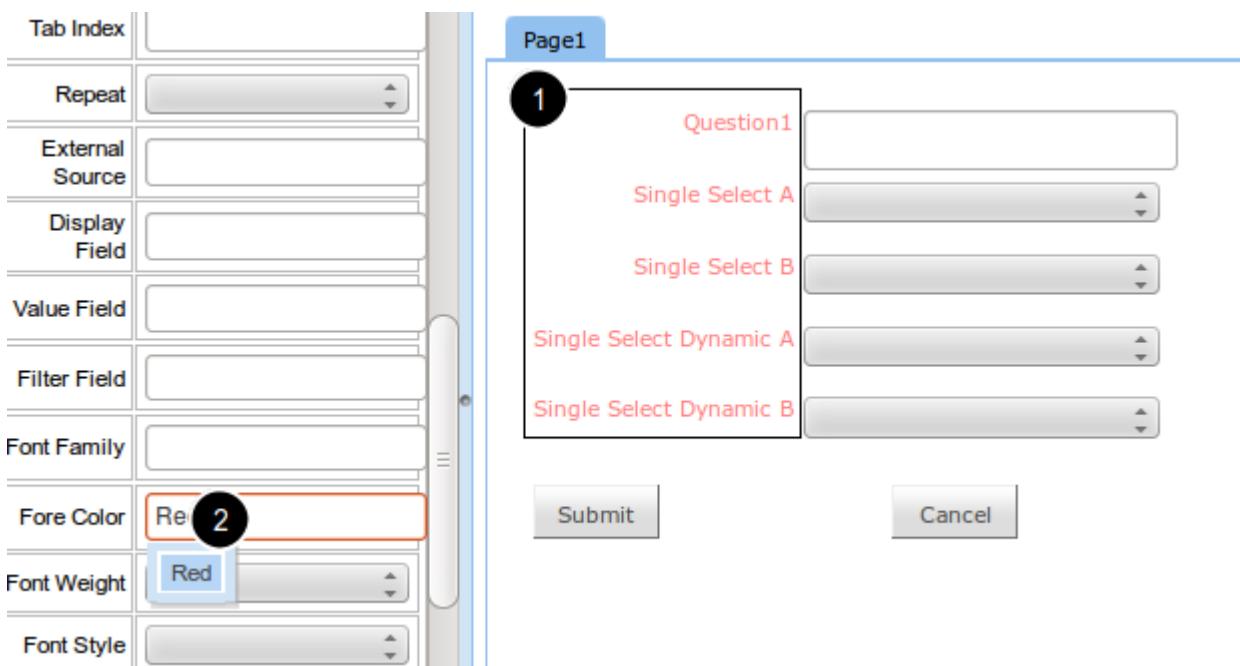
Select the Palette for the left window to see the available graphical widgets that can be added to your design surface.

Use Widget Properties to edit widgets



Select the Widget Properties for the left window to edit all the parameters for the widget you have selected including tooltips, fonts, height and width

Select multiple items at once for a group edit



1. While holding left mouse click down, drag an imaginary rectangle around a group of items - a dotted rectangle will appear
2. You can then edit items in the left window and it will apply to all items

Use tool bar tools for tidying



The toolbar icons are explained in [Introduction to the Form Designer](#)

Use these to tidy your form

Guiding users through skip logic - options

If you have lots of skip logic in your form and want to hide questions from your users in a helpful way, there are a number of possible methods.

- 1 - Hidden overlay
- 2 - Fake Pages
- 3 - Real pages

1/3 - Hidden overlay



This only works if your question sets are genuinely exclusive - that is there's no chance that the will appear on top of one another.

To do this:

- 1) Set your questions to visible and have openXdata autogenerate a layout for you.
- 2) Set your questions to not visible and make sure your skip logic is set - to show and make required depending on a previous answer
- 3) Go to form layout, select the questions in the second batch and drag them over the questions in the first batch. Then repeat for the questions in the third batch so that all the questions are on top of each other.

Pros - this method makes it easy for users to enter data & works nicely on phone

Cons - this method is time consuming to change the form

2/3 - Fake Pages



In this method we keep the questions as one long list, but we add fake pages on the web capture.

To do this:

- 1) Set your questions to visible and have openXdata autogenerate a layout for you.
- 2) Set your questions to not visible and make sure your skip logic is set - to show and make required depending on a previous answer
- 3) Return to form designer and with cursor highlighted at the top, right click and "Add Tab" - add as many tabs as you need
- 4) On the first page, select the questions for one tab, right click and "Cut", go to the new tab and "Paste"
- 5) Save when complete.

You'll notice that when you try and press submit on the first page you get thrown to the tab with required questions.

Pros - this will still work nicely on the phone

Cons - using the form designer like this can sometimes be a little buggy, I've had the occasional ugly error with manually adding tabs

3/3 - Real Pages



We use openXdata's built-in page function to generate pages for us.

To do this:

- 1) Add your questions to individual pages - you make a new page by selecting Page 1 and clicking Add New
- 2) Leave the questions as visible
- 3) Go to Design Surface and openXdata will autogenerate a layout with tabs and with the questions on
- 4) Return to properties and set the questions as hidden and add skip logic.

Pros - uses openXdata's functionality to build a tabbed layout

Cons - does not translate well on a phone - a user will have to go through a series of blank pages to find the ones with questions

Javascript in Web Forms

Javascript Tab



```

Properties Xforms Source Design Surface JavaScript Layout Xml Language Xml Pre
/*set up event handler for the three number boxes*/
document.getElementById('num1').onblur = function update1(){
    sum();
};
document.getElementById('num2').onblur = function update2(){
    sum();
};

document.getElementById('num3').onblur = function update3(){
    sum();
};

/*set the sum*/
function sum() {
    var num1 = Number(document.getElementById('num1').value);
    var num2 = Number(document.getElementById('num2').value);
    var num3 = Number(document.getElementById('num3').value);

    var sum = num1 + num2 + num3;

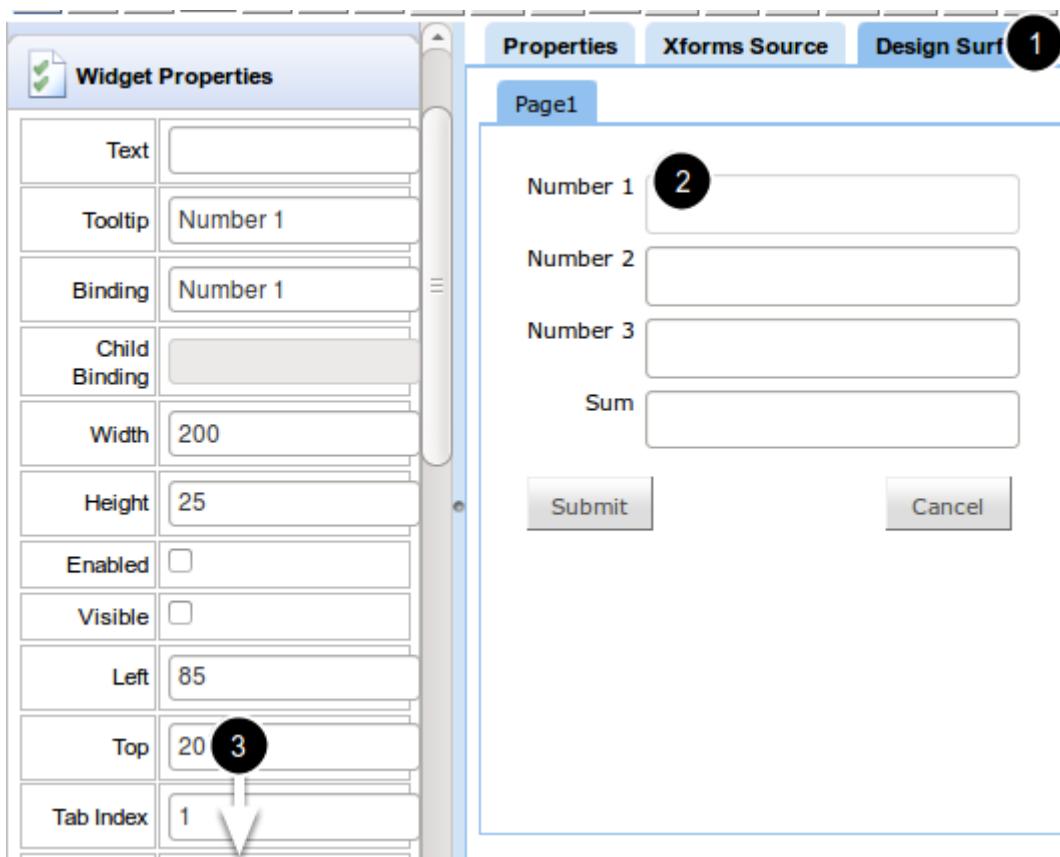
    document.getElementById('sum').value = sum; |
}

```

The Web Form does not, as of 1.16.3, automatically handle calculations or complex skip logic. However, it is possible to add this functionality by using the Javascript tab.

It is beyond the scope of this book to give a tutorial on Javascript or traversing a DOM, please see other internet references such as <http://www.w3schools.com> for this.

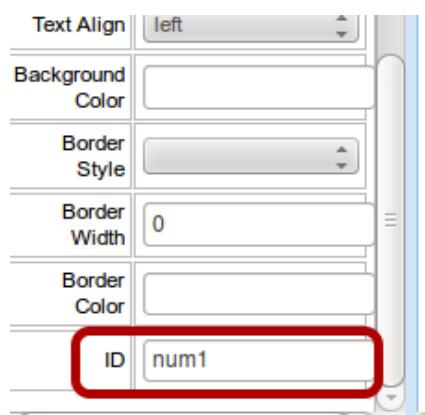
Add HTML Ids for your form elements



The screenshot shows the openXdata interface. On the left, the 'Widget Properties' window is open, listing various form element properties like Text, Tooltip, Binding, Child Binding, Width, Height, Enabled, Visible, Left, Top, and Tab Index. The 'Top' property is highlighted with a red circle containing the number '3'. On the right, the 'Design Surface' shows a page titled 'Page1' with three input fields labeled 'Number 1', 'Number 2', and 'Number 3', and a button labeled 'Sum'. The 'Design Surface' tab is selected, indicated by a red circle with the number '1'. The 'Properties' and 'Xforms Source' tabs are also visible.

The javascript tab, relies on identifying the elements of your form by Id. However, if does not use the bindings to do this, instead these must be set manually in the Design Surface.

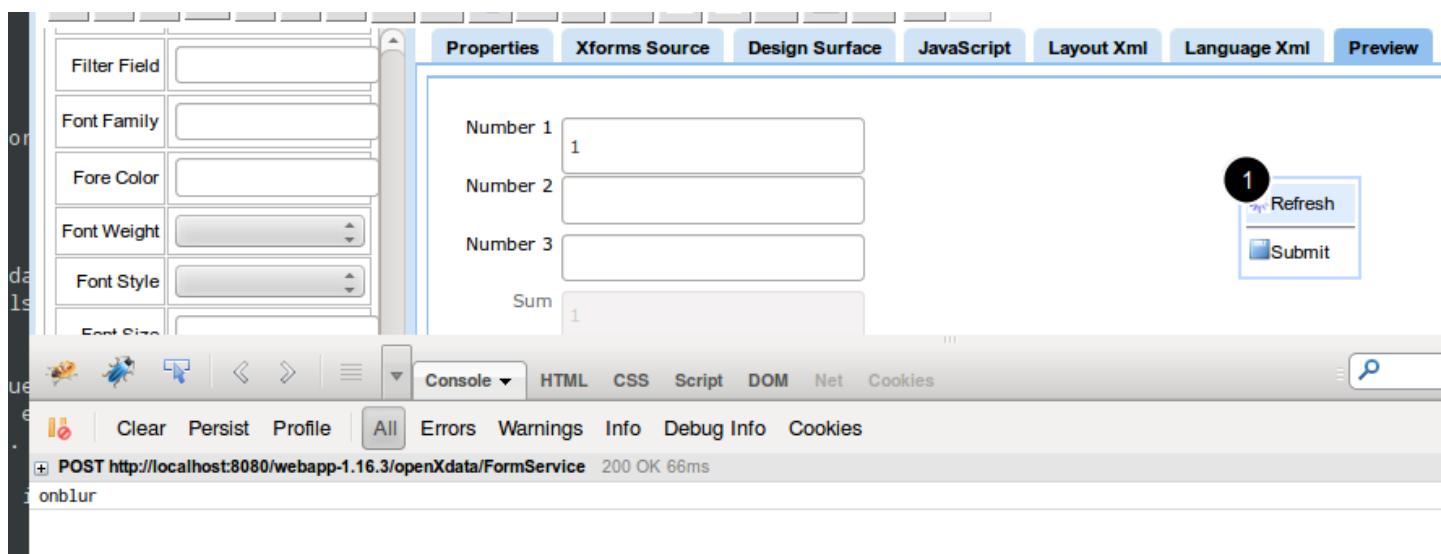
1. Select the Design Surface
2. Select the element you are interested in
3. Scroll down to the bottom of the Widget Properties window to find the Field Id



A close-up view of the 'Widget Properties' window, focusing on the bottom section. The 'ID' field is highlighted with a red box. The other fields shown are Text Align (left), Background Color, Border Style, Border Width (0), and Border Color.

Once all the necessary id's have been set, save your form, edit and save your javascript.

