GEO3 user manual

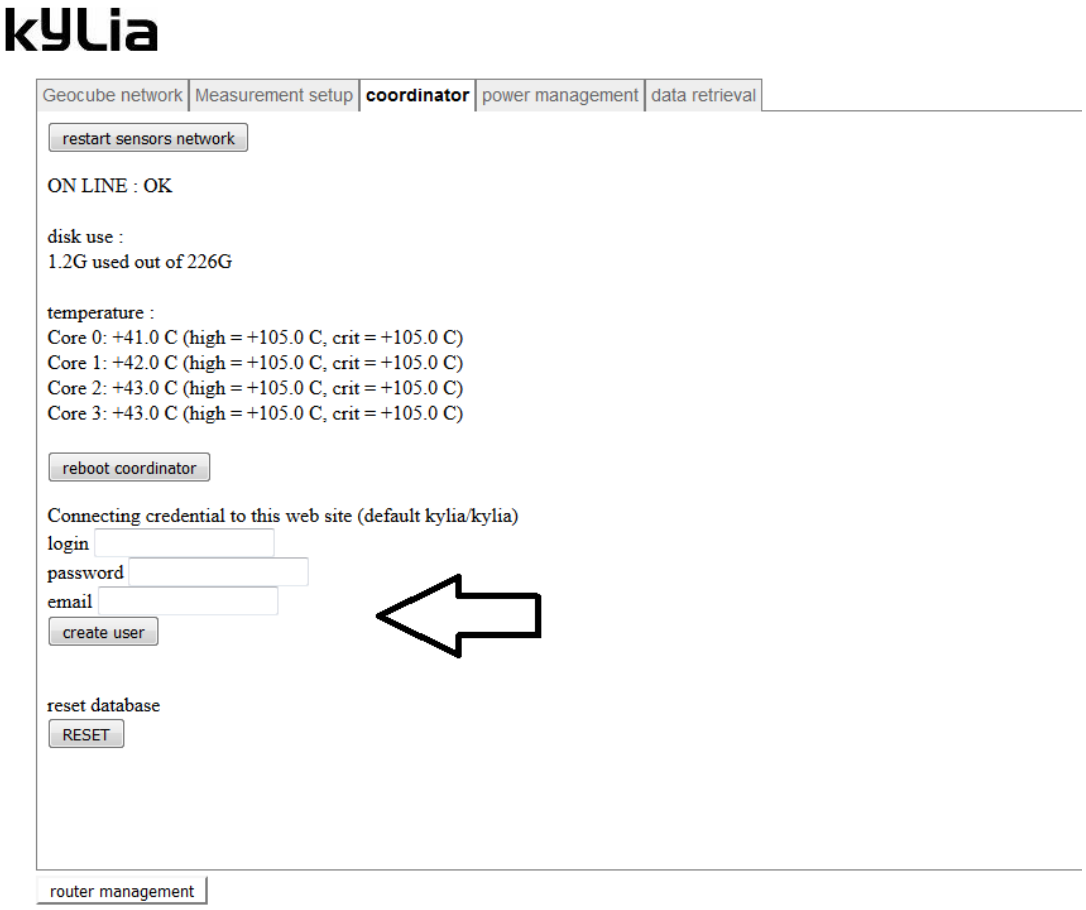
DESCRIPTION

GEO3 is the web software carried by the coordinator. It enables to set up the different parameters of the geocube network. It doesn't give access to the data itself.

