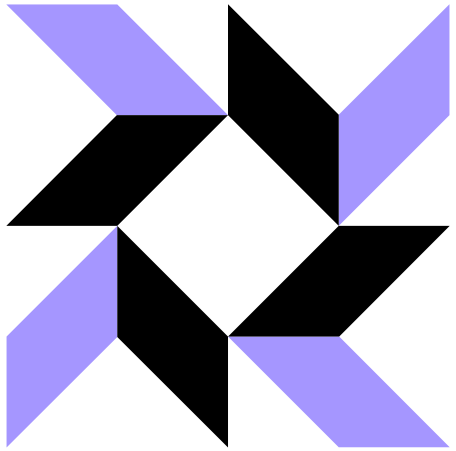
Min2RIEN

osquery

Mickaël Masquelin | iemn



cnrs
ISEN ALL IS DIGITAL! LILLE | yncréa
Université Polytechnique HAUTS-DE-FRANCE
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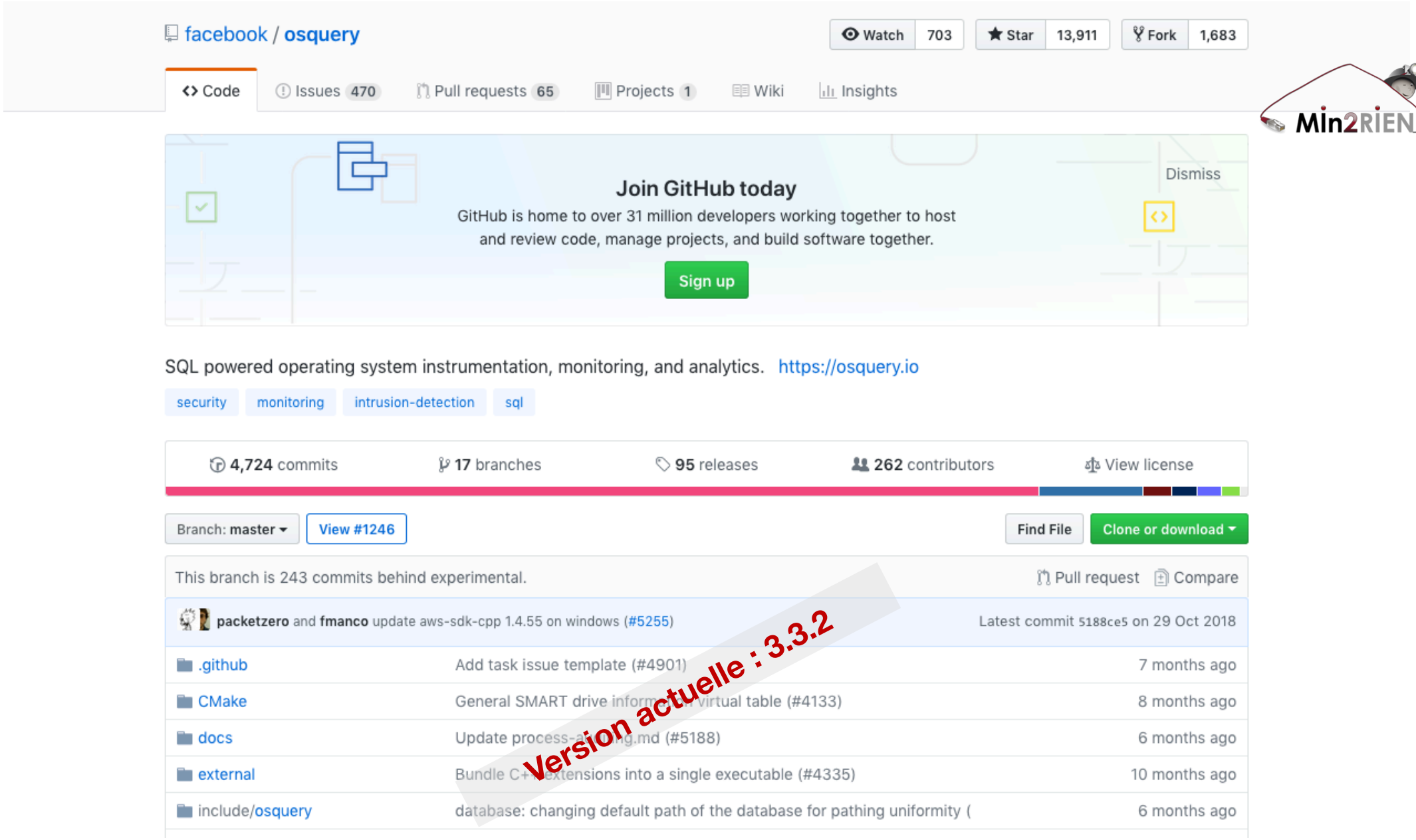
RENATECH réseau national des grandes centrales de technologies

Généralités

@authors : facebook sec. team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SQL powered operating system instrumentation, monitoring, and analytics. https://osquery.io
security
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sql
4,724 commits
17 branches
95 releases
262 contributors
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Branch: master
View #1246
Find File
Clone or download
This branch is 243 commits behind experimental.
Pull request
Compare
packetzero and fmanco update aws-sdk-cpp 1.4.55 on windows (#5255)
Latest commit 5188ce5 on 29 Oct 2018
.github
Add task issue template (#4901)
7 months ago
CMake
General SMART drive inform virtual table (#4133)
8 months ago
docs
Update process-a ng.md (#5188)
6 months ago
external
Bundle C+ extensions into a single executable (#4335)
10 months ago
include/osquery
database: changing default path of the database for pathing uniformity (
6 months ago
Version actuelle : 3.3.2

Un outil « cross-platform »

En détail maintenant …

Pour faire quoi ?

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GESTION
DE PARC INFORMATIQUE

Utilisation façon GLPI / OCS-ng ou encore MunkiReport, en récupérant des informations sur le matériel ou les logiciels installés

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Générer des mesures, collecter des signaux depuis différentes sources et réaliser des statistiques de base

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DETECTION
D'INTRUSION POUR UN HOTE

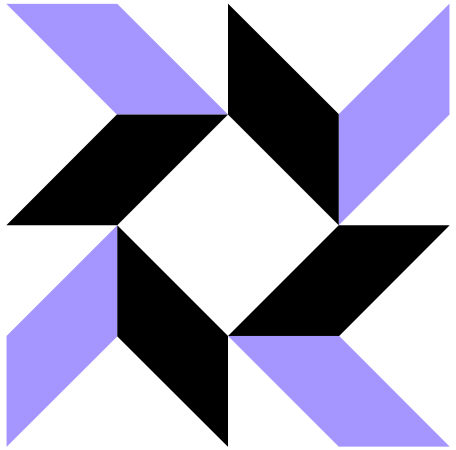
Rechercher des indicateurs de compromission dans les données du système hôte

Principe

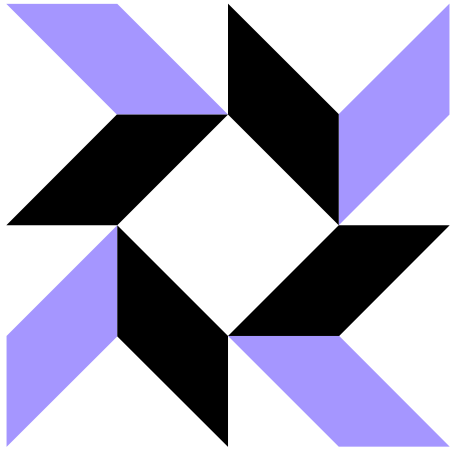
- OS exposé sous forme d'une BDD relationnelle

- Présentation des concepts abstraits comme des tables

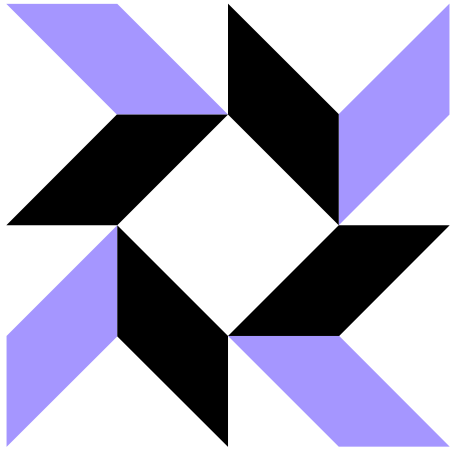
- Exemples :
  - Table des processus en cours ;
  - Table des modules du noyau chargés ;
  - Table des connexions réseau ;
  - ….



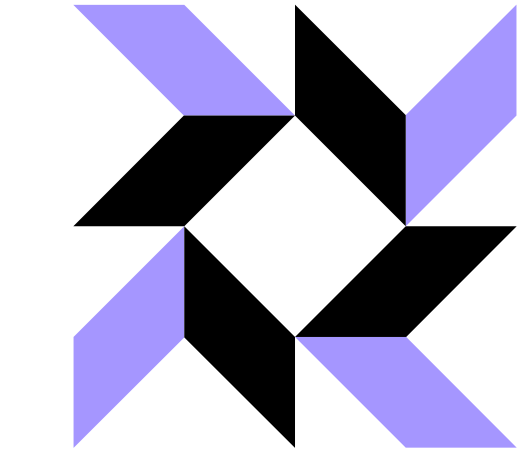
SQL



~~SQL~~



NoSQL



~~NoSQL~~

oSQL

Comment ça fonctionne ?

osqueryi : une interface CLI


```
libercourt:~ masqueli$ osqueryi
osquery> -- Infos minimalistes sur une machine
osquery> SELECT computer_name, hardware_vendor, hardware_model, cpu_brand, hardware_serial FROM system_info;
+---------------+-----------------+-----------------+----------------------------------------+-----------------+
| computer_name | hardware_vendor | hardware_model  | cpu_brand                              | hardware_serial |
+---------------+-----------------+-----------------+----------------------------------------+-----------------+
| libercourt    | Apple Inc.      | MacBookPro14,3  | Intel(R) Core(TM) i7-7920HQ CPU @ 3.10GHz | C02V426QHTDF    |
+---------------+-----------------+-----------------+----------------------------------------+-----------------+
osquery> SELECT m.path AS chemin, m.type AS type_fs,
    ...> round((m.blocks_available * m.blocks_size * 10e-10) ,2) AS espace_disque_libre
    ...> FROM mounts m WHERE m.path = '/';
+--------+---------+---------------------+
| chemin | type_fs | espace_disque_libre |
+--------+---------+---------------------+
| /      | apfs    | 12.22               |
+--------+---------+---------------------+
```

osqueryd : un démon

```
[info@prd-lci-net01 ~]$ cat /etc/osquery/osquery.conf
{
    "options": {   […]   },
    "schedule": {
        "packages_distro": {
            "query": "SELECT name, version FROM rpm_packages;",
            "interval": 300
        },
        "latest_ssh_logins": {
            "query": "SELECT pid, port, address host FROM last WHERE type=7",
            "interval": 360
        },
        "connex_sortantes": {
            "query": ”SELECT s.pid, p.name, local_address, remote_address, family,
protocol, local_port, remote_port FROM process_open_sockets s JOIN processes p ON s.pid =
p.pid WHERE remote_port NOT IN (80, 443) AND family = 2;",
            "interval": 360
        }
```

process_open_sockets

Processes which have open network sockets on the system.

Improve this Description on Github

COLUMN	TYPE	DESCRIPTION
pid	INTEGER	Process (or thread) ID
fd	BIGINT	Socket file descriptor number
socket	BIGINT	Socket handle or inode number
family	INTEGER	Network protocol (IPv4, IPv6)
protocol	INTEGER	Transport protocol (TCP/UDP)
local_address	TEXT	Socket local address
remote_address	TEXT	Socket remote address
local_port	INTEGER	Socket local port
remote_port	INTEGER	Socket remote port
path	TEXT	For UNIX sockets (family=AF_UNIX), the domain path
state	TEXT	TCP socket state
net_namespace	TEXT	The inode number of the network namespace

Les « packs »

- Pour faire quoi ?
  - Eviter de définir X requêtes une à une dans 1 fichier de configuration
- Ecriture d'un « Query Pack » :
  - Ensemble de requêtes servant un objectif commun
    - Exemple : détection des rootkits/exploits sous GNU/Linux

```
[root@prd-lci-net01 packs]# ls
hardware-monitoring.conf  it-compliance.conf       ossec-rootkit.conf  unwanted-chrome-extensions.conf  windows-attacks.conf
incident-response.conf    osquery-monitoring.conf  osx-attacks.conf    vuln-management.conf             windows-hardening.conf
```

- Inclus via la directive **`packs`** dans `/etc/osquery/osquery.conf`

```
[root@prd-lci-net01 packs]# ...
"packs": {
     "incident-response": "/usr/share/osquery/packs/incident-response.conf",
     "it-compliance": "/usr/share/osquery/packs/it-compliance.conf",   […]
```

Cas d’utilisation

Avec Docker

```
[masqueli@prd-lci-web02 ~]# osqueryi
osquery> -- Detecter les containers qui executent des processus en tant que root
osquery> SELECT containers.name, processes.pid, processes.name, cmdline, user
    ...> FROM docker_container_processes processes
    ...> JOIN docker_containers containers ON containers.id=processes.id
    ...> WHERE processes.id IN ( SELECT id FROM docker_containers ) AND user="root";
+-----------------+-------+-----------------+-------------------------------------------------------------------------+------+
| name            | pid   | name            | cmdline                                                                 | user |
+-----------------+-------+-----------------+-------------------------------------------------------------------------+------+
| nginx           | 10902 | nginx           | nginx: master process nginx -g daemon off;                              | root |
| python          | 4653  | python          | python back/app.py                                                      | root |
| python          | 4686  | python          | python front/app.py                                                     | root |
| s6-svscan       | 3736  | s6-svscan       | /bin/s6-svscan /etc/services.d                                          | root |
| s6-supervise    | 4165  | s6-supervise    | s6-supervise cron                                                       | root |
| s6-supervise    | 4166  | s6-supervise    | s6-supervise nginx                                                      | root |
| s6-supervise    | 4167  | s6-supervise    | s6-supervise php                                                        | root |
+-----------------+-------+-----------------+-------------------------------------------------------------------------+------+
```

Statut du chiffrement d'une machine

```
libercourt:~ masqueli$ osqueryi
Using a virtual database. Need help, type '.help'
osquery> -- verifier que FileVault2 sur macOS couvre bien un volume
osquery> SELECT m.path AS chemin, m.type AS type_fs,
    ...> round((m.blocks_available * m.blocks_size * 10e-10) ,2) AS espace_disque_libre,
    ...> de.encrypted AS est_chiffre, de.type AS type_chiffrement
    ...> FROM mounts m JOIN disk_encryption de ON de.name=m.device WHERE m.path ='/';
+--------+---------+---------------------+-------------+------------------+
| chemin | type_fs | espace_disque_libre | est_chiffre | type_chiffrement |
+--------+---------+---------------------+-------------+------------------+
| /      | apfs    | 18.31               | 1           | APFS Encryption  |
+--------+---------+---------------------+-------------+------------------+
```

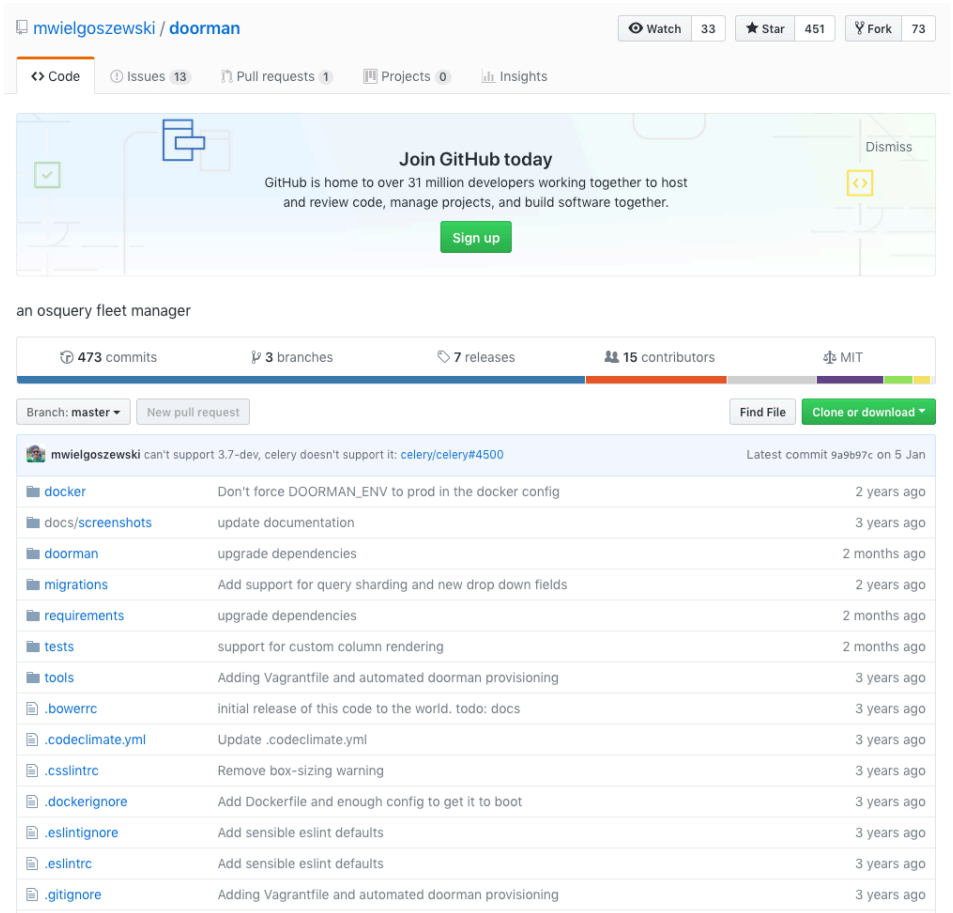
Statut du chiffrement d'une machine

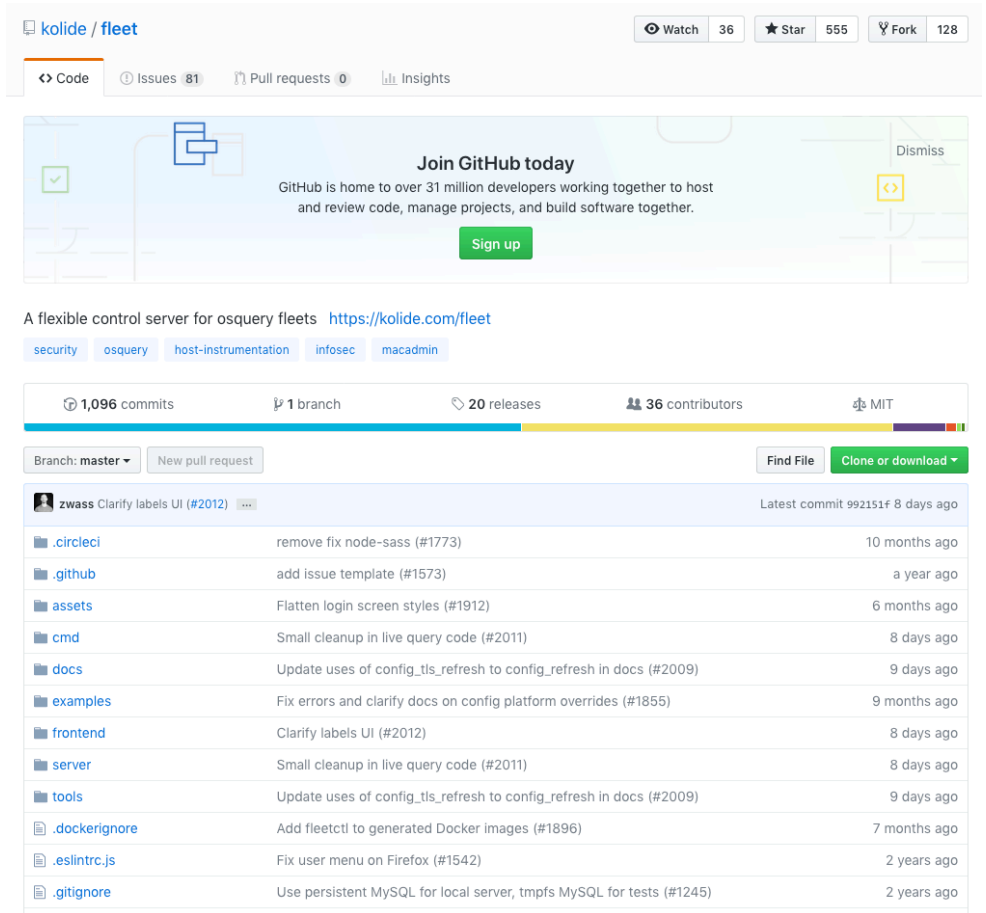
```
C:\ProgramData\osquery> osqueryi
Using a virtual database. Need help, type '.help'
osquery> -- verifier que Bitlocker pour Windows couvre bien un volume en chiffrement logiciel
osquery> SELECT device_id AS id_machine, drive_letter AS volume,
    ...> encryption_method AS type_chiffrement,
    ...> protection_status AS est_protege
    ...> FROM bitlocker_info WHERE encryption_method NOT LIKE 'HARDWARE%';
+-----------------------------------------------+---------+------------------+-------------+
| id_machine                                    | volume  | type_chiffrement | est_protege |
+-----------------------------------------------+---------+------------------+-------------+
| \\?\Volume{59c8b87-d16d-4107-990b-b5be345483ee}\ | C:      | AES_128          | 1           |
+-----------------------------------------------+---------+------------------+-------------+
```

Conclusion

Compléments

fleets managers





Références

- Sur Slack
  - https://osquery-slack.herokuapp.com/
- La documentation (tables, schémas, …)
  - https://osquery.readthedocs.io/en/stable/
- Le projet sur GitHub
  - https://github.com/facebook/osquery

Questions ?