Test in the Preview Tab



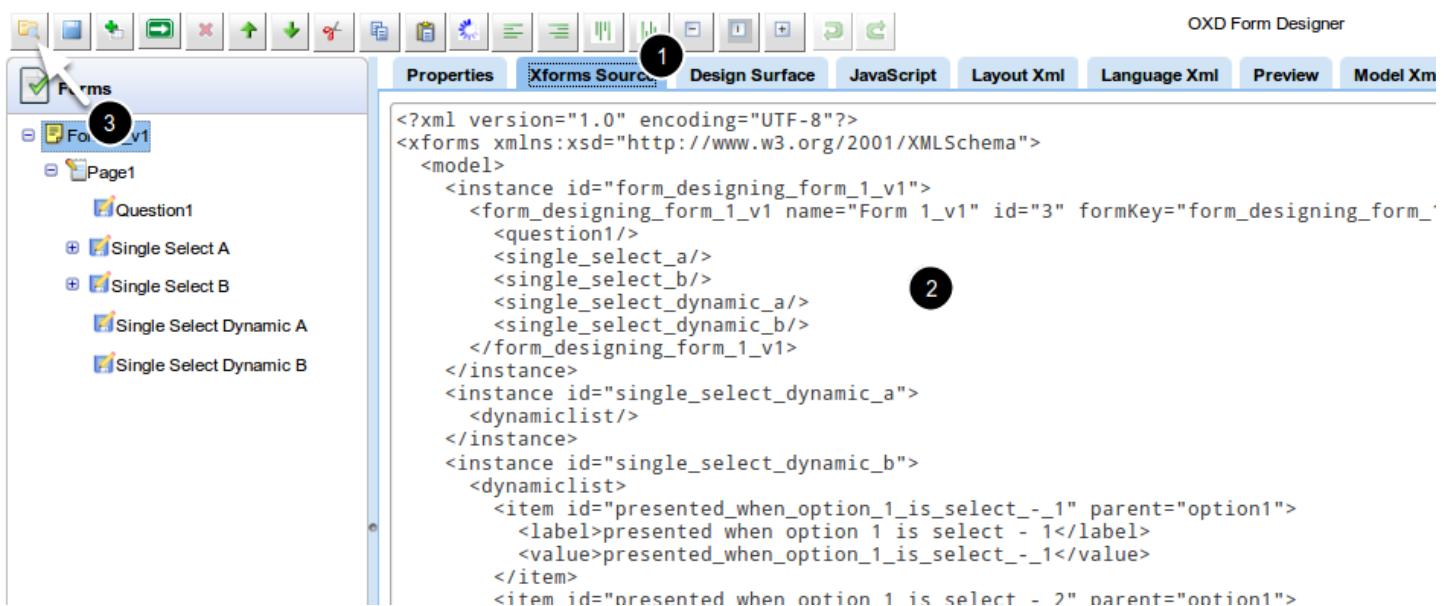
The screenshot shows the openXdata application interface. On the left, there is a sidebar with several filter fields: Filter Field, Font Family, Fore Color, Font Weight, Font Style, and Font Size. The main workspace has tabs at the top: Properties, Xforms Source, Design Surface, JavaScript, Layout Xml, Language Xml, and Preview. The Preview tab is active, displaying three input fields labeled Number 1, Number 2, and Number 3, each containing the value '1'. Below these is a field labeled Sum also containing '1'. To the right of the preview area are two buttons: Refresh (with a circled '1' over it) and Submit. At the bottom of the interface is a toolbar with various icons and a search bar. Below the toolbar, a console tab is open, showing a POST request to `http://localhost:8080/webapp-1.16.3/openXdata/FormService` with a status of 200 OK and a duration of 66ms.

1. Right click in the Preview tab and hit Refresh if necessary

You can then test your javascript including using standard browser debugging tools like Firebug and `console.log()` if necessary.

Editing / Importing XML

XForms Source tab



This box is generally for more advanced users, or programmers comfortable with xforms. Be careful, you can break your form.

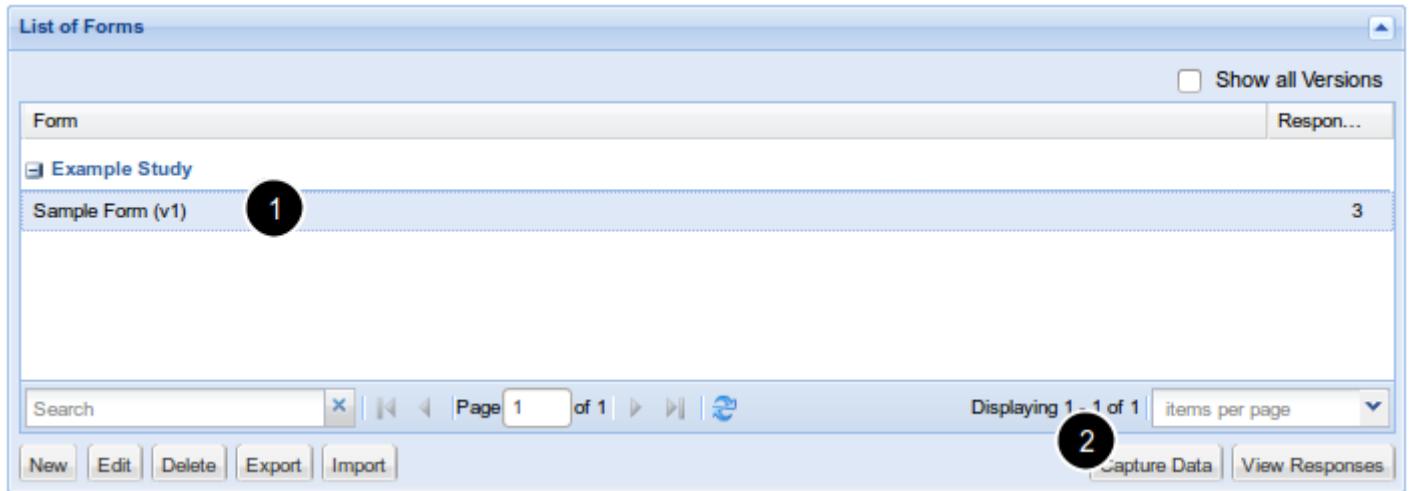
1. Click on the XForms source to view the raw xform that you are creating
2. You can edit the text in this box including copying in an entire new XForm
3. Once you have made manual edits to your XForm, if you wish to save them, press the "Folder" or "Open" button - this saves your new XML to your database, you cannot undo this, there is no option to preview before you save.

Once you are more comfortable designing forms, this can be a convenient way to make an extra backup of your xform while you are busy designing that does not involve exiting the form designer and using openXdata's Export functionality

In addition, if skip logic and validation are doing unexpected things, you can learn to read the xform and check for any errors in this text box.

Data Management

Capturing / Entering Data

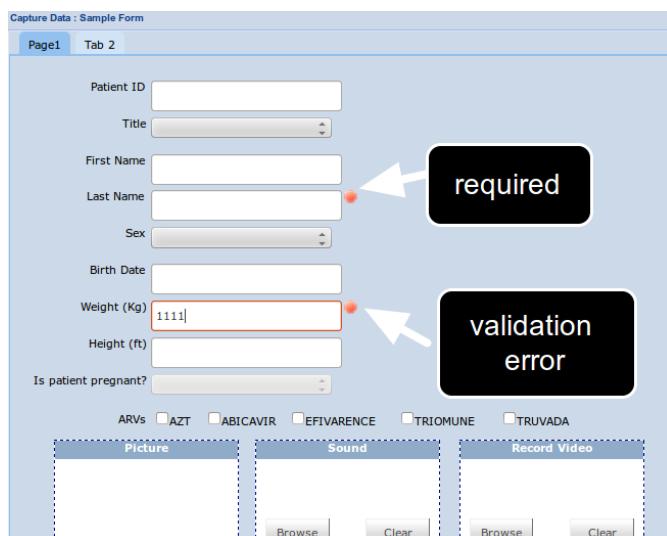


To capture data on the web, you need the role Role_Data_Collector. For data collection on the mobile client, refer to the manual for the mForms.

1. Select the form you wish to capture data for
2. Select Capture Data (or double click on the form)

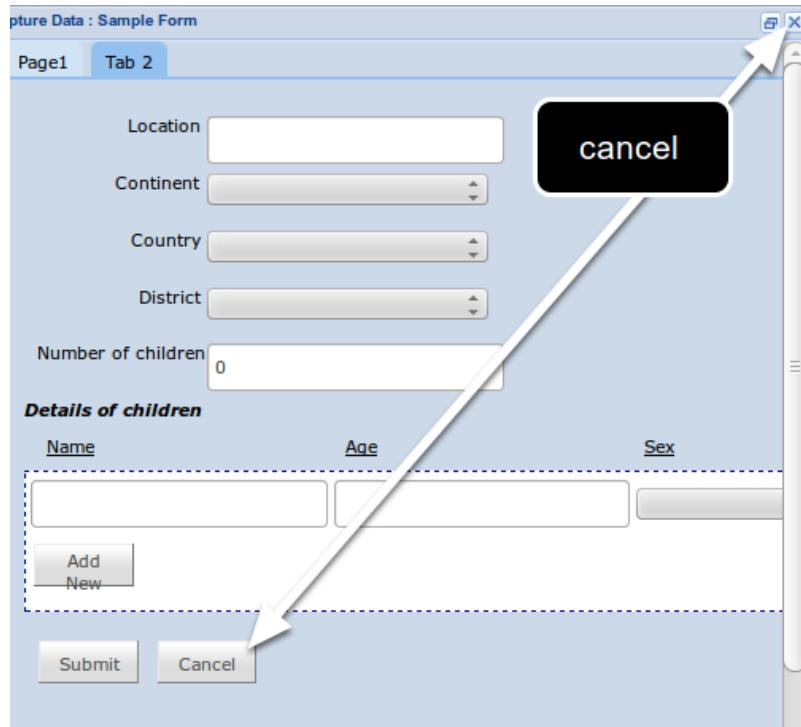
See [v1.16 Known Issues](#) for bug that displays previously uploaded multimedia on a blank form.

Red dots



A red dot can either mean a field is required or there is a validation error. Required fields will be marked with red dots as soon as you open the form, validation errors will appear when the error occurs. Hovering over the red dot will give you the error message so you know what to correct.

Submit or Cancel



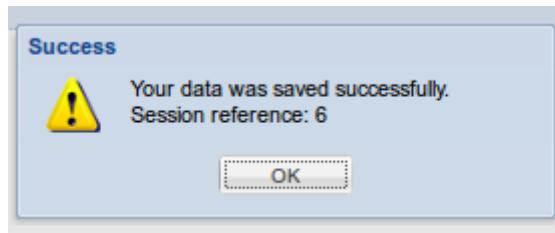
A screenshot of a web-based data entry form titled "Picture Data : Sample Form". The form has two tabs: "Page1" (selected) and "Tab 2". The fields visible include "Location", "Continent", "Country", "District", and "Number of children" (set to 0). Below these is a section titled "Details of children" with columns for "Name", "Age", and "Sex". An "Add New" button is located in the "Name" column. At the bottom of the form are "Submit" and "Cancel" buttons. A large arrow points from the "cancel" button to the top right corner of the window, which contains a close (X) button.

To leave without saving your data click Cancel or the cross in the top right.

To save your data click Submit.

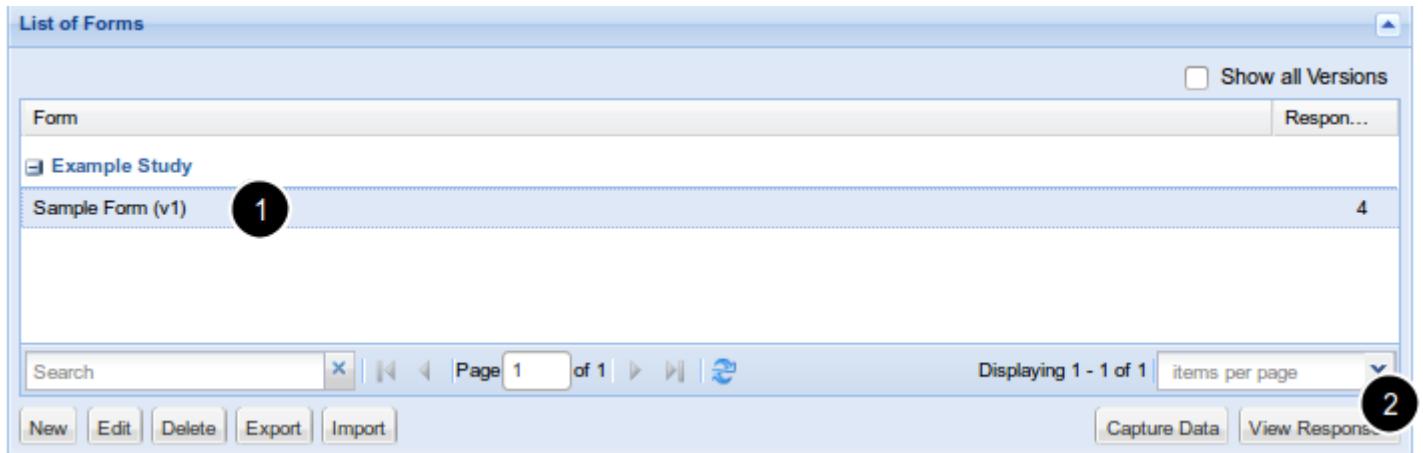
Although you can save a partially filled form on the mForms mobile client, this is not possible on the web forms

Submission confirmation



After pressing Submit, you will be returned to the main dashboard and given a Session reference. This is a unique identifier for the data you entered and can be used for monitoring or other purposes like downloading forms onto phones.

