

Darknet statistics : Crawling of Darkmarkets and the blockchain

Degree programme : BSc in Computer Science | Specialisation : IT Security
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Dark net markets are subject to frequent changes and often appear or disappear over night. This makes collecting accurate data about them challenging. The main goal of this Bachelor thesis was to automatically collect data about dark net markets by using a web crawler and saving all the relevant data from the gathered html files into a database. From there the data could be retrieved and arranged to deliver meaningful information about the markets.

Crawling dark net markets

Dark net markets are volatile and undergo frequent changes and adaptations. This makes crawling a market challenging. Most markets also feature DDoS-protection measurements such as captchas and a complex log-in process which have to be addressed. The crawler is written in Python and built in a modular way, so that new markets can be added more easily. It also features a graphical user interface where captchas can be entered and logs can be observed.

After the log-in process the crawler saves all the relevant sites, such as vendor or product pages as html files. This is important, so all the data of a market is not lost even if the market disappears. When all pages of a market are crawled, an analyser program is started to get all the relevant data from the html files and saves it to a MySQL database for further analysis.

Statistics

The goal of the thesis was to generate interesting and insightful statistics with the data collected and present them in a well arranged and understandable way. This was done by using SQL queries to extract and group the required data and then displaying it graphically with the help of Python, Microsoft Excel and Apache Superset.

Results

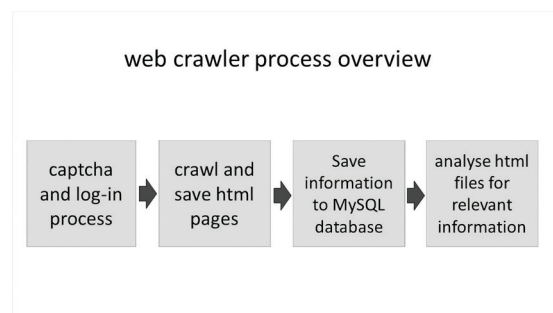
The results found correspond to the questions defined in the assignment of tasks of the thesis. In the end four different markets could be crawled and some interesting insights about sales, turnover, vendors and origin and type of items could be found. It was also possible to compare markets and for example find vendors on multiple platforms and compare their sales and turnovers or get an idea about target audiences or the possible origin of vendors.



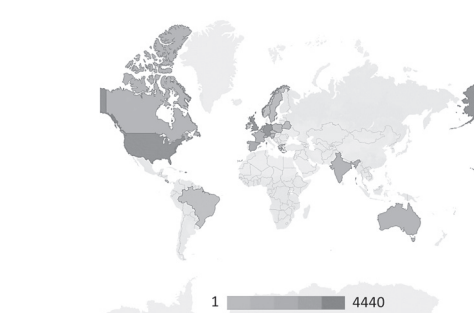
Anna Katharina Albrecht

Research in the Bitcoin blockchain

Through a Bitcoin multisig payment option on Versus market it was possible to obtain some Bitcoin addresses belonging to vendors. The ultimate goal was to find multisig transactions and find information about possible fees being paid to the market. With the fees revealed it would be possible to calculate the actual turnover from Bitcoin of the market and compare it to the data found with the crawler. However after doing further research it became clear that finding fees is complex and would rather be a project of its own than part of a thesis. However some interesting observations could be made by tracing transactions for example to exchanges such as Huobi.



Simplified process of crawling a dark net market



Offers by origin countries on Versus Market