

Release Notes

Stacked Brains

VoIP Analyzer Tool

for Linux OS

<https://www.voipanalyzertool.com/>

Online Wireshark Analysis :

<https://online.voipanalyzertool.com/>

Release Notes Version: v1.27

Software Release is identified by

Version: v26.01.16.00

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1 History of change

1.1 History of change (Release Notes)

Release Note Version	Date	Changes
1.00	27 October 2020	Initial version released Release of VoIP Analyzer tool v20.10.27.00
1.01	3 November 2020	Update openSUSE Tumbleweed
1.02	3 November 2020	Update Red Hat, Debian, openSUSE Leap
1.03	4 November 2020	Update SLES, CentOS
1.04	5 November 2020	Re-order sections
1.05	14 November 2020	Release of VoIP Analyzer tool v20.11.14.00
1.06	22 February 2021	Release of VoIP Analyzer tool v21.02.22.00
1.07	31 March 2021	Release of VoIP Analyzer tool v21.03.31.00
1.08	12 April 2021	Release of VoIP Analyzer tool v21.05.12.00
1.09	16 September 2021	Release of VoIP Analyzer tool v21.09.16.00
1.10	2 October 2021	Release of VoIP Analyzer tool v21.10.02.00
1.11	27 December 2021	Release of VoIP Analyzer tool v21.12.27.00
1.12	14 February 2022	Release of VoIP Analyzer tool v22.02.14.00
1.13	14 March 2022	Release of VoIP Analyzer tool v22.03.14.00
1.14	16 May 2022	Release of VoIP Analyzer tool v22.05.16.00
1.15	1 June 2022	Release of VoIP Analyzer tool v22.06.01.00
1.16	2 December 2022	Release of VoIP Analyzer tool v22.12.02.00

1.17	21 April 2023	Release of VoIP Analyzer tool v23.04.21.00
1.18	10 June 2023	Release of VoIP Analyzer tool v23.06.10.00
1.19	16 September 2023	Release of VoIP Analyzer tool v23.09.16.00
1.20	20 October 2023	Release of VoIP Analyzer tool v23.10.20.00
1.21	2 November 2023	Release of VoIP Analyzer tool v23.11.02.00
1.22	20 November 2023	Release of VoIP Analyzer tool v23.11.20.00
1.23	10 May 2024	Release of VoIP Analyzer tool v24.05.10.00
1.24	30 May 2024	Release of VoIP Analyzer tool v24.05.30.00
1.25	1 June 2024	Release of VoIP Analyzer tool v24.06.01.00
1.26	6 December 2025	Release of VoIP Analyzer tool v25.12.06.00
1.27	16 January 2026	Release of VoIP Analyzer tool v26.01.16.00

1.2 Product version history

Software version	Date	Comment
v20.10.27.00	27 October 2020	released
v20.11.14.00	14 November 2020	released
v21.02.22.00	22 February 2021	released
v21.03.31.00	31 March 2021	released
V21.05.12.00	12 April 2021	released
V21.09.16.00	16 September 2021	released
v21.10.02.00	2 October 2021	released
v21.12.27.00	27 December 2021	released
v22.02.14.00	14 February 2022	released
v22.03.14.00	14 March 2022	released
v22.05.16.00	16 May 2022	released
v22.06.01.00	1 June 2022	released
v22.12.02.00	2 December 2022	released
v23.04.21.00	21 April 2023	released
v23.06.10.00	10 June 2023	released

v23.09.16.00	16 September 2023	released
v23.10.20.00	20 October 2023	released
v23.11.02.00	2 November 2023	released
v23.11.20.00	20 November 2023	released
v24.05.10.00	10 May 2024	released
v24.05.30.00	30 May 2024	released
v24.06.01.00	1 June 2024	released
v25.12.06.00	6 December 2025	released
v26.01.16.00	16 January 2026	released