Viewing Data



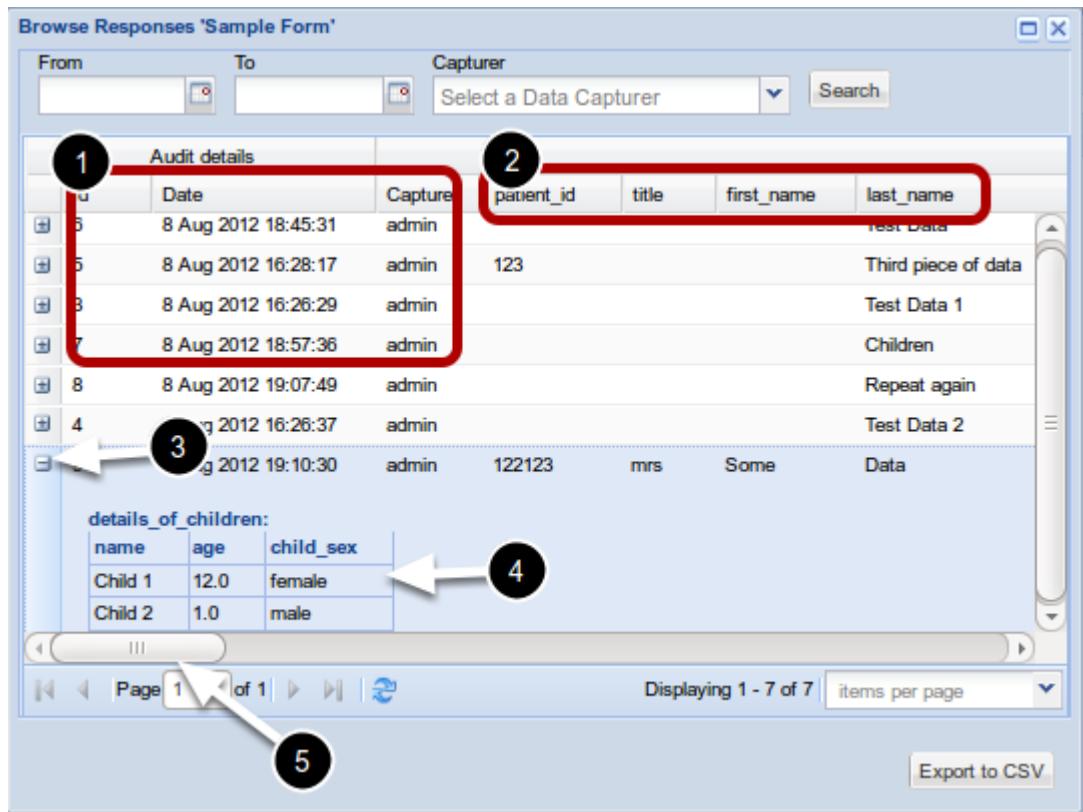
The screenshot shows a software interface titled "List of Forms". At the top right is a checkbox labeled "Show all Versions". Below the title is a table with two columns: "Form" and "Responses". A single row is visible, labeled "Sample Form (v1)" with a count of "4" responses. A circled "1" is placed over the "Responses" column header. At the bottom of the screen are several buttons: "Search", "New", "Edit", "Delete", "Export", "Import", "Capture Data", and "View Responses". A circled "2" is placed over the "View Responses" button. The status bar at the bottom indicates "Displaying 1 - 1 of 1 items per page".

To View Data, you need to have the role Role_Data_Manager.

1. Select the form for the data you wish to view
2. Click View Responses

Note, there is currently no way to view data for more than one form version at a time

Spreadsheet / Row View



The screenshot shows a software interface titled 'Browse Responses 'Sample Form''. At the top, there are fields for 'From' and 'To', a 'Capturer' dropdown set to 'Select a Data Capturer', and a 'Search' button. The main area displays a grid of data rows. A red circle labeled '1' highlights the first row, which contains 'Audit details' and three columns: 'Date' (8 Aug 2012 18:45:31), 'Capture' (admin), and 'patient_id' (123). A red circle labeled '2' highlights the column headers 'patient_id', 'title', 'first_name', and 'last_name'. A red circle labeled '3' points to a '+' sign next to a row number (4) in the grid. A red circle labeled '4' points to a sub-grid titled 'details_of_children:' containing two rows: 'Child 1' (age 12.0, child_sex female) and 'Child 2' (age 1.0, child_sex male). A red circle labeled '5' points to the page navigation bar at the bottom, specifically the 'Page 1 of 1' indicator.

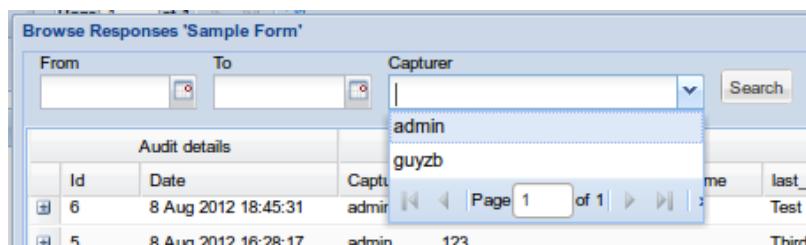
In the view responses window you can see the following information:

1. Information about the data entry - id, date of submission, capturer
2. The form data with question bindings as column headings
3. Clicking on the + sign will expand the data to display the repeat data
4. Any repeat data
5. Use the scroll bar to scroll right

Note:

- The submission date and time is given in the timezone of your server. Remember to convert if you are in a different timezone than your server
- Multimedia questions do not appear in this view.

Filtering



In addition, you can use the From and To boxes and the Capturer drop down to filter the results you are viewing.

After entering your search criteria press the search button to filter the results.

More or less items can be displayed per page, by using the drop down on the bottom right above the Export to CSV button

Opening in Form View



Depending on your permissions, when you double click on a row, you may be presented with the above screen or you may be taken directly to the screen below.

To view your data in the form runner click Open

Form / Web View

Capture Data : Sample Form

Page1 Tab 2

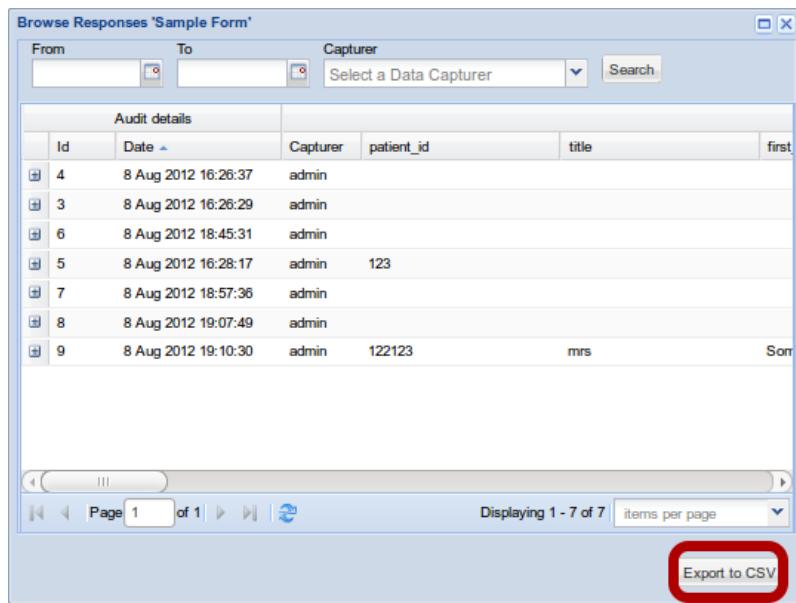
Patient ID	<input type="text" value="122123"/>	
Title	<input type="text" value="Mrs"/>	
First Name	<input type="text" value="Some"/>	
Last Name	<input type="text" value="Data"/>	
Sex	<input type="text" value="Female"/>	
Birth Date	<input type="text" value="08/07/2012"/>	
Weight (Kg)	<input type="text"/>	
Height (ft)	<input type="text"/>	
Is patient pregnant?	<input type="text"/>	
ARVs <input type="checkbox"/> AZT <input type="checkbox"/> ABICAVIR <input type="checkbox"/> EFIVARENCE <input type="checkbox"/> TRIOMUNE <input type="checkbox"/> TRUVADA		
Picture	Sound	Record Video
	<input type="button" value="Browse"/> <input type="button" value="Clear"/>	<input type="button" value="Browse"/> <input type="button" value="Clear"/>

Although the buttons and text fields are active, if you do not have permission to change data, when you try and press Submit you will not be able to change the data. Role_Data_Manager does not have permission to edit data.

There are currently problems viewing multimedia that has been previously saved. See [Known Issues](#) for more information.

Exporting Data

View Responses and Filter Data if necessary



The screenshot shows a software interface titled "Browse Responses 'Sample Form'". At the top, there are fields for "From", "To", and "Capturer" with a dropdown menu "Select a Data Capturer" and a "Search" button. Below this is a table titled "Audit details" with the following data:

Id	Date	Capturer	patient_id	title	first_name
4	8 Aug 2012 16:26:37	admin			
3	8 Aug 2012 16:26:29	admin			
6	8 Aug 2012 18:45:31	admin			
5	8 Aug 2012 16:28:17	admin	123		
7	8 Aug 2012 18:57:36	admin			
8	8 Aug 2012 19:07:49	admin		mrs	
9	8 Aug 2012 19:10:30	admin	122123	Som	

At the bottom of the grid, there is a navigation bar with "Page 1 of 1" and a "Displaying 1 - 7 of 7 items per page" dropdown. The "Export to CSV" button is highlighted with a red circle.

As described in [Viewing Data](#) view the responses for the form you want and filter the data as necessary.

When you have the list of data that you want to export, press Export to CSV. Your browser will download a .csv file with your data in it.

.csv files can be opened in Excel as well as statistical analysis programs like SPSS, R, and STATA.

Each question is a column in the .csv spreadsheet with data for repeat questions at the far right of the csv with those columns repeated as many times as necessary.

You cannot download data from more than one form version at a time because the column headings may not match.

The .csv will not contain your multimedia data. To access your multimedia data, you will need to connect to your MySQL database directly.

Editing Data & Audit Trail

Row editor - use with caution

title	first_name	last_name	sex	birth_date	weight_kg	height_ft
Test Data						
Third piece of data						
Test Data 1						
Test Data 2						
Repeat again						
Children						
mrs	Some	Data	female	08/07/2012		
<input type="button" value="Open"/> <input type="button" value="Save"/> <input type="button" value="Cancel"/> <input type="button" value="Delete"/>						

Select the row you want to edit as described in [Viewing Data](#).

Depending on your permissions you may or may not be able to edit data in the Row editor pictured above. If you do not have permission for the row editor, when you double click on a row, you will immediately be taken to the next step.

If you do have permission, you can edit data in the row editor as shown above. When you have finished, click Save.

Note, this feature is not complete! The row editor is convenient for quick editing, but it does not have all the features of the full web capture and so mistakes can be made. In particular:

- Dynamic lists do not work - all the options are displayed and they are not restricted
- Multimedia questions are not displayed
- Locked/Visible/Enabled flags are ignored
- Skip and validation logic is not available so you can violate the logic and validation you have defined in your form properties
- Calculations are not performed

Edit in web form

Capture Data : Sample Form

Page1 Tab 2

Patient ID	122123
Title	Mrs
First Name	Some
Last Name	Data
Sex	Male
Birth Date	08/07/2012
Weight (Kg)	
Height (ft)	
Is patient pregnant?	Yes
ARVs	<input type="checkbox"/> AZT <input type="checkbox"/> ABICAVIR <input type="checkbox"/> Efavirenz <input type="checkbox"/> TRIOMUNE <input type="checkbox"/> TRUVADA
Picture	
Sound	<input type="button"/> Browse <input type="button"/> Clear
Record	<input type="button"/> Browse

Depending on your permissions, you may be taken straight to this view or you may need to press Open from the Row editor mode.

From here, enter data as you would in standard data capture mode as explained in [Capturing / Entering Data](#)

Audit trail

#	Column	T
<input type="checkbox"/>	1 form_data_version_id	ir
<input type="checkbox"/>	2 form_data_id	ir
<input type="checkbox"/>	3 data	lc
<input type="checkbox"/>	4 creator	ir
<input type="checkbox"/>	5 date_created	d
<input type="checkbox"/>	6 changed_by	ir
<input type="checkbox"/>	7 date_changed	d

Whenever you edit data, all previous versions are kept so that you can make an audit trail if you need to.



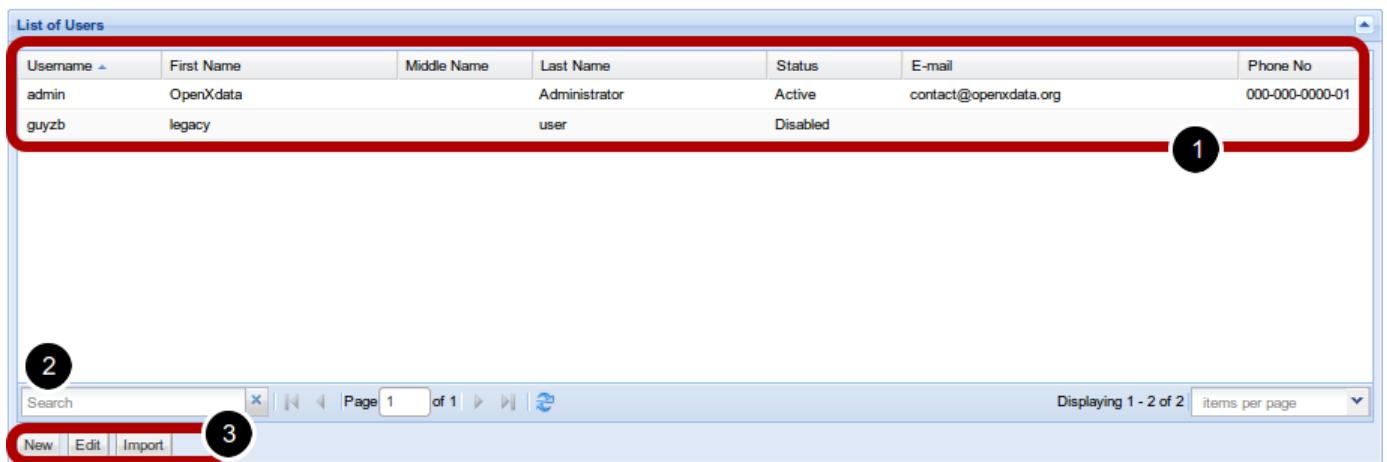
The most recent version of your data will always be in the table form_data and in the exported table so that it can be viewed in the Dashboard. But all previous versions of the data are available in the table form_data_version. This table stores that form_data_id which will stay with the data over its entire history, but will give it a new unique form_data_version_id. The table also stores who created that version of the data as well as who modified it.

Some additional information is available in [How openXdata stores your data](#)

User Management

User Management Features

List of Users



The screenshot shows a table of users with the following data:

Username	First Name	Middle Name	Last Name	Status	E-mail	Phone No
admin	OpenXdata		Administrator	Active	contact@openxdata.org	000-000-0000-01
guyzb	legacy		user	Disabled		

Annotations on the screenshot:

- 1**: A red box highlights the top row of the table.
- 2**: A black circle points to the search bar at the bottom left.
- 3**: A black circle points to the "New" button in the bottom navigation bar.

The List of Users has the following sections:

1. An overview of user details
2. Search functionality for when you have many hundreds or thousands of users
3. User Actions - New / Edit / Import - the User Actions are only accessible to an admin user

Only a user with role "Role_Administrator" has access to the complete set of user functions.

A user with role "Study_Manager" can edit users access to studies and forms through the Edit dialog in List of Forms. See section [User Access to Studies and Forms](#)

Note: A mobile user can view the list of users if they also have dashboard priveles e.g. if they are a Data Collector and a Mobile User - if you do not want a data collector to be able to view your list of users create two seperate users one for Data Collection and one for Mobile Collection as a workaround. This is currently necessary as the mobile client needs to be able to look at the list of users in order to login.