INTRODUCTION

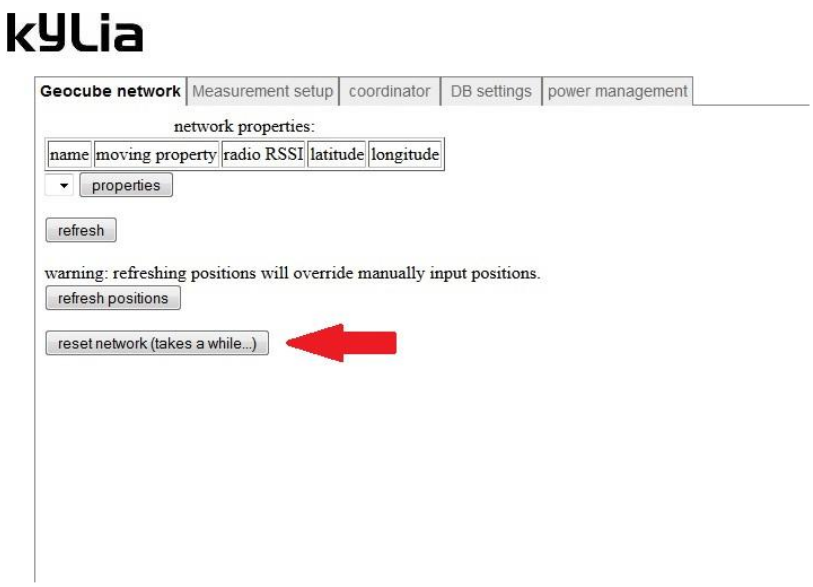
The user can access the soft ware by typing directly the IP of the coordinator. The coordinator has its network interface set as DHCP, which means that it will listen to a router to give its IP address. Is the router is behind a modem, please make sure that the port 80 of the coordinator is routed from the outside.

The web site is password protected. Default login/password are kylia/kylia. This must be changed in the "coordinator"page.



GEOCUBE NETWORK

The firstpage the user will see is a general page presenting the network of the deployed device. The first time the user opens it (and every time he creates a new database) the page will look like:



The first thing to do is to press the reset network button. This will launch a discovery of all deployed geocubes that are within the RF range of the coordinator. It takes a while to perform a full search. The user has to do it all times he adds a new geocube in the network. It can also be done once when all geocubes are deployed.

At the end of the process the user just have to click back to see the result of the search.

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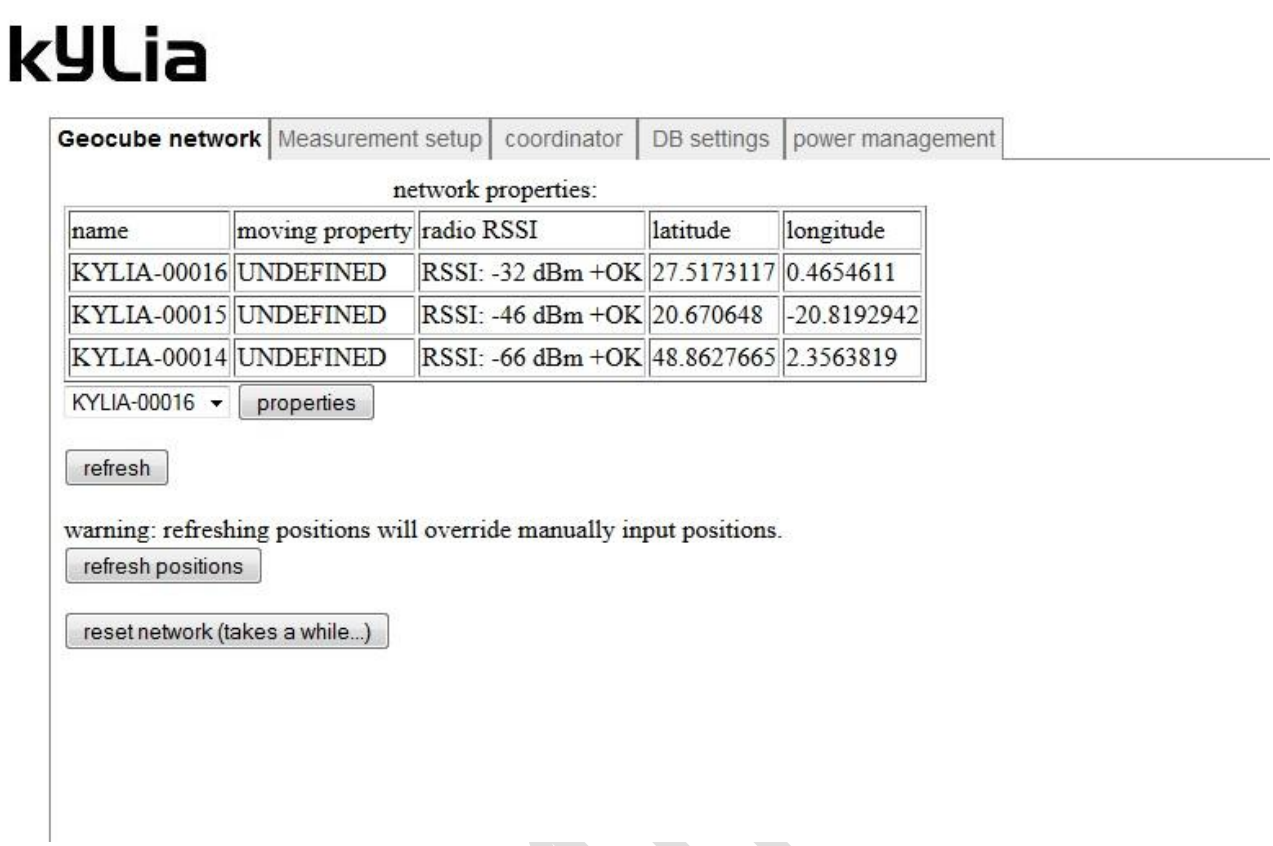