2 Changes

2.1 New functionality

2.1.1 v26.01.16.00

- Support AudioCodes Call CDR records
- Support AudioCodes Media CDR records
- Support AudioCodes SDR records
- Adapt Audit handling after midnight
- Syslog listening port for service in registry
- siplog2pcap: support OpenScape Desktop Client Personal Edition sip logs
- siplog2pcap: correct OpenScape Desktop Client Personal Edition time format
- Service: Show summary of detected SIP interfaces at start
- Service: empty queue when service is stopped
- Service: optimize thread handling
- SQL: add database version schema
- SQL: optimize Day prefix handling
- SQL: rework of SIP useragent/diversion SQL query
- SQL: restart connection on exception

- SQL: correction on day independable tables
- SQL: Closing and opening SQL database only via the SQL thread
- SQL: improve GUI handling
- Support Graphs and Reports as output
- Show thread ID

2.1.2 v25.12.06.00

- Bug fixes and corrections
- siplog2pcap : new formats + corrections
- siplog2pcap: support Ribbon SBC sip logs
- siplog2pcap: support live Unify IP Phone syslog to pcap
- siplog2pcap: support Oracle Acme Packet SBC sip logs
- siplog2pcap: support Polycom SIP logs
- siplog2pcap: support Blink SIP logs
- siplog2pcap: support OpenScape mediaserver
- siplog2pcap: vendor Grandstream
- text2pcap : new formats + corrections
- text2pcap: three digit prefix format
- syslog2pcap: support fragmented SIP messages
- syslog2pcap: support CDRs AudioCodes
- syslog2pcap: write readme.txt for Wireshark pipe
- **Linux process** like service for syslog capturing
- Linux service control via GUI
- Processing Linux service handling at midnight
- Docker image testing under high traffic load

- **SQL database** introduction (MySQL/MariaDB)
- Day selection for database
- Filtering for audit from SQL database
- Audit to SQL database (MySQL/MariaDB)

- Improved xml config handling (also save xml)
- SIP error codes configurable in xml
- Word/pdf output configurable via XML

- **Separating Audit processing and audit reporting (output)**

- Handling of incomplete SIP calls
- New code signing certificate (Certum)
- Align gen_logging code between GUI/CMD/SRV
- Change internal certificate for license
- Separate threads for syslog to pcap/pipe/sql
- Improvements on corrupted packet handling
- Flush of pcapng file
- Python code for making the graphs + example markdown file for generating the report
- Word/pdf output in separate file
- Password encrypting/decrypting
- Rework of CSTA message handling: dictionary and splitting of contents
- Rework of exception handling
- Rework of DLL handling in building the software
- Richtextbox improvements for main Form
- Detect SIP BYE exact 20 seconds after SDP SendOnly attribute was sent
- Anonymizing for GSM/ISDN bit-oriented protocols
- String concatenation performance improvement
- Reorder of pcap/pcapng files before audit

2.1.3 v24.06.01.00

- Make build for Windows + Linux + macOS

2.1.4 v24.05.30.00

- Anonymize additional parameters for following protocols: MySQL, stun
- Mark SIP calls with a missing SIP ACK as an incomplete call
- Optimize extracting of UDP and TCP

2.1.5 v24.05.10.00

- text2pcap: support lots of text files with new hex formats
- text2pcap: autodetect all possible pcap link layers
- text2pcap: write pcapng format with possible different linklayers
- text2pcap: support the OSIX format
- text2pcap: support vlan tagged frames
- text2pcap: optimize processing of Juniper hex dump logs
- text2pcap: optimize processing of LTE hex dump logs
- text2pcap: optimize rawIP detection
- text2pcap: optimize detection of 0000 prefixes in hex dump
- flexible anonymize: anonymize MAC addresses to "private" OUI
- flexible anonymize: **anonymize all IMSI fields (any layer, any protocol)**
- flexible anonymize: anonymize LLDP
- flexible anonymize: anonymize the SCTP protocol
- flexible anonymize: anonymize IPv6 in IPv4 (6to4)
- flexible anonymize: anonymize IPv4 in IPv6: support Teredo tunneling
- flexible anonymize: remapmac for ssl.src.eth
- flexible anonymize: correct VRRP checksum
- flexible anonymize: correct FPP checksum
- flexible anonymize: leave 127.0.0.0/8 original during anonymize
- siplog2pcap: support TEL URI
- siplog2pcap: optimize Grandstream SIP logs
- siplog2pcap: support detection of SIP INFO messages