Roles and Permissions

openXdata controls access through roles and permissions

openXdata uses Roles and Permissions to control access to different components of the openXdata interface.

Permissions

Permissions are the finest grain of control. They control individual functionality. For example, within forms there are permissions for the following functionality:

- Perm_Add_Forms - Ability to add forms in the system
- Perm_Delete_Forms - Ability to delete forms from the system
- Perm_Edit_Forms - Ability to edit forms in the system
- Perm_View_Forms - Ability to view forms in the system

Roles

Roles are groups of permissions. openXdata comes with 7 pre-defined groups of permissions that cover many common functional needs:

- Administrator - has permission to do everything
- Study Manager - Creates studies and designs forms
- Data Manager - Review and edits collected data
- Data Collected - Collects data through the web dashboard
- Mobile User - Collects data through the mobile client
- Report Manager & Report User - these are not currently functionally useful but are there for future implementations of reporting functionality

Assigning users roles and permissions

Users are given privileges to different functionality by assigning them **roles** (covered in New and [Users - Edit](#)).

If a role does not have the set of permissions you'd like to assign your user, you can create a new role and customize the privileges in the Admin interface.

Users can be assigned more than one role at once.



Note, as a user you cannot add or edit permissions as this functionality is set inside the code base. Of course openXdata is open-source so you are welcome to modify the code as you see fit. Or, you can file a ticket for a feature request if you feel something is missing.

Further information

On the developer wiki, all the permissions are described in detail along with the standardized set of roles - <https://trac.openxdata.org/wiki/permissions>

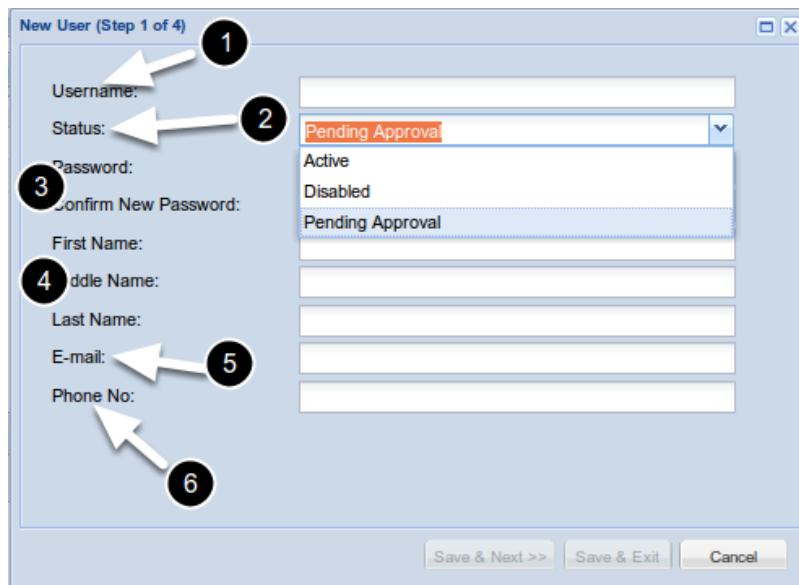
Users - New

Select New from List of Users

List of Users				
Username	First Name	Middle Name	Last Name	Status
admin	OpenXdata		Administrator	Active
guyzb	legacy		user	Disabled

Search Page 1 of 1 | [New](#) | [Edit](#) | [Import](#)

Step 1 of 4 - User information



New User (Step 1 of 4)

1. Username:

2. Status: (Active, Disabled, Pending Approval)

3. Password:

4. Confirm New Password:

5. First Name:

6. Middle Name:

7. Last Name:

8. E-mail:

9. Phone No:

Save & Next >> | Save & Exit | Cancel

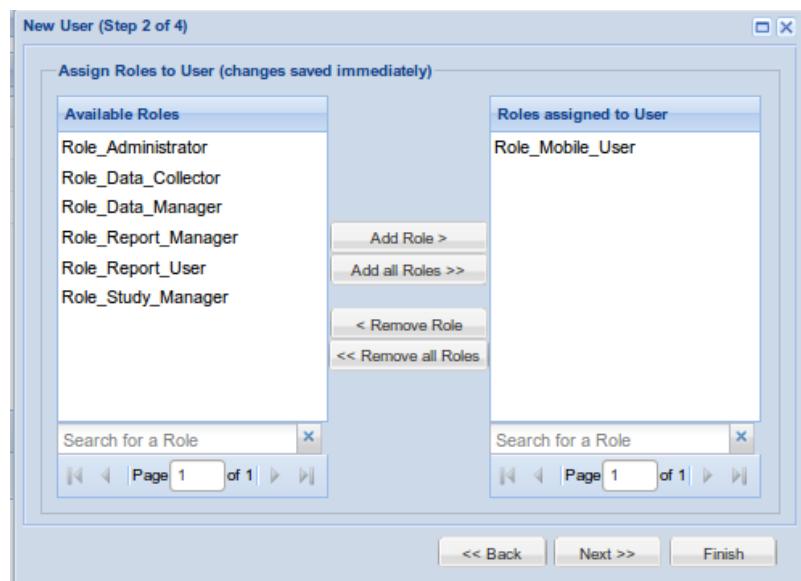
A valid username and password are the minimum required to add a new user.

1. Username - the convention in openXdata is for case insensitive usernames. This means that Admin, admin and admiN are all treated the same. However, in 1.16 this can be changed, by changing the collation in your openXdata database of the user_name column in table users. Work is underway to improve this as of August 2012. If your username is not valid, a red error message will appear and you will not be able to proceed
2. Status. Users can be Active, Pending Approval or Disabled. Only Active users can perform

tasks, collect data etc as per their roles

3. You must enter a password for the user twice which must be greater than 6 characters.
4. You can add the full name of the user. This doesn't affect how the system operates but will help you to find users and will be displayed at the top of the dashboard when they login.
5. The email address is used to email a new password in the case of a forgotten password providing the email settings are correctly setup in OPENXDATA_SETTINGS.properties
Invalid email addresses will not be accepted
6. Phone number can be used also to find and identify users.

Step 2 of 4 - Roles



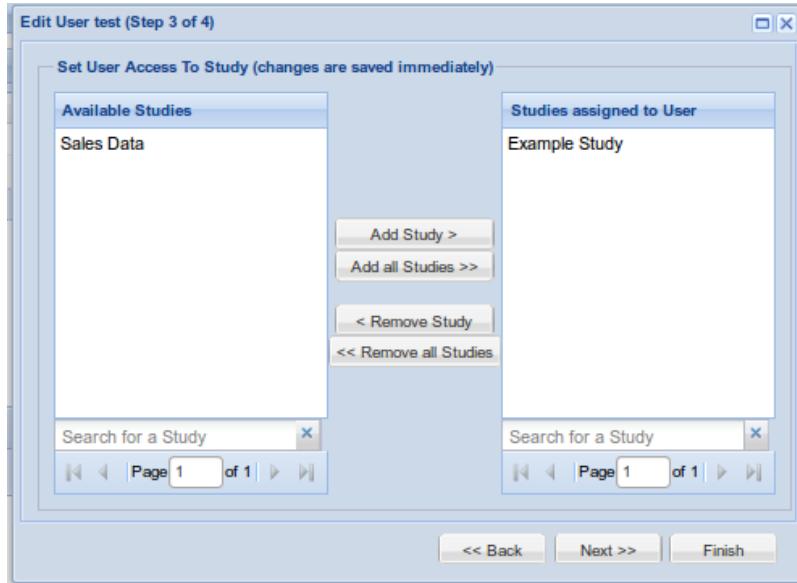
You can assign one or multiple roles to a user.

Note, if a user has the Role_Administrator they have access to all functionality, studies and forms in openXdata so there is no need to assign additional roles.

To assign more than one role at a time, hold down Ctl to select multiple roles and then press Add Role to add those roles.

Roles displayed on the right are the roles presently assigned to the user. In the above example, the user has been assigned the role Mobile User.

Step 3 of 4 - Studies

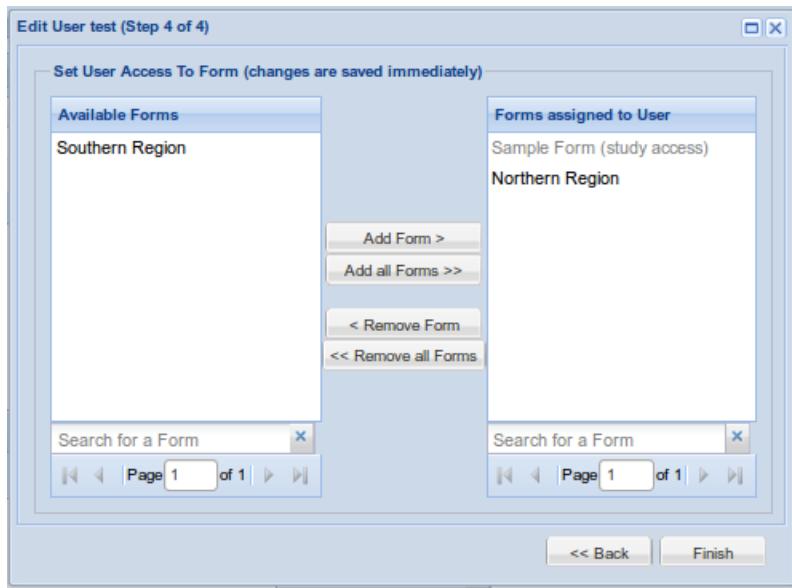


The screenshot shows the 'Edit User test (Step 3 of 4)' window titled 'Set User Access To Study'. It has two main sections: 'Available Studies' on the left containing 'Sales Data' and 'Studies assigned to User' on the right containing 'Example Study'. Between them are buttons for managing study assignments: 'Add Study >', 'Add all Studies >>', '< Remove Study', and '<< Remove all Studies'. Below each section is a search bar labeled 'Search for a Study' and a page navigation bar. At the bottom are buttons for '<< Back', 'Next >>', and 'Finish'.

If a user is assigned to a study they have access to all the forms in the study.

In the above example, the user has been assigned to the Study "Example Study" but not to the study "Sales Data"

Step 4 of 4 - Forms



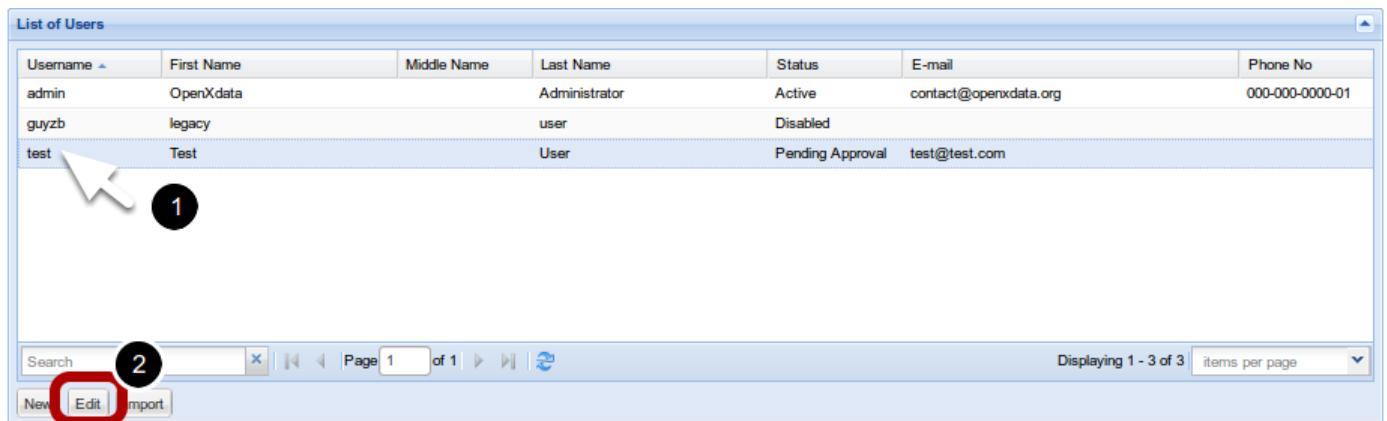
The screenshot shows the 'Edit User test (Step 4 of 4)' window titled 'Set User Access To Form'. It has two main sections: 'Available Forms' on the left containing 'Southern Region' and 'Forms assigned to User' on the right containing 'Sample Form (study access)' and 'Northern Region'. Between them are buttons for managing form assignments: 'Add Form >', 'Add all Forms >>', '< Remove Form', and '<< Remove all Forms'. Below each section is a search bar labeled 'Search for a Form' and a page navigation bar. At the bottom are buttons for '<< Back' and 'Finish'.

If a user has been assigned to a study, they are automatically assigned to all the forms in a study. However, access to individual forms can be set on this screen.

In the above example, the user has access to the Sample Form because we gave her access to the Example Study in Step 3. In addition, they have been given access to the Northern Region form from the Sales Data study, but not the Southern Region Form.

Users - Edit

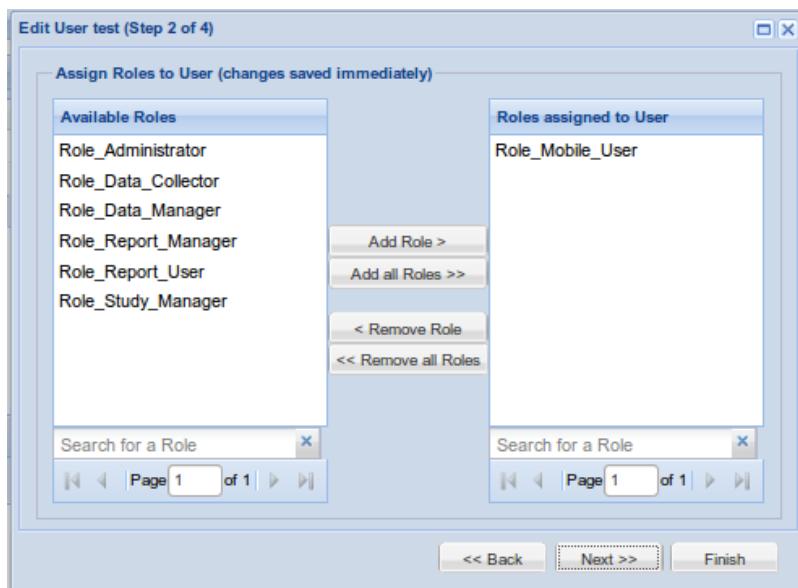
Select a user and Edit



The screenshot shows a table titled 'List of Users' with columns: Username, First Name, Middle Name, Last Name, Status, E-mail, and Phone No. Three users are listed: admin, guyzb, and test. A cursor arrow points to the 'test' row, which is highlighted with a black circle labeled '1'. At the bottom of the table, there is a toolbar with buttons for 'New', 'Edit' (which is circled in red), and 'Import'. Below the toolbar, there is a search bar, a page navigation area showing 'Page 1 of 1', and a status message 'Displaying 1 - 3 of 3 items per page'.

As with forms, select a user and select Edit to edit that user.

Changes are saved as soon as you make them

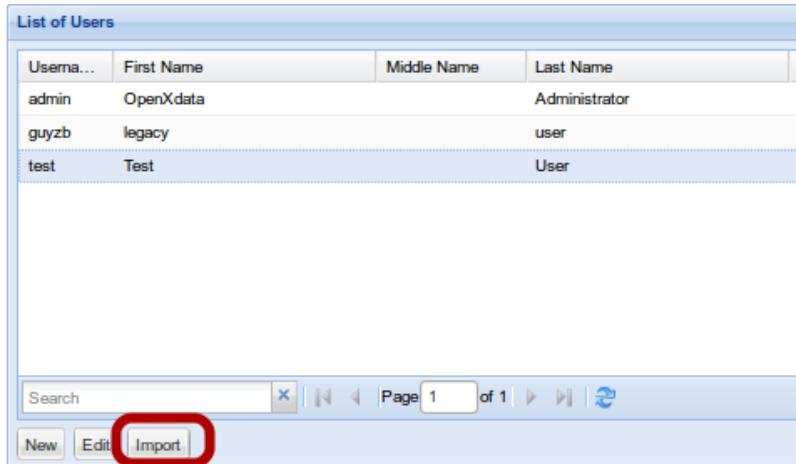


The screenshot shows the 'Edit User test (Step 2 of 4)' dialog. It has two main sections: 'Available Roles' on the left and 'Roles assigned to User' on the right. In the 'Available Roles' section, several roles are listed: Role_Administrator, Role_Data_Collector, Role_Data_Manager, Role_Report_Manager, Role_Report_User, and Role_Study_Manager. In the 'Roles assigned to User' section, only 'Role_Mobile_User' is listed. Between the two sections are buttons: 'Add Role >', 'Add all Roles >>', '< Remove Role', and '<< Remove all Roles'. At the bottom of each section is a search bar and a page navigation area. At the very bottom of the dialog are buttons for '<< Back', 'Next >>', and 'Finish'.

The steps are exactly the same as in [Users - New](#). But it is worth noting that as soon as you make a change, like add or remove a role, it is saved. Even if you press the x button in the top right and "Cancel" the screen, your changes will be saved.

Users - Import

Importing Users



The screenshot shows a user management interface titled 'List of Users'. It displays a table with four columns: 'Username', 'First Name', 'Middle Name', and 'Last Name'. There are three rows of data: one for 'admin' (First Name: OpenXdata, Last Name: Administrator), one for 'guyzb' (First Name: legacy, Last Name: user), and one for 'test' (First Name: Test, Last Name: User). A sorting dropdown is visible at the top right of the table. Below the table is a search bar and a footer with buttons for 'New', 'Edit', and 'Import'. The 'Import' button is circled in red.

If you have a lot of users to enter into your system, you likely don't want to enter them all manually one-at-a-time. openXdata allows you to do a csv import of your users.

Download import template



The screenshot shows an 'Import Users' dialog box. It has a 'File name:' input field with a 'Browse...' button to its right. At the bottom are 'Import' and 'Cancel' buttons. A 'Download Template' button is highlighted with a red circle.

After you click on Import, you can either enter your csv or you can download a template that demonstrates the correct layout for you to add your users. A .csv file can be opened in a text editor or in excel. But if you do open it in excel, remember to save as a .csv when you are done so that openXdata can recognize the file for import.

Enter users in csv

	A	B	C	D	E	F	G	H	I	J
1	name	firstName	middleName	lastName	phoneNo	email	clearTextPassword	roles	formPermissions	studyPermissions
2	user1	User		One		user1@myorg.com	asecurepass	Role_Data_Manager		Sales Data
3	user2	User		Two		user2@myorg.com	anotherpass	Role_Mobile_User, Role_Study_Manager	Northern Region, Sample Form	

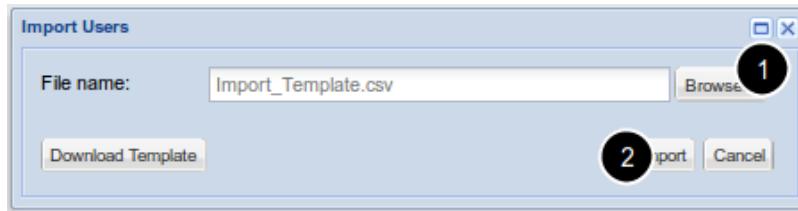
Here, I have entered two users.

- name is the username
- firstName, middleName, lastName are the user's real name

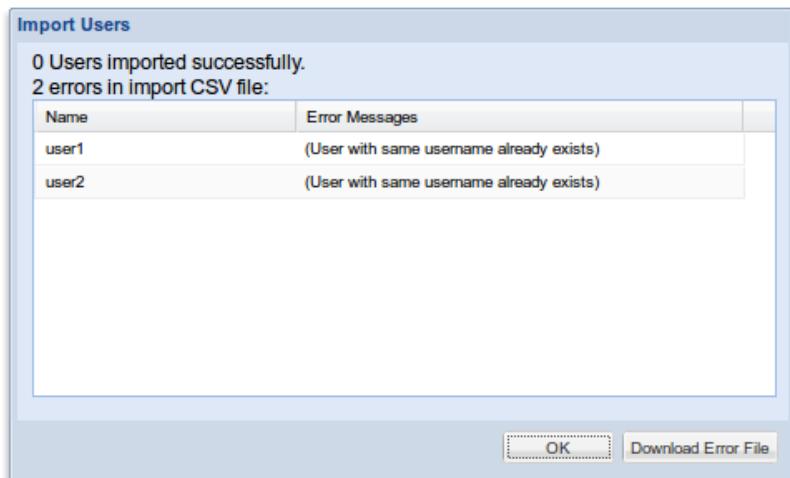
- clearTextPassword is the user's password (hopefully you'll pick something secure)
- roles, this a comma seperated list of all the roles you want the user to have. Remember the _ between each list
- formPermissions - add the individual form names you wish to grant access to seperated by a comma - note that you cannot have a space at the start of the form name e.g. "Northern Region, Sample Form" will not work but "Northern Region,Sample Form" will work
- studyPermissions - add the study names you wish to grant access to, again seperated by a comma

Save your work as a .csv

Upload users



Upload confirmation



After import, a screen will present to you the number of successful and unsuccessful uploads. You can download a file from this screen which specifies for each user where the problem was so you can correct your .csv

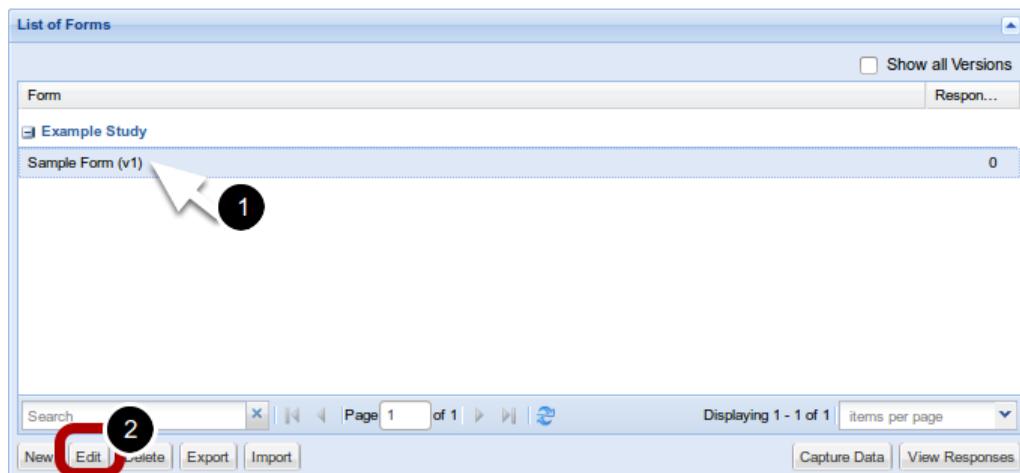
Modifying User Access to Studies and Forms through List of Forms

Using List of Forms Dialogs

In addition to editing users permissions and access to forms in the List of Users, access to Studies or Forms can be set through the dialogs in the List of Forms.

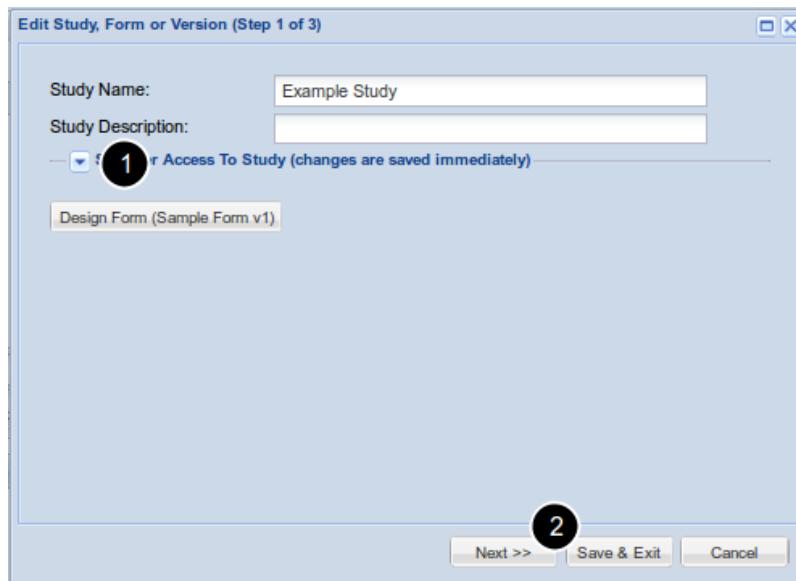
This allows the Study Manager to edit access to forms and studies for users, even though they can't add users to the system or edit the users themselves.

Select form and use edit dialog



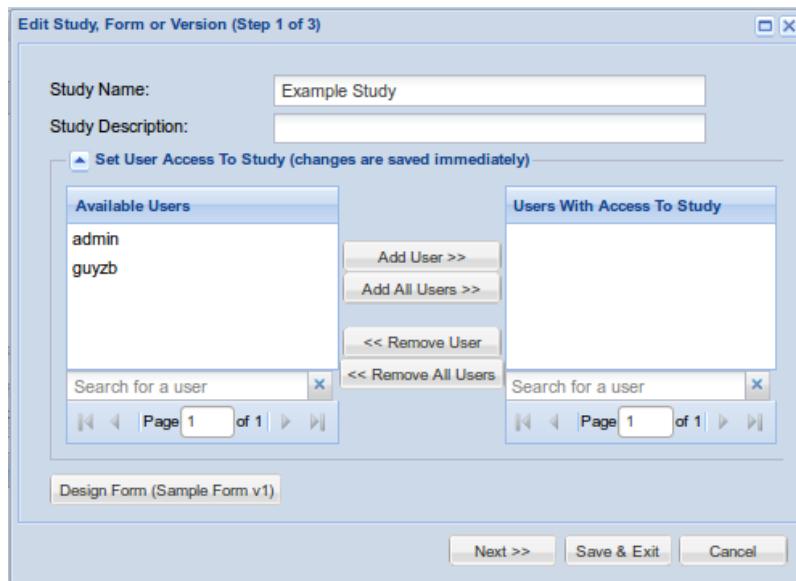
1. Select the Form you wish to edit permission for, or any form inside the Study you wish to edit permissions for
2. Select Edit

Edit Study permissions (or click Next for Form)



1. Press the down button to edit the a user's access for the whole study
2. Or select next to edit the permissions only for the form

Edit Study permissions cntd



If you pressed (1) in the above step, a new dialog will open up where you can add or remove users from a study.

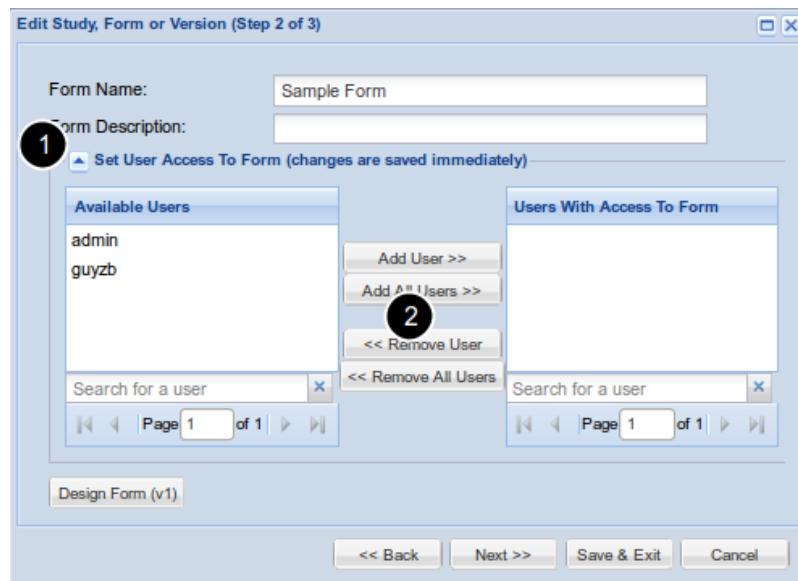
Giving access to a study, provides access to all forms in that study. Remember that a mobile user will only be able to see "Published" forms.

You can use the search dialog to search for users if you have many in your list.

To select multiple users at the same time, hold the shift key while clicking on multiple users.

If you are finished at this point you can Save & Exit

Edit Form permissions



If you clicked "Next" on the above dialog, you will be in the screen to edit the Form. Again,

1. Press the down arrow to access the user dialog
2. Edit users access to the form in the same manner as above by selecting users and adding them to the right hand list.