Here a list of geocubes is displayed. All “moving properties” are set to “UNDEFINED” and this will be set later. The radio RSSI between the coordinator and the cube is displayed. Note that this is the RSSI of the worse path: the network is set in a manner that every geocube acts as a node of the network and if the range to the coordinator is too far away a relay is done thanks to another geocube. In total there can be up to 3 hops between the coordinator and a geocube.

Then the user can see the latitude and longitude of each cube for information. The information are not updated before the user clicks the “refresh position” button.

The refresh button refresh the page, which can be helpful if one geocube appeared or to refresh RSSI.

Below the table is a menu that enables to select one geocube and to display its properties. A list of properties is displayed and at the end the user can find 2 buttons

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kylia

Geocube network | Measurement setup | coordinator | DB settings | power management

Max Cur.: -500 mA
Max Time: 3506 mn
Energy: 51844 mWh
Power: 0 mW
Power Time: 65535 mn
Flags: 0x0138
+OK

TEMPERATURE :
Temperature: 35.9 C
Voltage (Vcc): 2.950 V
+OK

RF range test

if desired specify here exact position of point.
It can be useful for FIXED Geocubes, useless for MOBILES.
If not specified the navigated GPS values will be applied.
latitude
longitude
height (in respect with the reference ellipsoid) set position

back

The “set position button” enables to define a starting point for calculations. It is absolutely not compulsory to fill the fields but this can be useful when the user decided that a cube would be “FIXED” and will the “origin” of the network, and if he place it on a well known point. Doing this, after computation, all the geocubes will be defined with an absolute precision, if the origin is exact.

The “RF range test” button enables to perform a continuous RSSI test that can be useful while deploying the cubes