- merge: write pcapng format after merge
- reoder: support the reoder of pcap files in GUI
- code signing: codesigning of executable with Certum certificate

2.1.6 v23.11.20.00

- Remap all Wireshark fields with IPv4 field type
- Remap all Wireshark fields with Ethernet field type
- Remap IPv4 addresses for the OSPF protocol
- Optimize mapping of MSISDN to anonymous phone numbers
- Optimize ICMP checksum calculation during anonymize
- Optimize calculation of CRC frame checksums after anonymize of a pcap file
- Optimize TCP segmentation during pcap anonymisation
- Optimize broadcast and multicast MAC addresses during anonymisation
- Optimize anonymisation of SIP TEL URI
- Support anonymisation of gsm-r-uus1.elda: GSM: Enhanced Location Dependant Addressing
- Anonymize "sip.r-uri" also when there is no .user or .host part
- Support anonymisation of the sdp.phone parameter
- Show statistics at the end which fields were anonymized
- Siplog2pcap: Unify OpenScape Business: detect source and destination IP address for SIP messages

2.1.7 v23.11.02.00

Added “flexible anonymize”: anonymize ANY field at ANY protocol at ANY level. No limits.

Just add the name of the “Wireshark display filter” of the field to be anonymize in our anonymize_display_filters.csv file. The file is already pre-filled with almost 300 Wireshark display filters, but can easily be extended with additional Wireshark display filters which fields needs to be anonymized.

- remap all possible MAC addresses to anonymous MAC addresses (on any layer from)
- remap all possible IPv4 fields to anonymous IPv4 fields (on any layer)

- anonymize all possible hostnames conform presentation of Betty Dubois on SharkFest23EU in Brussels
- correct flexible anonymize processing after feedback on SharkFest23EU in Brussels

2.1.8 v23.10.20.00

Added some very unique features. Quite unique in the market:

Support configurable CSV text file so that ANY field, ANY parameter, ANY protocol can be anonymized/obfuscated for ANY Wireshark PCAP file.

You only have to add the Wireshark display filter name in the new CSV text file.

Several parameters inside following protocols are already by default anonymized:

Supported protocols in alphabetical order:

- a11, arp, browser, capwap, cdp, cflow, dhcp, dhcpv6, diameter, dns,, dtp, e164, eap, eth, ftp, gsm, gtpv2, hsrp, hsrp2, http, icmpv6, imf, inap, ip, ipcp, ipx, isup, Kerberos, lacp, ldap, ldp, lldp, mgcp, nbdgm, nbns, netbios, ntp, ospf, pppoe, radius, rip, rtcp, rtp, sccp, sdp, sip, sll, smb, smb2, smtp, stp, syslog, telnet, tftp, tls, udid, uma, vrrp, vtp, whois, wlan
- Additional protocols or fields can be added easily to be anonymized
- Support **re-mapping** of any **IPv4 IP address** in ANY Wireshark field of type IPv4.
Re-mapping is done to an anonymized IP Address. Same IP address is consequent re-mapped to the same anonymized IPv4 address.
Currently following protocols trigger an IP address remapping: arp, dhcp, dns, ip, sctp, uma vrrp. Other protocols can be added easily.
- Support **re-mapping** to anonymous values of ANY **MSISDN phone number** in ANY parameter in ANY protocol
(also 3G/4G/5G protocols, as also in following protocols: e164, gsm, isup, sccp)
Same MSISDN phone number is consequent re-mapped to the same anonymized MSISDN phone number
- Support **re-mapping** to anonymous values of ANY **IMSI number** in ANY IMSI parameter in ANY protocol
Same IMSI number is consequent re-mapped to the same anonymized IMSI number
- Support **re-mapping** to anonymous values of ANY **IMEI number** in ANY IMEI parameter in ANY protocol
Same IMEI number is consequent re-mapped to the same anonymized IMEI number

2.1.9 v23.09.16.00

- **Optimize SharkEdit:** Anonymize any field in any Wireshark pcap file based on the well known Wireshark display filters
 - o also called “flexible anonymize” in the GUI
- **Optimize SharkExport:** Export/filter any field in any Wireshark pcap file based on the well known Wireshark display filters. Export on HTML format and in Excel CSV format
 - o also called “flexible filter” in the GUI
- Support LinkLayers.Ppp
- text2pcap: add syslog remark when limit of 1000 packets is reached
- text2pcap: better detection of date/time for unknown vendors
- Bug fixing

2.1.10 v23.06.10.00

- **NEW: SharkEdit:** Anonymize any field in any Wireshark pcap file based on the well known Wireshark display filters
 - o also called “flexible anonymize” in the GUI
- **NEW SharkExport:** Export/filter any field in any Wireshark pcap file based on the well known Wireshark display filters. Export on HTML format and in Excel CSV format
 - o also called “flexible filter” in the GUI
- Add live suggestion in GUI of any Wireshark display filter for anonymize or export/filter
- Bug fixing

2.1.11 v23.04.21.00

- bug fixing

2.1.12 v22.12.02.00

- **SIP**
 - o Siplog2Pcap: conversion from a SIP log to a pcap now supported for following SIP vendors:
 - 3CX
 - Alcatel
 - Anveo

- Asterisk
- AudioCodes Syslog
- AudioCodes SIP ladder diagram files
- Avaya
- BroadWorks XS logs (BroadSoft)
- Cisco or CUCM Sip Logs
- Enovation UMO (UMO SIP Alarm devices)
- Genesys
- Lync
- Mediatrix Syslog
- Microsoft Teams -> see AudioCodes syslog
- Mitel
- OneAccess (Ekinops)
- OpenScape Business (Atos/Unify)
- OpenScape 4000 STMI SIP logs (Atos/Unify)
- OpenScape Voice RTT traces (Atos/Unify)
- RingCentral
- Twilio
- Yealink
- Other SIP vendors can be supported on simple demand.
- SipLog2Pcap: OpenScape voice RTT trace: optimize handling of SIP-Q message body
- Show also SIP CANCEL after SIP RE-INVITE as incomplete SIP dialog
- Show SIP Source IP and SIP Destination IP as summary in SIP Ladder diagram pop-ups
- SIP Call duration is zero when there is no SIP BYE message

- **Anonymize**

- anonymize the HTTP protocol
- anonymize the SSDP protocol
- anonymize the FTP protocol (USER and PASS only)
- anonymize also SIPS (Secure SIP)

- Text2Pcap
- Text2Pcap: make detection of start of a new hex packet more defensive
- Text2Pcap: support Cisco ASR 5000 / Cisco ASR 5500 hexdump file format (RawIP)
- Text2Pcap: support Fortinet hex dumps
- Text2Pcap: support "Cisco monitor capture" format
- Text2Pcap: support Juniper Netscreen Snoop format hex dumps
- **Other**
 - Support CSTA III during pcap analysis: Show CSTA III messages in generated HTML page
 - optimize readability of the XML protocol in a SIP message body in the SIP ladder diagrams
 - support IP fragmentation for IP in a GRE tunnel (Generic Routing Encapsulation)
 - Optimize SEO
 - support TZSP encapsulation: TaZmen Sniffer Protocol
 - Generate wave files also for SRTP
 - Optimize RTCP logging
 - support of 802.3br packets

2.1.13 v22.06.01.00

- SIP
 - optimize creation of short SIP headers when there is a ";" sign in the SIP header display part
- RTP
 - RTP comfort noise not correct indicated for SRTP in RTP HTML table
- Anonymize
 - anonymize FTP password
 - anonymize HTTP GET string
 - always anonymize SIP TEL URI (also when they are not RFC conform formatted)
 - keep original IP addresses during anonymize when there are pre-defined documentation IP addresses (RFC5737)
- Automatic update
 - check version.txt and version.html at startup
 - detect download of update failure. Make timeout shorter.

