Communicating With Xojo Cloud From An iOS App

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What we do:

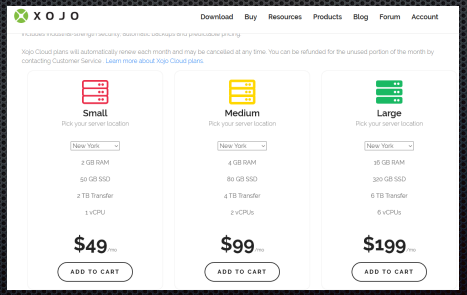
- Primary product: Payroll/Fund Accounting software(Non Xojo) for Schools in Kansas
  - 95+ School Districts
- Web based Timekeeping product for School Districts
  - Xojo WebApp that is XojoCloud hosted
  - 95+ Ipads running iOS Timeclock app(Developed in Xojo)
  - Ipads communicating with Xojocloud 24/7

What I plan to Cover

- Create & Configure Xojo Cloud Server
- Go through example WebApp and Deploy
- Go through example IOS app and Run in Simulator
- Deploy IOS app to Physical Ipad and Run App
- Talk about some advanced IOS in Xojo things
- Talk about some advanced Xojocloud features
- Show tools to supervise Ipads

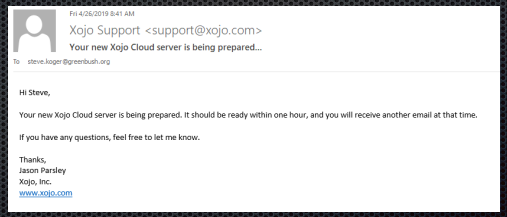
Creating Xojo Cloud Server

- First you have to go to the Buy Page on Xojo.com and Pick Cloud. We will choose Medium as that is required for MySQL to be run on the Server.



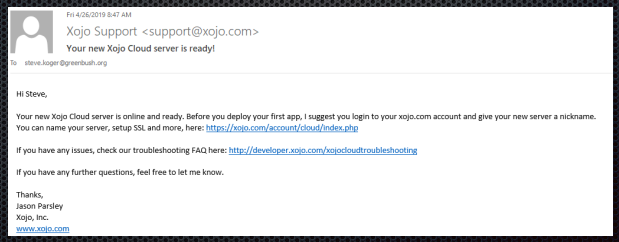
Creating Xojo Cloud Server

- You must go through the process of purchasing. Afterwards you will get the following message via Email.



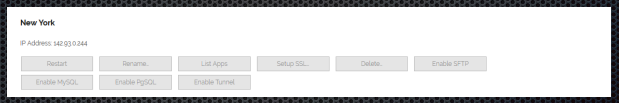
Creating Xojo Cloud Server

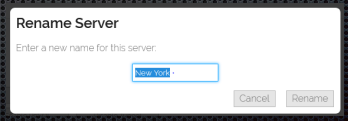
When your server is ready you will receive an email that looks like the following. Click on the link to go to the Cloud Admin page for your Xojocloud Servers.



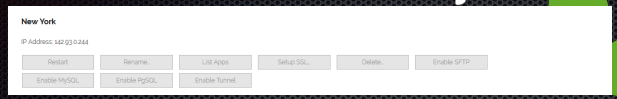
Creating Xojo Cloud Server

On that page you will see an entry for your new server and some buttons to do different administrative tasks on your server. By default it will have the name of the Region you created it in. In this case New York. You want to Rename it by hitting the Rename button. We will rename it to XDC_DEMO_SERVER. Also note the IP address of 142.93.0.244 that was assigned this server. That is how you will access the server over the internet until you point a Domain to it(Not going to get into that in this class).