Cannot edit Form Version permissions

It is not possible to edit user access at the level of a form version. If you do not want users to see a form version, un-publish it.

Admin

How openXdata stores your data

In a MySQL database

All the data you collect in openXdata is stored in the MySQL database that you setup in the first step. It is worth noting here that openXdata (the software) does not do anything to secure your database for you, you must take your own steps to ensure the integrity and security of your database (and your backups). In addition openXdata (the organization) cannot see or access or control your data - it is yours to own, use and protect.

Inside the database, it goes into two or more places:

1. standard table: form_data
2. standard table: form_data_version (only used when data is edited)
3. custom table: table of data per form
4. custom table: table of data for any repeat questions (only when form has repeat questions)

form_data

#	Column	Type	Collation	Attributes	Null	Default	Extra
1	form_data_id	int(11)			No	None	AUTO_INCREMENT
2	form_definition_version_id	int(11)			No	None	
3	description	text	latin1_swedish_ci		Yes	NULL	
4	data	longtext	latin1_swedish_ci		No	None	
5	creator	int(11)			No	0	
6	date_created	datetime			No	0002-11-30 00:00:00	
7	changed_by	int(11)			Yes	NULL	
8	date_changed	datetime			Yes	NULL	
9	exported	int(11)			No	0	
10	voided	tinyint(1)			No	0	

The table form_data stores the raw xml of your data in the column data.

The xml for your data will contain all of the fields in your form and any data you've stored, for example:

```

<?xml version="1.0" encoding="UTF-8"?>
<example_study_sample_form_v1 formKey="example_study_sample_form_v1" id="1"
name="Sample Form_v1" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<patient_id/>
<title/>
<first_name/>
<last_name>Testing Form 1</last_name>
<start_time/>
<endtime>09:49:27 PM</endtime>

```

</example_study_sample_form_v1>

Each data entry is given a unique ID, and it retains that ID when you edit it.

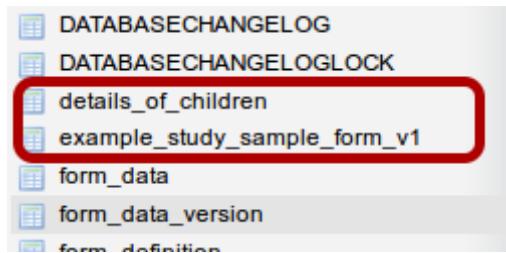
The version of your data entry in the table form_data will be the latest version of that particular data entry

form_data_version

#	Column	Type	Collation	Attributes	Null	Default	Extra
1	form_data_version_id	int(11)		No	None		AUTO_INCREMENT
2	form_data_id	int(11)		No	None		
3	data	longtext	latin1_swedish_ci	No	None		
4	creator	int(11)		No	0		
5	date_created	datetime		No	0002-11-30 00:00:00		
6	changed_by	int(11)		Yes	NULL		
7	date_changed	datetime		Yes	NULL		

The table form_data_version stores old versions of the data when a data entry is edited. It also includes information useful for audit trails like who changed the data and when.

custom table



For each form, a unique table, or tables is created.

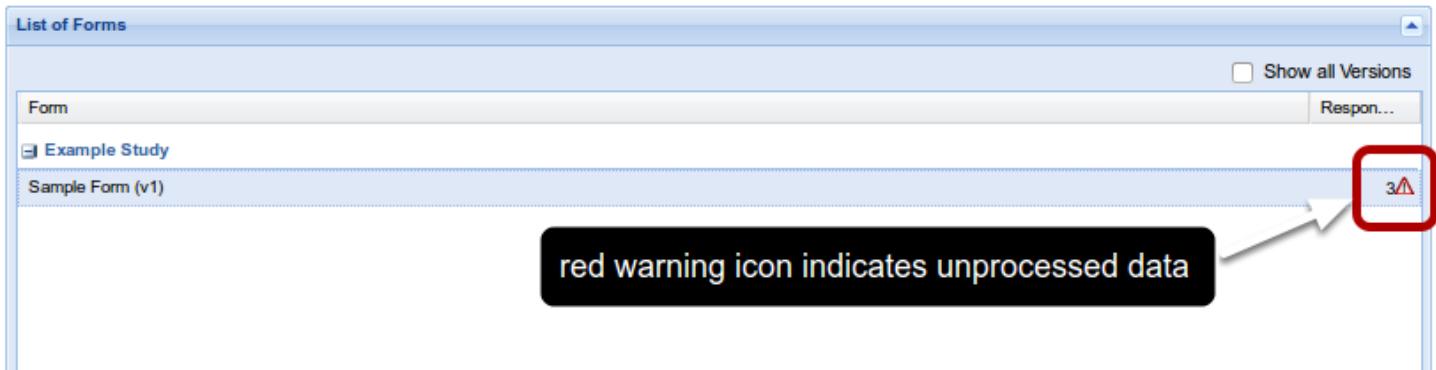
These tables have the same name as the form version binding or the repeat question binding.
(See the Glossary for more information on bindings)

These tables have the data broken out into columns with the column headings being the question bindings.

In 1.16 there are some protections to prevent a clash of table names but they can still happen. In particular:

- Importing a form that already exists in the database
- Creating a repeat question with the same binding

Unprocessed data



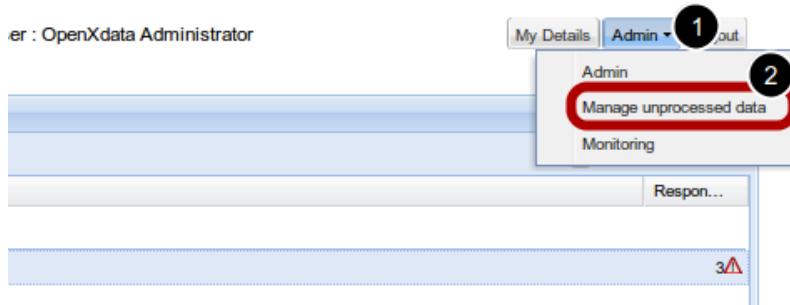
As explained in [How openXdata stores your data](#), openXdata stores your data in two places. Sometimes, your raw data may be in your database, but you may not be able to view it in the Dashboard because it could not be "processed."

This happens because of some problem matching your data to the export table. It can happen because of bugs in openXdata or because something has gone wrong in your database. An example of a current bug that causes a problem is [Ticket #254](#) where you can't capture integers above a certain length.

If I click View Responses when I am on the selected Sample Form, as shown below, I will see only two responses displayed even though the number of responses is listed as 3

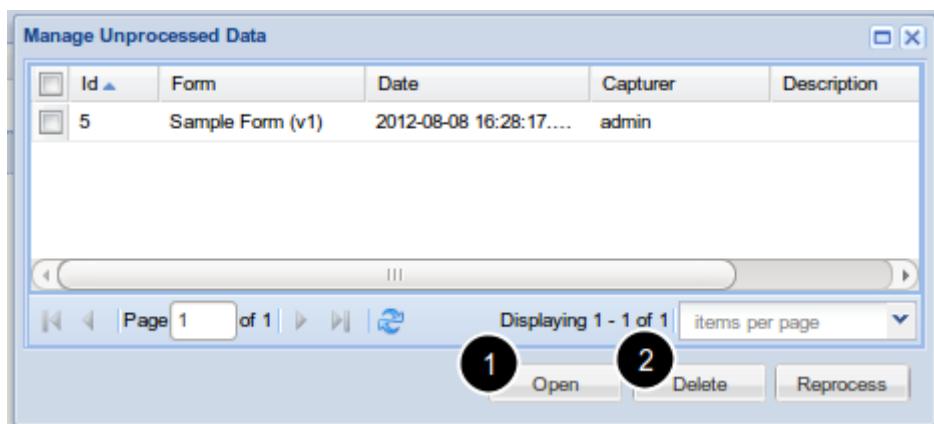
Browse Responses 'Sample Form'				
From	To	Capturer	Audit details	
		Select a Data Capture		
Audit details				
	ID	Date	Capturer	patient_id
	4	8 Aug 2012 16:26:37	admin	
	3	8 Aug 2012 16:26:29	admin	

Managing unprocessed data



1. Click on Admin on top right next to My Details (if you do not see this option, you need to ask your administrator for permission)
2. Select Manage unprocessed data

Open, Delete and Reprocess



	Id	Form	Date	Capturer	Description
	5	Sample Form (v1)	2012-08-08 16:28:17....	admin	

Page 1 of 1 | Displaying 1 - 1 of 1 items per page | 1 Open | 2 Delete | Reprocess

The Manage Unprocessed Data window gives you a list of all the data that has *not* been processed and requires a remedy.

You can correct the problem, by editing using (1) Open, (2) Deleting it, or by making other corrections at the database level.

Open

- Select the form you wish to edit
- Click Open and you will be taken to the form runner - note you will need a form layout designed for your form
- Alter the form as appropriate and click Submit
- If your edit was correct and you have no more data to reprocess you will probably notice the triangle has gone from the List of Forms
- Click the Refresh button and if the form has disappeared your edit was successful

Note that copies of the data that was originally entered are still stored in the database in the form_data_version table

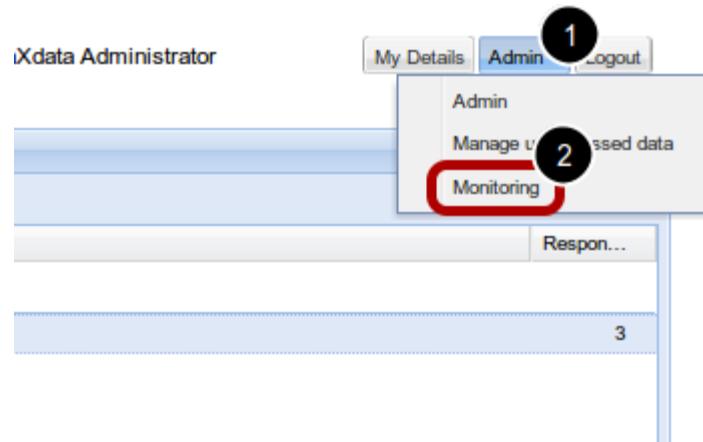
Delete

- Delete any forms that you don't want to reprocess by selecting them and clicking Delete

Reprocess

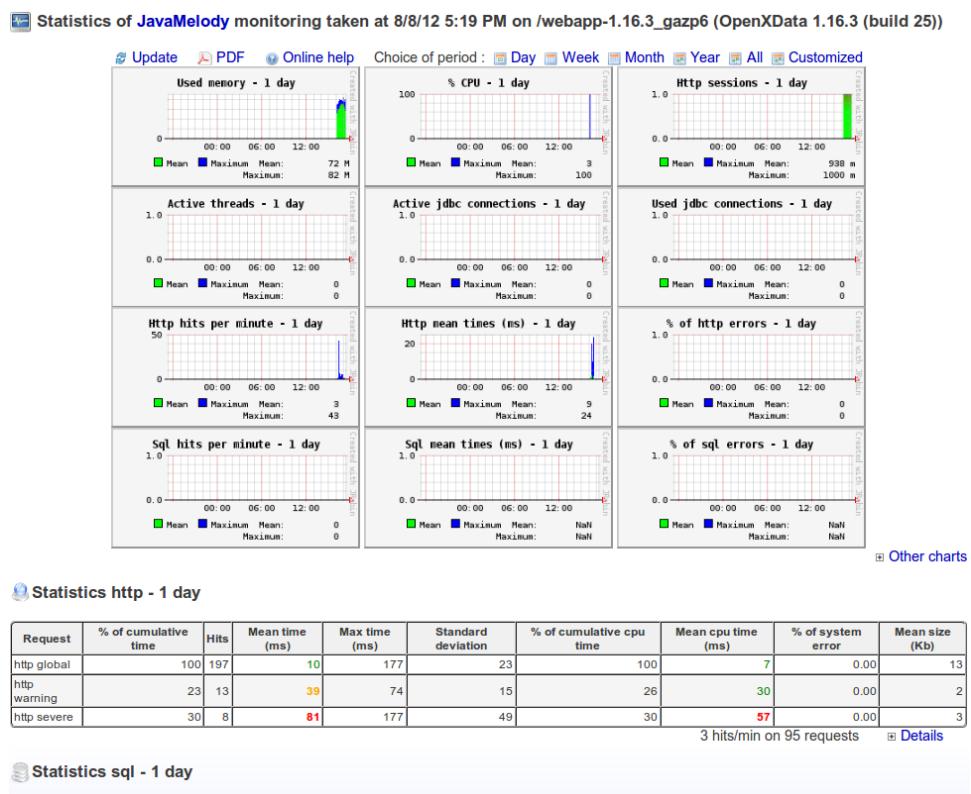
- If you have made modifications at the database level or elsewhere and you want to trigger openXdata to attempt to process the data again select the relevant forms and click Reprocess. If they are removed from the list then they have successfully been exported to your table and you will be able to view the data from the Dashboard.