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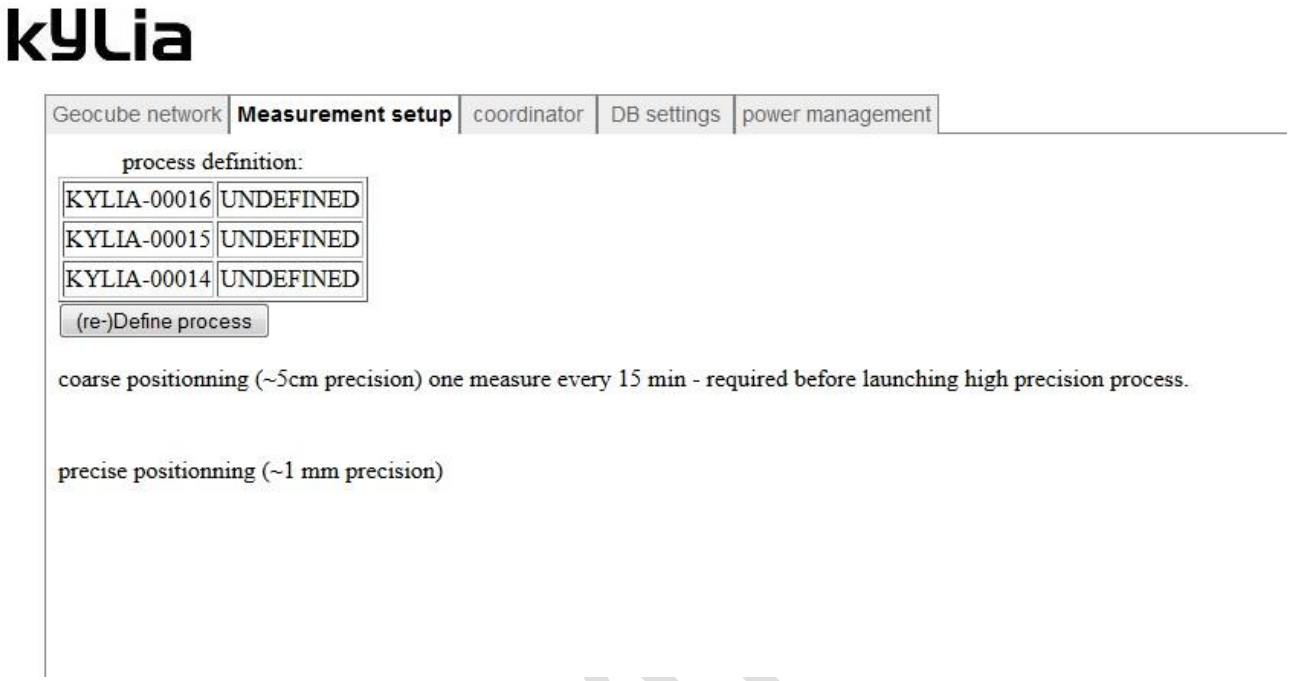
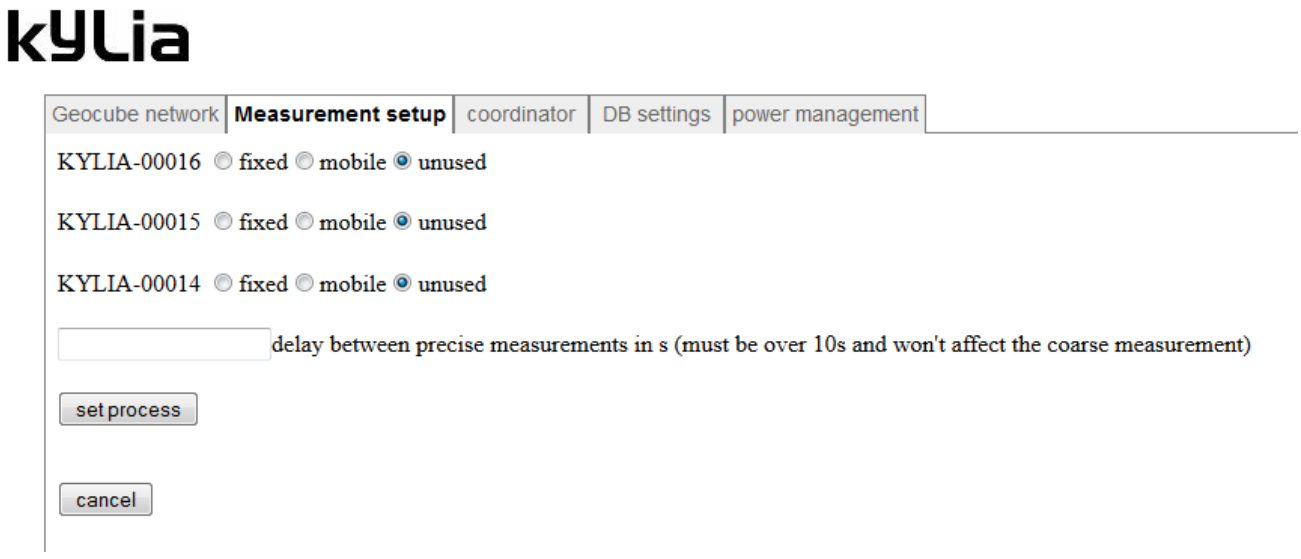
MEASUREMENT SETUP

Back to the main page the user can click on the “measurement setup” window:



A process definition table that is at first empty is displayed followed by a “(re-)Define process”. Let’s click on that button:



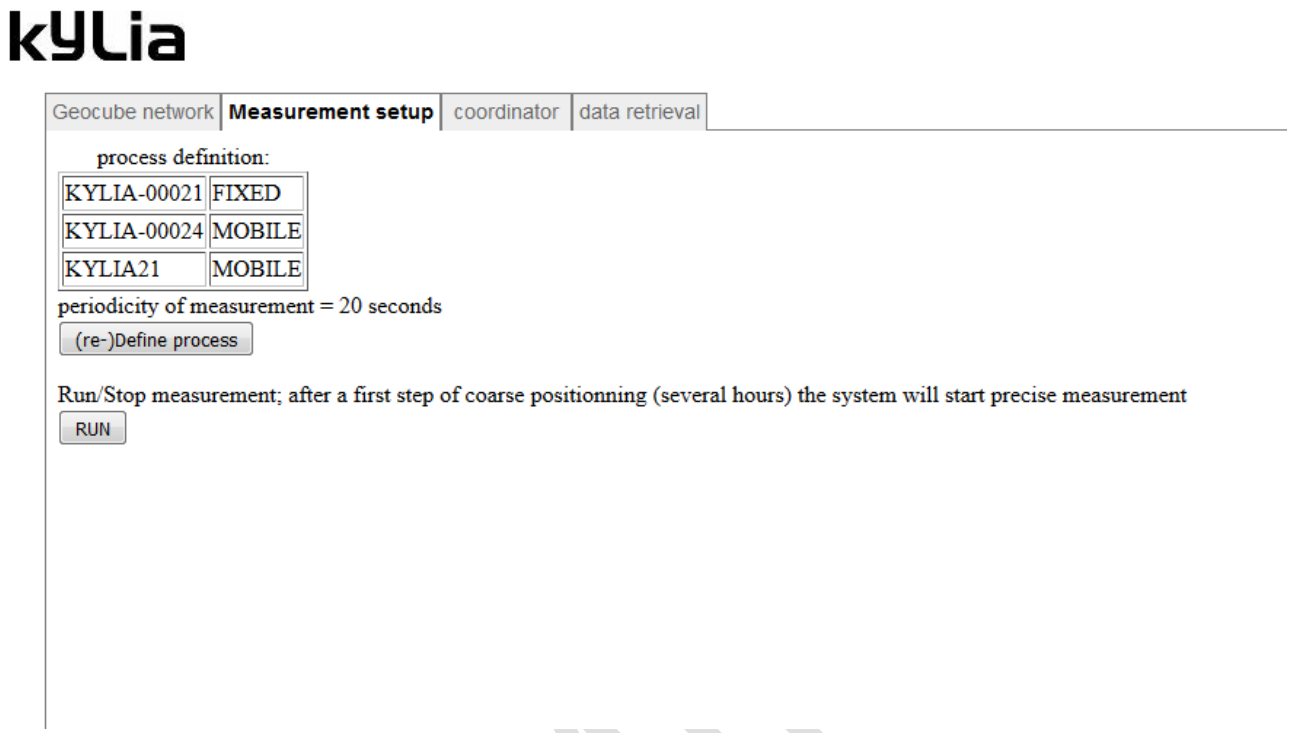
Here the user defines which cubes are “FIXED” or “MOBILE” . The fixed cubes are the ones that are going to be the origins of the geocube networks. This is why the user can set their position if desired.

Some geocubes can be left “unused” if wanted

Then the user defines the rate of the precise measurements.

Then he clicks the “set process” button”

The interface now looks like:



Now measurement can be launched.

It happens in two steps

The coarse positioning enables to get close to the exact position with a 5cm precision. It is a very stable algorithm but it takes 15 minutes between each measurement. It has only to be done once, even if the process definition changes. It has to be started every time a new database is created (see below). Typically it lasts between 3 to 5 hours. Then the coordinator starts the precise positioning. The algorithm is much more precise but less stable. It requires being at less than 10 cm from the position to avoid divergence. This was the point of the coarse positioning

COORDINATOR

There are two buttons: “restart sensor network” will restart all the services linked to the Geocubes in the coordinator.

“restart coordinator” enables a complete reboot of the coordinator.

