# Setup:

* Install picloud client
* Install private\_dna.py with the paillier python library from the svn repository
* Change directory to the ***private\_dna.py*** parent directory and create a local folder for storing the database files: **dna-db\**
* Create a volume **dna-db:** on picloud to synchronize the local directory for storing the DNA database files

### Remarks:

* if you are on windows and don’t like cmd, try using Cygwin, add these 2 lines to your .bashrc:

export python="/cygdrive/c/Python27/"

export PATH=$python:$PATH

this allows Cygwin to use the Python installation of Windows

* add Cygwin directory to your windows path; C:\cygwin64 and C:\cygwin64\bin

this allows you to run Cygwin or Mintty from cmd

* add the noacl option to you Cygwin /etc/fstab file, this saves you from file permission problems

none /cygdrive cygdrive binary,noacl,posix=0,user 0 0

* Move to /cygdrive/c/your-eclipse-workspace/private-dna-parent/,if you prefer you can add this line to your bashrc file:

cd /cygdrive/c/ your-eclipse-workspace /DNA/

* finally use the python command to run your experiments:

python private-dna -h

# Tool help:

usage: private\_dna.py [-h] [-pi] [-gk] [-gd] [-n N] [-m M] [-ed {0,1}]

[-dd {0,1}] [-gq GQ] [-eq {0,1}] [-v] [-s {0,1}]

Process counting queries over encrypted DNA database

optional arguments:

-h, --help show this help message and exit

-pi run on picloud

-gk generate key pair, store on pub.txt and priv.txt

-gd generate random database, store to records.txt

-n N number of sequences

-m M number of letters per sequence

-ed {0,1} encrypt database: (0) binary mode, store in

Erecords.txt (1) quad mode, store in ErecordsQ.txt

-dd {0,1} decrypt database: (0) binary mode, decrypts from

Erecords.txt (1) quad mode, decrypts from

ErecordsQ.txt

-gq GQ generate random query of length GQ

-eq {0,1} execute query: (0) on binary mode, using Erecords.txt

(1) on quad mode, using ErecordsQ.txt

-v, --verify run query on plain-text database

-s {0,1}, --sync {0,1}

(0) synchronize cloud's folder to local folder and

exit; (1) synchronize local folder to cloud's folder

and exit

# Experiments: