R = required

NR – not required

PK – Primary Key

FK – Foreign Key

OAUserInfo

* username (R) (PK)
* password (R)

(some secure hash) (or does MySQL already handle this?)

* email (R)
* first name (R)
* public (NR) default TRUE

CREATE TABLE "OAUserInfo" ("sUsername" VARCHAR(32) PRIMARY KEY NOT NULL UNIQUE , "sPassword" VARCHAR(32) NOT NULL , "sEmail" VARCHAR(64) NOT NULL UNIQUE , "sFirstName" VARCHAR(32) NOT NULL, "bPublic" BOOL NOT NULL DEFAULT 1)

OASystemCfg

* System ID (PK) (R)
* Number of nodes (R)
* public (NR) default TRUE
* description

CREATE TABLE "OASystemCfg " ("sUsername" VARCHAR(32) NOT NULL , "sSystemId" VARCHAR(16) PRIMARY KEY NOT NULL UNIQUE, "mNumNodes" INTEGER NOT NULL, "bPublic" BOOL NOT NULL DEFAULT 1, "sDescription" VARCHAR(256) , FOREIGN KEY("sUsername") REFERENCES OAUserInfo ("sUsername"))

OANodeCfg

* username (FK) (R)
* System ID (FK) (R)
* node ID (PK) (R)

Need some sort of way to generate a unique hash tag. Needs to be loaded on the Arduino so that its packet stream can be verified.

* Number of channels (R)
* channel names (separated by ‘;’) (NR)
* channel unit names (separated by ‘;’) (NR)
* polling period (R)

Default to 60 seconds

* public (NR) default TRUE
* description

CREATE TABLE "OANodeCfg " ("sUsername" VARCHAR(32) NOT NULL , "sSystemId" VARCHAR(16) NOT NULL, "sNodeId" VARCHAR(16) PRIMARY KEY NOT NULL UNIQUE, "mNumChannels" INTEGER NOT NULL, "sChannelName" VARCHAR(256) , "sChannelUnits" VARCHAR(64), "mPollingPeriod" INTEGER NOT NULL DEFAULT 60, "bPublic" BOOL NOT NULL DEFAULT 1, "sDescription" VARCHAR(256) , FOREIGN KEY("sUsername") REFERENCES OAUserInfo ("sUsername"), FOREIGN KEY("sSystemId") REFERENCES OASystemCfg ("sSystemId"))

INSERT INTO "main"."OANodeConfig" ("mUsername","mNodeId","mNumChannels","mChannelName") VALUES (?1,?2,?3,?4)

Parameters:

param 1 (text): jeliser

param 2 (text): 1234567890ABCDEF

param 3 (integer): 3

param 4 (text): mWaterTemp;mAirTemp;mWaterLevel

OANodeCfg.NodeID (generated in a separate DB and has unique tables)

* sample number (PK) (R, automatic)
* timetag sample (R) UTC Zulu Time
* mSampleVal[0] (R)
* mSampleVal[1] (R)
* ….
* mSampleVal[n] (R)

CREATE TABLE "OANodeData" ("mCnt" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL UNIQUE , "mDatabaseTimetag" DATETIME NOT NULL DEFAULT CURRENT\_TIMESTAMP , "mNodeId" VARCHAR(16) NOT NULL , "mUsername" VARCHAR(32) NOT NULL , "mSampleTimetag" DATETIME, "mVal01" FLOAT, "mVal02" FLOAT, "mVal03" FLOAT, "mVal04" FLOAT, "mVal05" FLOAT, "mVal06" FLOAT, "mVal07" FLOAT, "mVal08" FLOAT, FOREIGN KEY("mUsername") REFERENCES UserInfo("mUsername"), FOREIGN KEY("mNodeId") REFERENCES OANodeConfig("mNodeId"))

---------------------------------------------------------------

Question:

* What do you do when an OANode is reconfigured? How do you update the database? Give it another unique tag and mark the node as inactive?

R = required

NR – not required

PK – Primary Key

FK – Foreign Key

UserInfo

* username (R) (PK)
* password (R)

(some secure hash) (or does MySQL already handle this?)

* email (R)
* phone (NR)
* first name (R)
* last name(NR)
* address line #1 (NR)
* address line #1 (NR)
* city (NR)
* state (NR)
* zip (NR)

Address needs to be registered to some other service so people put in well formed and valid addresses when they are supplied

CREATE TABLE "UserInfo" ("mUsername" VARCHAR(32) PRIMARY KEY NOT NULL UNIQUE , "mPassword" VARCHAR(32) NOT NULL , "mEmail" VARCHAR(64) NOT NULL UNIQUE , "mPhone" INTEGER, "mFirstName" VARCHAR(32) NOT NULL , "mLastName" VARCHAR(32), "mAddress" VARCHAR(128), "mCity" VARCHAR(32), "mState" VARCHAR(32), "mZip" INTEGER, FOREIGN KEY("mCity") REFERENCES City("mCity"), FOREIGN KEY("mState") REFERENCES State("mState"), FOREIGN KEY("mZip") REFERENCES ZipCode("mZip"))

CREATE TABLE "City" ("mCnt" INTEGER NOT NULL UNIQUE , "mCity" VARCHAR(32) NOT NULL UNIQUE , PRIMARY KEY ("mCnt", "mCity"))

CREATE TABLE "State" ("mCnt" INTEGER NOT NULL UNIQUE , "mState" VARCHAR(32) NOT NULL UNIQUE , PRIMARY KEY ("mCnt", "mState"))

CREATE TABLE "ZipCode" ("mCnt" INTEGER NOT NULL UNIQUE , "mZip" VARCHAR(32) NOT NULL UNIQUE , PRIMARY KEY ("mCnt", "mZip"))

UserConfig

* username (FK) (R)
* time since last activity (warning) (R)

Send an email/tweet/SMS indicating that the system is not responding. This time must be greater than 2 days and less than 7 days. This field will default to something like 2 days.

* ??

OANodeConfig

* username (FK) (R)
* node ID (PK) (R)

Need some sort of way to generate a unique hash tag. Needs to be loaded on the Arduino so that its packet stream can be verified.

* number of channels (R)
* channel names (separated by ‘;’) (NR)
* polling period (R)

Default to 10 seconds

* event number[array] (FK) (R)
* active (R)

OAServer has a listing of Node that need to be queried for data (A bunch of handler threads)

* time since last communication (R)
  + OAServer keeps track of the ‘time since last a

CREATE TABLE "OANodeConfig" ("mUsername" VARCHAR(32) NOT NULL , "mNodeId" VARCHAR(16) PRIMARY KEY NOT NULL UNIQUE , "mNumChannels" INTEGER NOT NULL DEFAULT 0, "mChannelName" VARCHAR(256), "mPollingPeriod" INTEGER NOT NULL DEFAULT 10, FOREIGN KEY("mUsername") REFERENCES UserInfo("mUsername"))

INSERT INTO "main"."OANodeConfig" ("mUsername","mNodeId","mNumChannels","mChannelName") VALUES (?1,?2,?3,?4)

Parameters:

param 1 (text): jeliser

param 2 (text): 1234567890ABCDEF

param 3 (integer): 3

param 4 (text): mWaterTemp;mAirTemp;mWaterLevel

OANodeData

* sample number (PK) (R, automatic)
* timetag database (R, automatic)
* node ID (FK) (R)
* username (FK) (R)
* timetag sample (R)
* sample value[array of float?] (R)

CREATE TABLE "OANodeData" ("mCnt" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL UNIQUE , "mDatabaseTimetag" DATETIME NOT NULL DEFAULT CURRENT\_TIMESTAMP , "mNodeId" VARCHAR(16) NOT NULL , "mUsername" VARCHAR(32) NOT NULL , "mSampleTimetag" DATETIME, "mVal01" FLOAT, "mVal02" FLOAT, "mVal03" FLOAT, "mVal04" FLOAT, "mVal05" FLOAT, "mVal06" FLOAT, "mVal07" FLOAT, "mVal08" FLOAT, FOREIGN KEY("mUsername") REFERENCES UserInfo("mUsername"), FOREIGN KEY("mNodeId") REFERENCES OANodeConfig("mNodeId"))

OANodeEvent (this is also a way to create automate events)

* event number (PK) (R, automatic)
* timetag database (R, automatic)
* node ID (FK) (R)
* event type (ENUM: add plant, add fish, triggers (water, temp, humidity), execution time overrun, ex?) (R) (FK)
* severity (R) – (info, warning, critical, failure, etc)
* send SMS (R)
* send Twitter (R)
* send email (R)
* description (NR)
* ??

Event Type

* Event number (PK) (R, automatic)
* Name (R)
* Description (NR)

Accounting

* transaction ID (PK) (R, automatic)
* username (FK) (R)
* node ID (FK) (NR)
* transaction amount (R)
* description (NR)

CREATE TABLE "Accounting" ("mCnt" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL UNIQUE , "mUsername" VARCHAR(32) NOT NULL , "mNodeId" VARCHAR(16), "mAmount" FLOAT NOT NULL DEFAULT 0.0, "mDescription" VARCHAR(256), FOREIGN KEY("mUsername") REFERENCES UserInfo("mUsername"), FOREIGN KEY("mNodeId") REFERENCES OANodeConfig("mNodeId"))