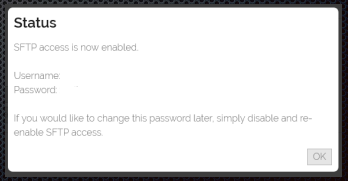
Admin Buttons on XojoCloud



- Restart
  - Restarts XojoCloud Server
- Rename
  - Rename XojoCloud Server
- List Apps
  - Lists the Applications you have deployed to the XojoCloud Server
- Setup SSL
  - Takes you through Setting your SSL Domain Certificate
- Delete
  - Deletes your XojoCloud Server Instance
- Enable SFTP, MySQL, PgSQL, Tunnel
  - Enables different Services on your Xojo Cloud Server

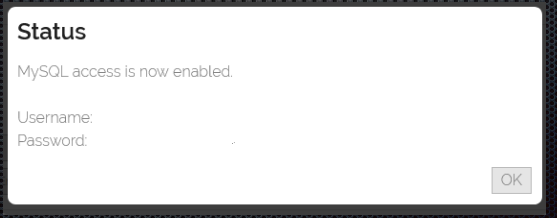
Enabling SFTP

This service will allow you to access your sites folders and upload or remove files as needed. Not going to go into doing that in this class.



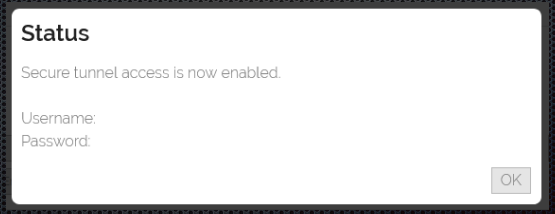
Enabling MySQL

When you enable the service you are given the username and password to access it. Make sure you record that information somewhere. I usually screenshot it and store it in file. We will need this info when we get to our Xojo Code here in a bit.



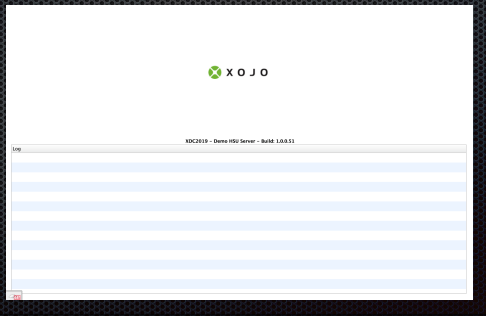
Enabling SSH Tunnel

When you enable the service you are given the username and password to access it. Make sure you record that information somewhere. I usually screenshot it and store it in file. This is important for being able to access your MySQL server with your database administration tools.



XDC_HSU_WEB application

- HSU = Handle Special URL
- HandleSpecialURL is an event that can be placed on the App class which is fired when you use /special/ or /api/ in the url calling your application. https://docs.xojo.com/WebApplication.HandleSpecialURL
- This allows you to create your own service that can respond to requests.
- Let's Look at the code behind it! (Switch to Xojo)
- Xdc_HSU_web Xojo Project



Topics to look at in Code

- Constants with database connection information
- Event Handlers HandleSpecialUrl, Open
- Methods GetEmployees, PutEmployees
- Properties Appdb, LogArray()
- Class Employee
- Page pgFrontPage
  - lstLog Listbox
  - tmr_UpdateLog Webtimer

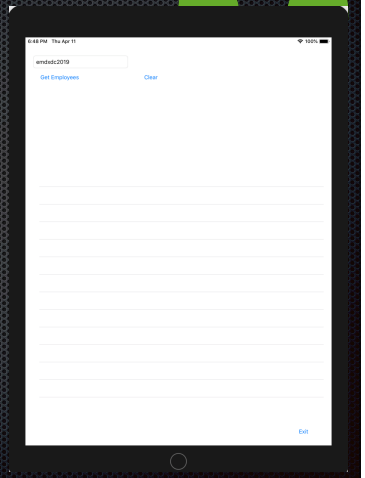
Deploying Apps to XojoCloud

- Deploying Applications to XojoCloud is very easy.
- On XojoCloud under Build Settings make sure you have selected your XojoCloud Server in the Server Box.
  - Give your Application a Name so it can be referenced as your URL
    - Note that if your application is in the Development Stage –Dev will get added to the name in your URL so that you can have development and production applications deployed at the same time
  - Further Details

https://docs.xojo.com/UserGuide:Xojo_Cloud

XDC_Demo_IOS application

- Communicate with Xojo Cloud Server via Xojo.Net.HttpSocket
  - Retrieve Employees
    - Save to Sqlite DB
  - Send Data
    - Read data from Sqlite DB and Send to XojoCloud