Monitoring your openXdata instance



1. Click on Admin on top right, next to My Details. (If you do not see this option, you need to ask your administrator for permission)
2. Select Monitoring

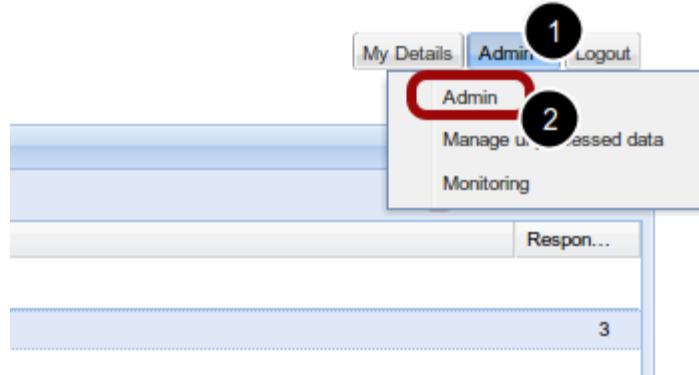
JavaMelody Monitoring



openXdata provides monitoring of your instance through the open source tool, JavaMelody. More information can be found at <https://code.google.com/p/javamelody/>

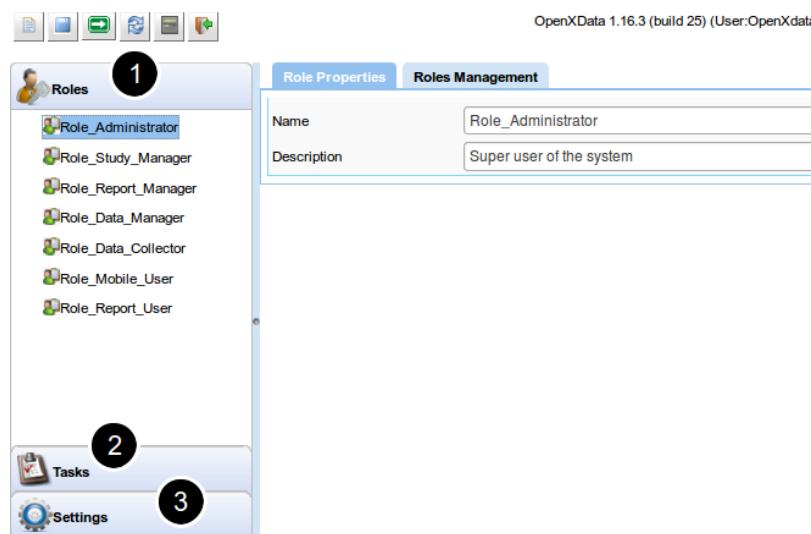
Accessing additional Admin options

Defining new roles, access tasks and settings



The Admin console runs in a separate window from the Dashboard. To access it click Admin -> Admin (you need Administrator privileges to access the admin console)

Admin Console



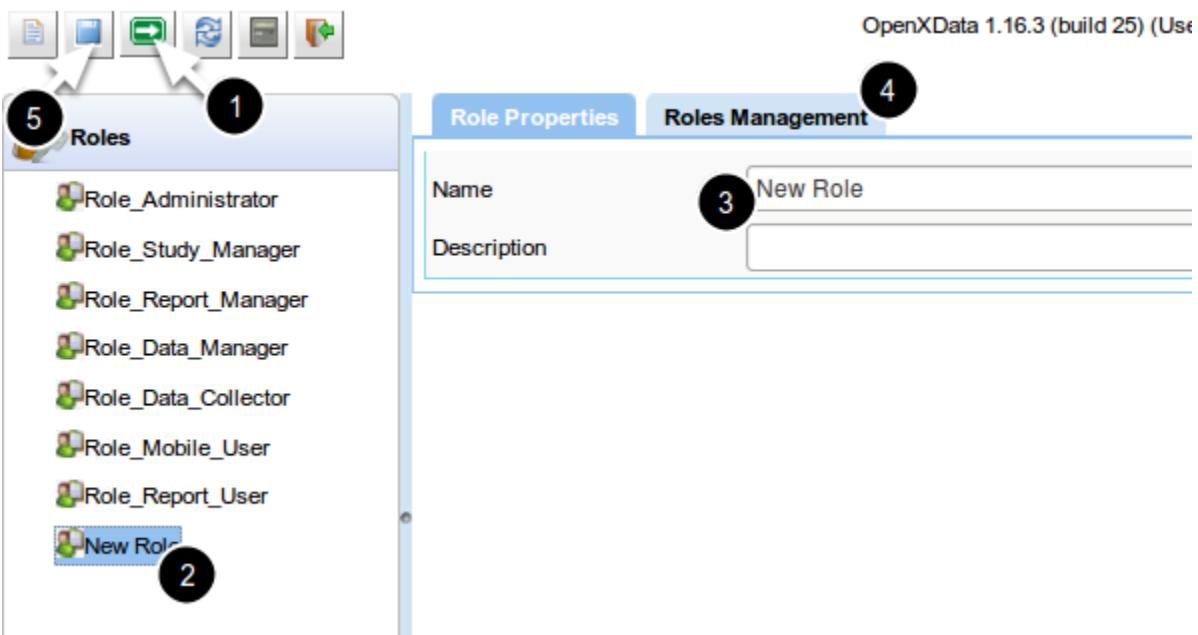
Name	Description
Role_Administrator	Super user of the system

The admin console allows you to modify three openXdata components:

1. Roles
2. Tasks
3. Settings

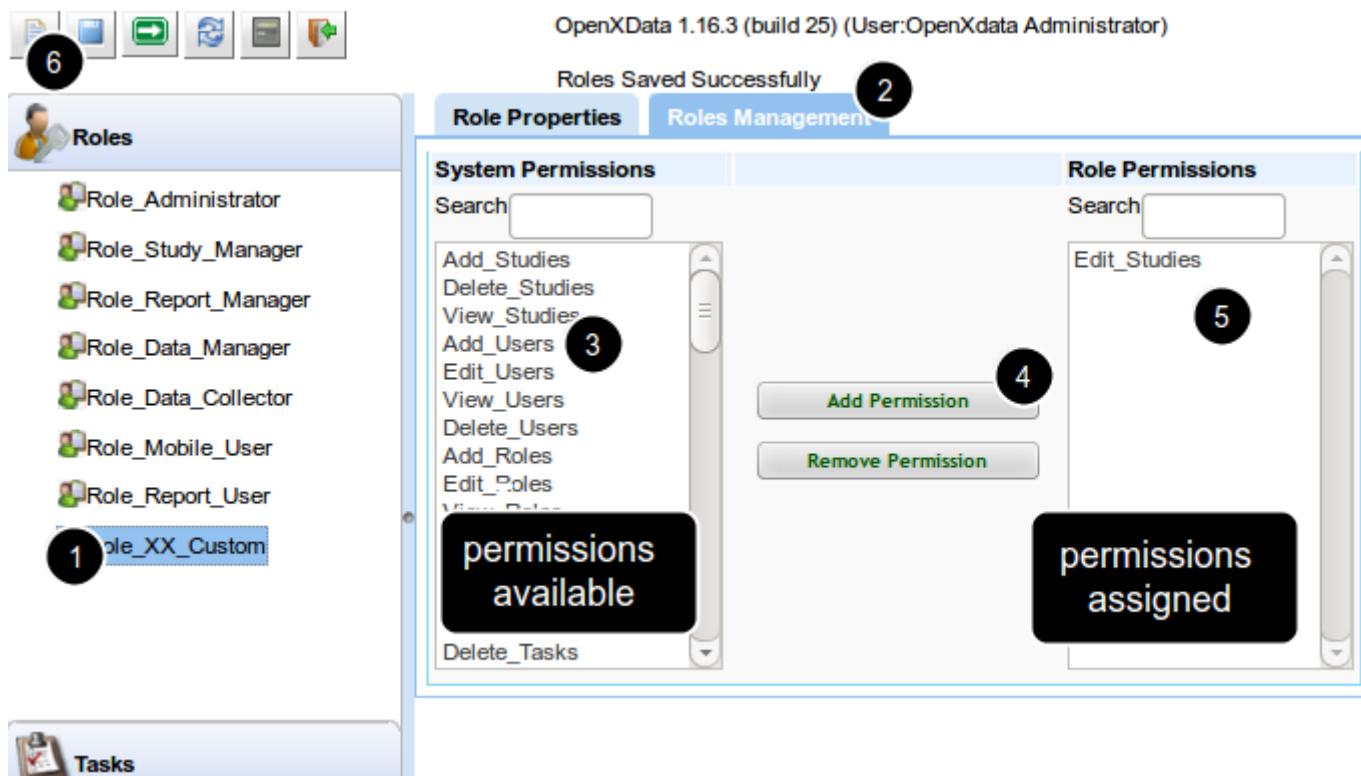
You may also see a tab Datasets, this is being removed as it is currently non-functional.

Role Management - 1 Add A Role



1. With any role selected, click the "Add New Child" button
2. A "New Role" will appear in the left window
3. Edit the Name of the Role
4. Select the Roles Management tab to edit the permissions for your new role (See next Step)
5. Click Save

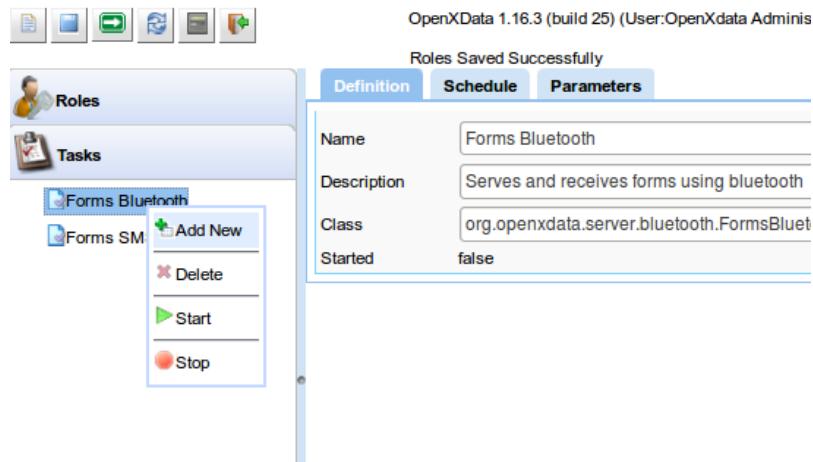
Role Management - 2 Edit Role Permissions



To add or remove permissions for an existing role or your newly created role:

1. Select your role in the left window
2. Select the Roles Management tab
3. The left window is a list of all possible permissions that remain available for assignment to the role
4. Selecting on a permission and using the Add or Remove permission buttons will move the permission from left or right as appropriate
5. The right window displays the permissions that have been assigned to the role
6. After editing the permissions for your role, click save

Tasks



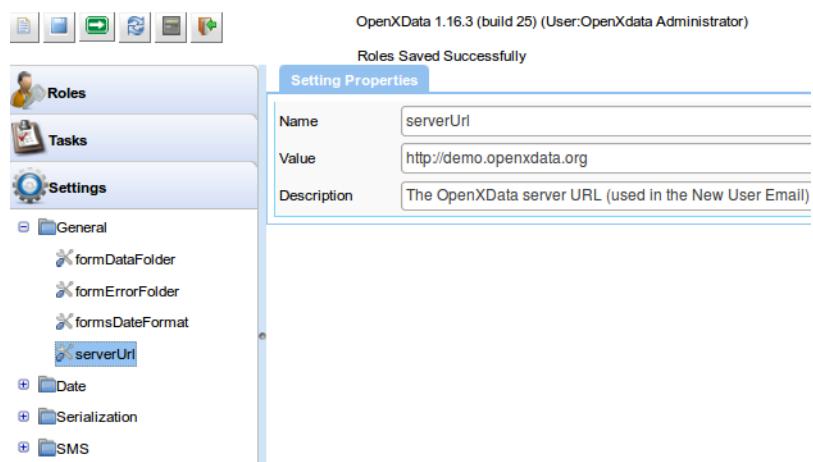
The screenshot shows the OpenXData interface with the 'Tasks' tab selected. On the left, there's a sidebar with 'Roles', 'Tasks', and 'Settings'. Under 'Tasks', 'Forms Bluetooth' is selected, and its properties are displayed on the right. The 'Definition' tab is active, showing the task's name ('Forms Bluetooth'), description ('Serves and receives forms using bluetooth'), class ('org.openxdata.server.bluetooth.FormsBluet'), and started status ('false'). Above the tabs, a message says 'Roles Saved Successfully'.

The Tasks dialog allows you to edit existing tasks, start and stop them (by right clicking on the appropriate task), or add new tasks.

Tasks are run on a schedule like a cron job that is edited in the Schedule tab. Parameters are set in the Parameters tab.

Tasks refer to a java class that specifies the task action, so a new task will likely require some additional coding

Settings



The screenshot shows the OpenXData interface with the 'Settings' tab selected. On the left, there's a sidebar with 'Roles', 'Tasks', and 'Settings'. Under 'Settings', 'General' is expanded, showing 'serverUrl' as a setting. The 'Setting Properties' tab is active, displaying the name ('serverUrl'), value ('http://demo.openxdata.org'), and description ('The OpenXData server URL (used in the New User Email)'). Above the tabs, a message says 'Roles Saved Successfully'.

The Settings tab allows you to edit various openXdata settings. For example, under User Settings you can enable an email to be sent when a New User is created.

You may need to re-start your openXdata instance after you have edited a setting for it to take

effect.

Resetting Admin password

An admin user can login to openXdata and reset all other user's passwords. However, if you forget your admin password you may be stuck.

In this case, you will need to access your openXdata database directly and reset the default admin. This should really be a last resort measure and you should take care to safeguard your passwords appropriately.

You will need to know the MySQL username and password for your openXdata database or your MySQL root username and password.

To change the password of any user to admin, reset:

* password: 7357bec928a1af86415f7b8c11245296ec1779d

* salt: e2597cf74095403889c6b07b46d8af5d94b8e6

Miscellaneous

v1.16 Features

We keep adding new features to openXdata to bring you the best in data collection. In 1.8 you will find:

Everything you expect from a data collection tool

- We support the following data types: Text, Integer, Decimal, Single Select (select only one option), Multiple Select (check all that apply), Boolean (Yes/No), Date, Time, Date & Time, Repeat (a group of questions which can be repeated), Picture, Video, Audio, Single Select Dynamic (see Glossary), and GPS.
- Answer validation to improve data quality
- Skip Logic to guide users through your Form
- Mobile client works on low-end phones
- Web-based data capture
- Export your data to .csv
- Free and open-source to run on your own server where you control your data

In v1.16 we have added:

Improved Dashboard

The landing page has been upgraded to provide Study Manager's access to all their main activities.

Form management:

- Add forms and studies through guided dialogs
- Quick overview of the number of responses on each form
- Add, Edit and Delete studies easily
- Improved Export and Import of your xml-based definitions
- Search function for your forms

User management

- Role-based user management
- Assign users permission to view only the necessary parts of openXdata
- Assign users to studies (groups of forms) or individual forms
- Reset passwords

For administrators, the Dashboard now includes Java Melody to monitor the performance of your openXdata interface.

Improved Data Management

- View Responses in a simple spreadsheet view
- Edit responses in-line or open the data entry form
- All edits are recorded for full auditing in openXdata database
- Dialog to view "un-processed" data and re-process it

Improved Form Designer

- Design forms in our graphical user interface
- Autogenerate web forms
- We have continued to improve the stability of the openXdata form designer
- Directly edit xforms source, if you're that way inclined!