If you subscribed to the update option, the coordinator checks for update and if one is available will let you know . Then by clicking the button update, the coordinator will automatically download and install the latest update

All actions require the processes to be stopped.

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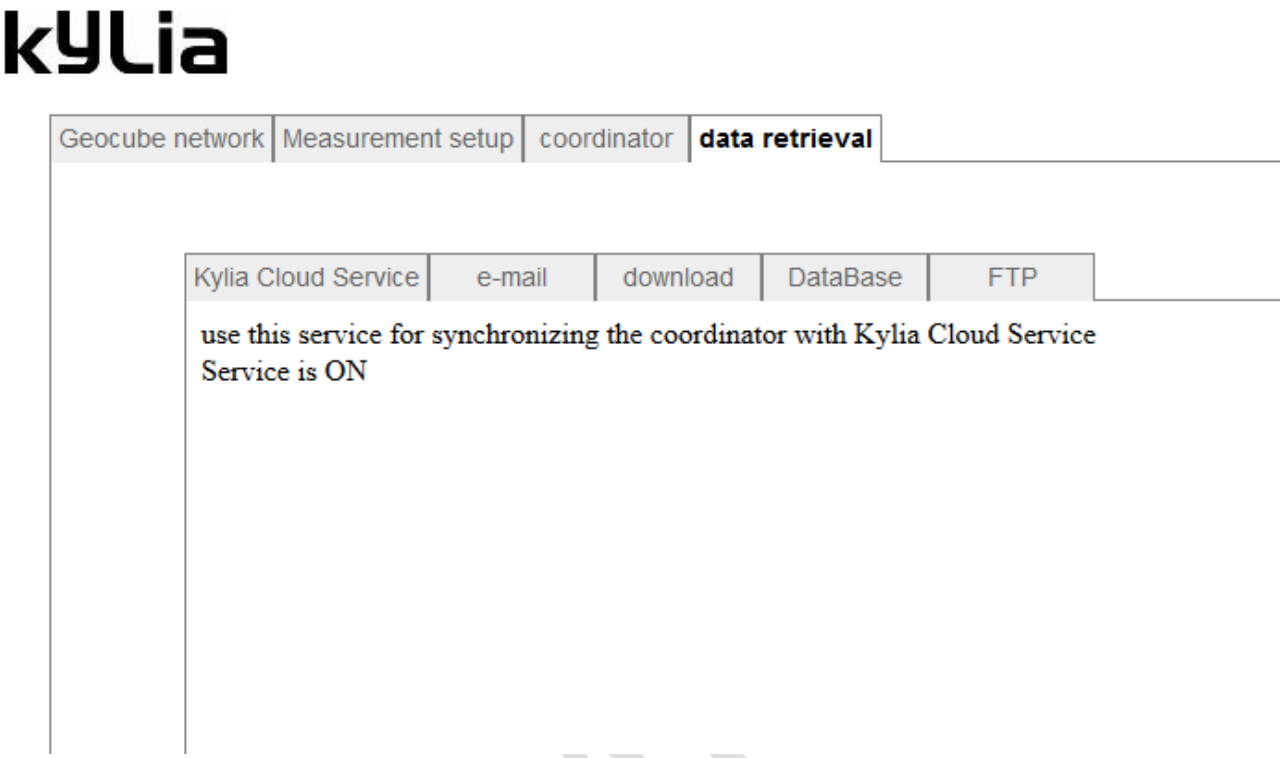
Data retrieval

there are several way to get the data:



Either the user subscribed to the Kylia Cloud service, and the coordinator sends its data for post processing ,

Or the user can get the data by getting them sent by email, or sent through a connexion Postgresql, or can download them either manually on a user specified timebase, or via a FTP server hosted by the coordinator.

The login is

kylia

the password is

kyliadata

data are stored hourly in a folder /kylia/year/month/day/xxxxxx.0.csv where xxxxxx.0 is the unix time stamp of the measurement starting hour.

Data are specified in the following format

unixtime, geocube's name, x,y,z.

where x y z is the cartesian coordinates of the sensor.

for conversion see:

http://geodesie.ign.fr/contenu/fichiers/documentation/algorithmes/notice/NTG_80.pdf

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