Topics to look at in IOS Code

- Properties: MainURL,MainURLCloud,CompleteURL
- Sockets: XDC_Socket_Get, XDC_Socket_Send
  - Events: PageReceived
- Views: IphoneView, IpadView
- App Methods
  - CreateDatabase,CreateEmployeeTable,etc
- View Methods
  - LoadEmployeeTable, ParseJSON
- Class Employee

Running the Demo Programs

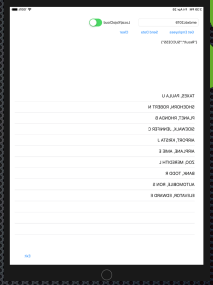
- Requirements:
  - XojoCloud Server with MySQL running on it
  - Mac with Xcode installed for IOS Program
  - Testing locally requires MySQL to be installed on your local machine.
  - IOS Device
  - USB to Lightening Cable

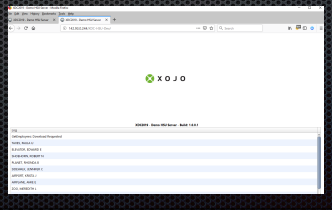
Running the Demo Programs

- Testing Locally
  - Must have xdc_demo database created in your MySQL and populated with the xdc_demo.sql file included
  - Must set the Constants in the application with the authentication information to connect to your MySQL database
  - Run the XDC_HSU Demo application as Standalone app on your machine: Note what Port is set to run. Currently set to 8081.
  - Port you use must be accessible through any firewalls running on your machine.

Running the Demo IOS Program Locally

- Make sure Web App is running
- Run the application in the Simulator
- Check Local Box
- Click Get Employees Button
  - Names should be populated in the List
- Click Send Data Button
  - Names should appear in Log on the Webserver Page

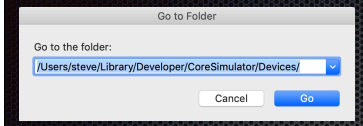


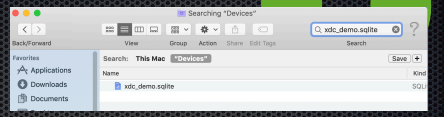


Running the Demo IOS Program with XojoCloud

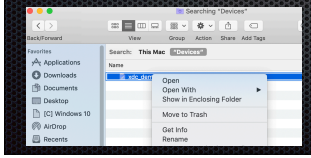
- Make sure you have deployed XDC_HSU Web App to your XojoCloud
- Make sure you have set MainURLCloud Properties with your XojoCloud Address in the IOS Application
- Run the application in the Simulator
- Check XojoCloud Box
- Click Get Employees Button
  - Names should populated in the List
- Click Send Data Button
  - Names should appear in Log on the Webserver

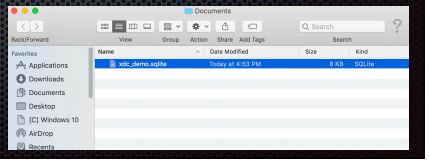
Accessing IOS files created in the Simulator





- Type the name of the file you are looking for in the Search Box in the upper right corner of the box that pops up. Make sure it is set to search in the "Devices" folder that you opened up above. In our case we are looking for "xdc_demo.sqlite"
- It should locate which folder your file is located in. If you have that file in multiple simulators you might want to verify Date Modified.
- Next you will want to right click the correct file and select 'Show in Enclosing Folder'
- Now you know the location of your file. This can allow you to look at data in real time while the simulator is running. In our case we can open the file in SQLiteManager.





FirewallPort on XojoCloud

- Needed to communicate out from your XojoCloud server on a port other than Port 80 or Port 443. An example would be communicating with gmail to send an email.
- This code opens firewall port 587:

```
Dim fwp As New XojoCloud.FirewallPort(587, XojoCloud.FirewallPort.Direction.Outgoing)
fwp.Open() // This call is synchronous
If fwp.isOpen() Then
  // Do what you need to do
    fwp.Close() // Optional, but if you will not using the port, we recommend it.
End If
```

Further Details: https://blog.xojo.com/FirewallPort

MDM for controlling Ipads

- Profile Manager
  - Apple Product included in macOS Server

    Server must be available to Internet
- Mosyle
  - Product with Free Option
  - Hosted
- Used to Supervise Ipads Push out Application updates, Restart

Q & A

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