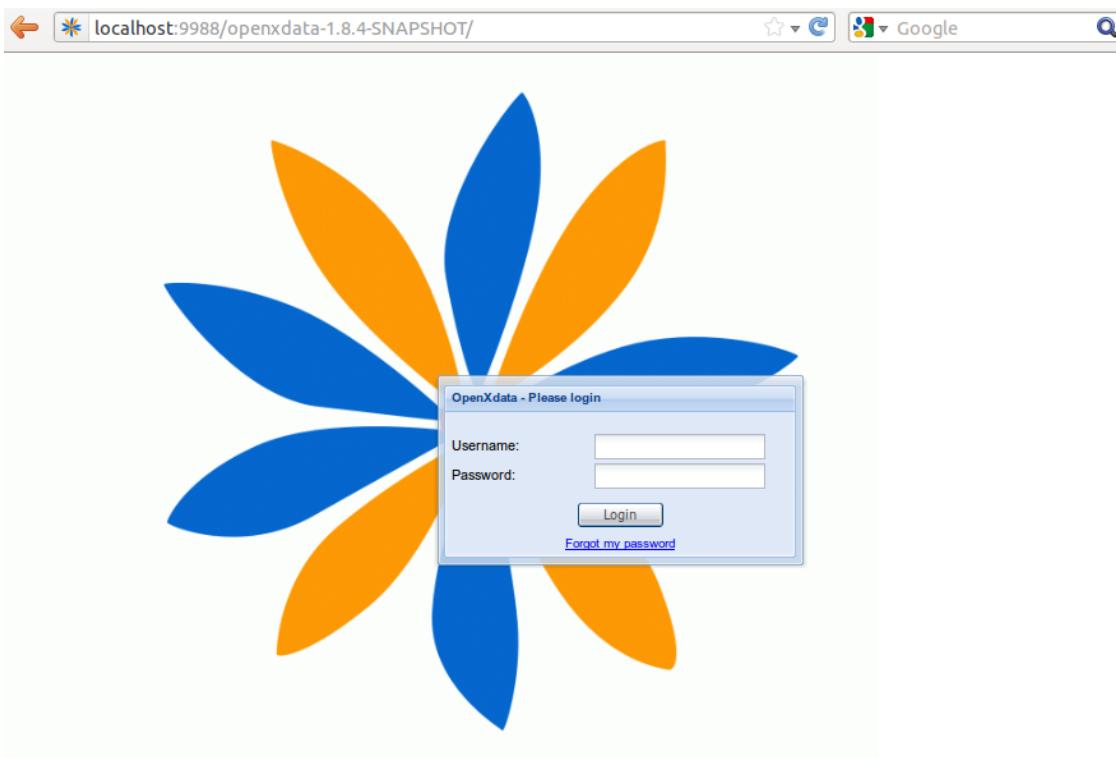
For complete openXdata features see the feature index.

Improved Community Processes

- Since 1.3 we have shifted to 2-week iterations and a regular release cycle
- We have implemented a new commit process including patches and code review. This has improved the stability and quality of our code, reduced our time to release, and increased the transparency of the features that are being worked on. Active work is viewable at <http://trac.openxdata.org/roadmap>
- If you're interested in joining the openXdata developer community, go to <http://trac.openxdata.org> to get started - we'd love to hear from you
- Finally we have formalized our public release process to increase transparency and quality of our public releases.

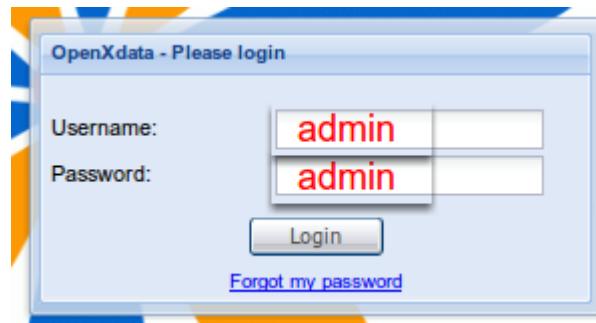
First Login & 1.16 Dashboard Home

Go to openXdata



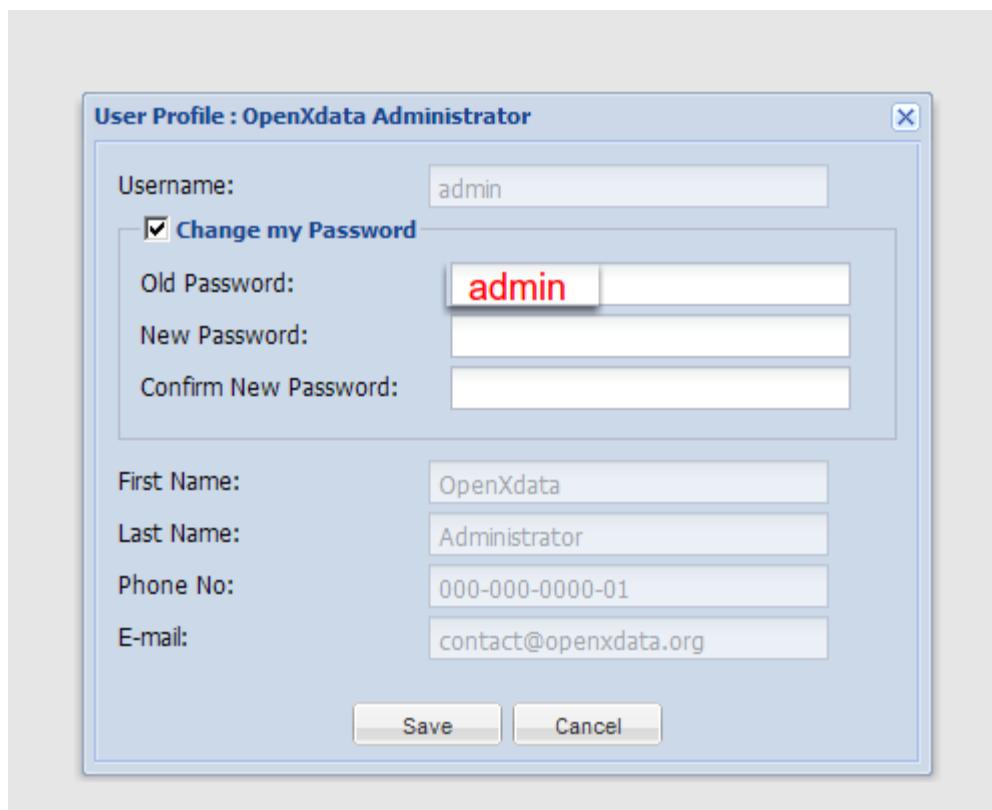
Go to your openXdata server address (from Installing openXdata on your server or desktop)
e.g. <http://localhost:8080/openxdata>

Default username & password



By default the username and password to openXdata are admin / admin

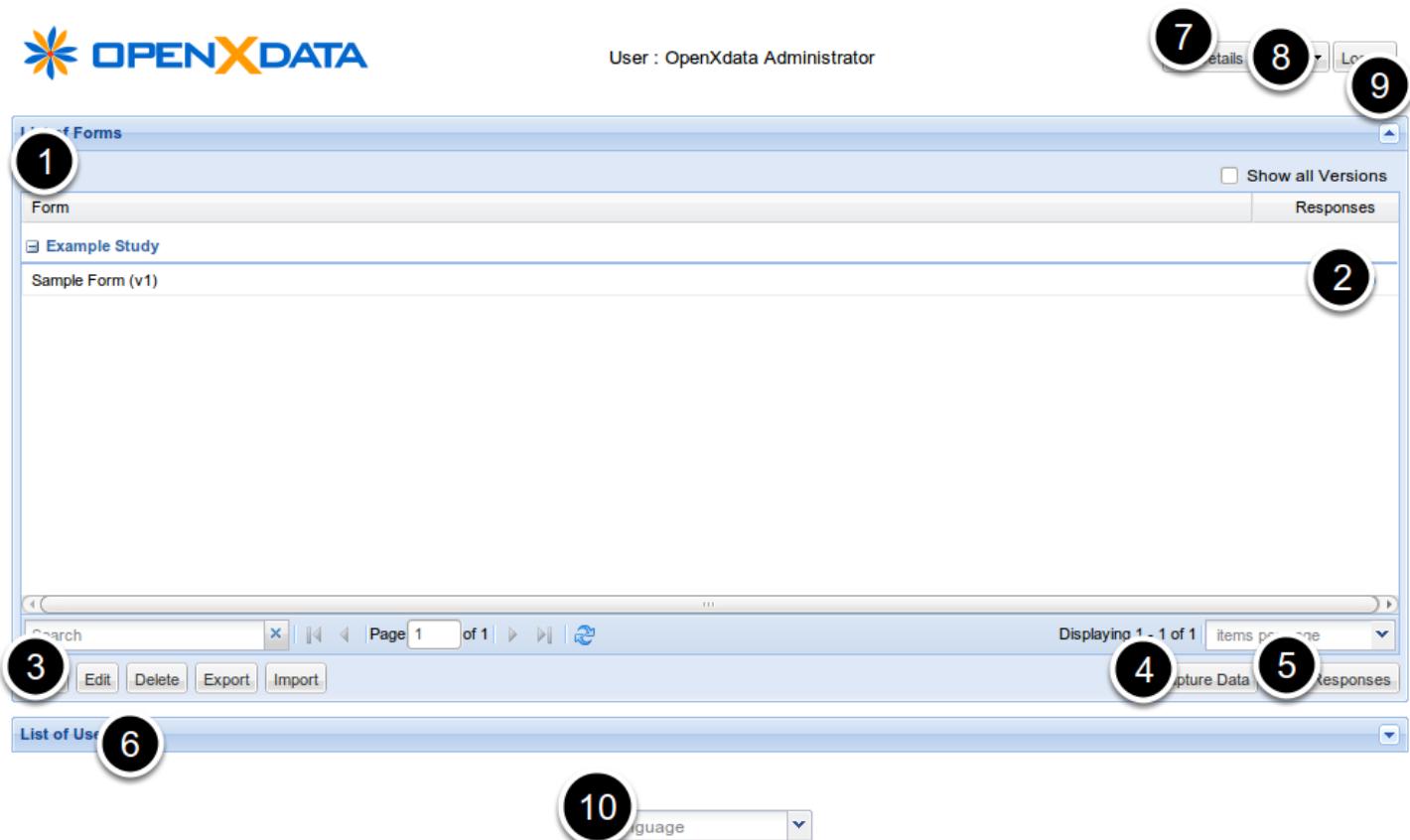
First time login - change admin password



Enter a new password for the admin user. If you do not you will continue to get warnings every time you log in to openXdata.

Later if you do not wish to use the default admin user, you can disable it. See section on managing users for further information.

openXdata 1.16 Dashboard Home



The openXdata 1.16 Dashboard Home provides a homepage from which to completely manage your data collection, with all the regularly used features quickly accessible

1. List of Studies & Forms with the number of uploaded responses on the right.
2. A red icon will show if there is unprocessed data that has been uploaded but is not yet available to View
3. Add, Edit, Delete, Import and Export Forms (Use Edit to go to Form Designer)
4. Capture Data
5. View Responses
6. View and Manage your users
7. Change your password or other details
8. Access the Admin panel for advanced functionality and to manage any unprocessed Data
9. Logout
10. Change the application Language (Available in English, Portuguese, Sesotho and Chichewa)

v1.16 Known Issues

Cannot view collected multimedia data in web form view

Related to the problem below, the form does not display the collected multimedia for a particular question, only the multimedia from the first question.

Workaround:

1. To avoid violating confidentiality or other problems, upload a blank / dummy form before as first data item
2. As multimedia is also not exported via csv the only way to access multimedia data is through the database.

Latest version with this issue: 1.16.3

First captured multimedia item display in blank web form

If a form has multimedia questions and the very first time you enter data into that form, you submit multimedia data, then each time following that you open a blank form to capture data through web capture, the data from the first form will be displayed to the data capturer.

Workaround: To avoid violating confidentiality or other problems, upload a blank / dummy form before as first data item

Latest version with this issue: 1.16.3

Calculation doesn't work on web forms

You can enter calculations in the form designer that can work on the mobile client, however they do not work on the web form.

Workaround: Use the javascript tab to add calculation functionality to your webform

Latest version with this issue: 1.16.3

Cannot export text longer than 255 characters

If you set a question of type Text and enter text longer than 255 characters - which the web form and mobile allow you too - then the data is saved, but cannot be processed for viewing in the Dashboard.

This is because, by default, openXdata sets up a table with the row type VARCHAR(255) for a field of type Text.

Workaround: manually change the Type of the field in the database table that holds the exported data for your form as appropriate

Single Select Dynamic does not work in repeat questions

You cannot use single select dynamic questions inside a repeat group

Case sensitivity of usernames determined by MySQL table settings

Whether username are case sensitive or not is determined by the case sensitivity settings of the MySQL table 'users'. By defaults this is _ci for case insensitive. This means that Admin = admin when entered as a username. If you wish usernames to be case sensitive so Admin and admin are different usernames then you need to set the table to not be case insensitive

openXdata Glossary

Description of terms used in openXdata

A - E

Binding = Each form version and each question in openXdata has a binding. The binding can be viewed in the Form Designer in the properties tab under the row binding. It is used in a number of ways. The form version binding is used to create a table name in the openXdata database. The question binding is used as the column name in that table, it is also the xml tag identifier in the raw xml. The binding for an option in a single or multiselect question becomes the value stored for that question in the xml.

Designer = A graphical interface that opens in a new window which allows you to design your form including adding and remove questions, defining skip logic, viewing & editing raw xml, and designing a web form

F - J

Form = A set of Questions - the basic unit of data collection in openXdata

form_binding = A long string used to identify the form. Specific to each form version. Used as the name for the table export in database. Used in xml, including to form skip logic. The form_binding is defined the first time a form version is opened in the Designer the default is StudyName_FormName_FormVersion. It is better not to manually edit the form_binding

Form Version = Forms can have multiple versions, they are usually similar, involving just an upgrade to a subset of questions or the addition or removal of questions. They are unique and have their own database table in openXdata.

K - O

P - T

Published / Unpublished =

A **published** form is:

- Shown by default in the Dashboard view
- Downloaded to the mobile client if the user has permission for the Form or Study

An **unpublished** form is:

- Hidden by default in the Dashboard view - view unpublished forms it by selecting "Show all Versions" in the List of Forms box in the Dashboard
- NOT downloaded to the mobile client

Study = A group of Forms

U - Z

Unpublished = see Published

Version = see Form Version