- optimize handling if HTTPS request to check latest version is blocked
- GPRS Tunneling Protocol (GTP)
 - optimize detection and unpacking of GPRS Tunneling Protocol (GTP) when there are optional GTP parameters
- other
 - show license request sting in the logging at startup when there is no license
 - adjust executable names for linux (all lower case now)
 - default path to c:\voipalyzer in Windows install program

2.1.14 v22.05.16.00

- SIP
 - anonymize RFC7315 private SIP headers
 - support RFC3262 RAck SIP header for ABNF check
 - SIP request line sometimes too long in the SVG diagram
- AudioCodes
 - Major performance optimisation for AudioCodes SipLog2Pcap conversion
 - optimize AudioCodes SID filtered files
 - Detect CallID2 for Audiocodes sipLog2PCap. Show in HTML tables CallID2
 - Support multipart body for SipLog2Pcap (e.g. QISG, SIP-Q, ...) (e.g. for OpenScape Voice - OpenScape 4000 - OpenScape Business)
- - RTP
 - anonymize RTP payload while volume is still detectable
 - detect ambiguous RTP sender timestamp
- - MGCP
 - defensive reading of MGCP messages. allow
 and \n
- - updater
 - add automatic online updater
- - ZIP
 - minor correction for unzipping with gzip
- - General

- optimize TCP reassemble when reassembled packet is larger than 64kB
- Add counter in HTML tables similar as in CSV files

2.1.15 v22.03.14.00

- SipLog2Pcap
 - add CONVERSIONS button in GUI
 - SipLog2Pcap: convert SIP logs to Wireshark pcap files. SIP log conversions supported from following vendors:
 - Anveo
 - Asterisk
 - AudioCodes Syslog
 - AudioCodes SIP ladder diagram files
 - Broadsoft
 - Genesys
 - Lync
 - Mediatrix Syslog
 - Mitel
 - OneAccess (Ekinops)
 - OpenScape Business (Atos/Unify)
 - OpenScape 4000 STMI SIP logs (Atos/Unify)
 - OpenScape Voice RTT traces (Atos/Unify)
 - Twilio
- AudioCodes
 - convert AudioCodes syslog files to an audit with a filtered AudioCodes syslog file for each unique SIP call [SID=xxx:xxx:xxx]
 - Add unique AudioCodes Log as table entry in all the HTML pages after audit
 - Support Audit of AudioCodes Debug Recording (ACDR) capture inclusive AudioCodes logs (SIP + RTP + RTCP)
 - Convert AudioCodes debug recording capture to a normal Wireshark capture during the Merge functionality (SIP + RTP + RTCP)
- Hex2Pcap: convert Wireshark HEX files to Wireshark pcap files
- Tunneled QSIG in SIP message body
 - more exact processing of tunneled QSIG in SIP (or SIP-Q): process as HEX
 - detect false hits on \r in multipart/mixed body

- Support "Content-Disposition:" as body header for multipart/mixed
- Still show the tool GUI when the license is expired
- Optimize handling of captures on the Null/loopback device
- add VoIPAnalyzerUpdater: check at startup if online any update is available
- Use "frame.number==" in loggings (not WP== anymore)
- Correct gzip issue during merge on Linux
- Anonymize
 - also anonymize optional parameters in the SIP FROM header
 - support anonymize of IGMP multicast packets
 - do not process DHCP packets during anonymize
- RTP
 - Show Max RTP delay, max RTP Jitter and Max RTP Skew in RTP HTML table
 - correct influence between RTP and DTMF on RTP statistics

2.1.16 v22.02.14.00

- correct influence between RTP and DTMF on RTP statistics
- detect IPv6 For Raw captures
- add extra hints in syslog for anonymize
- anonymize ICE candidates in SDP
- SipLog2Pcap: paste DateTime also when year is not available (e.g. for AudioCodes syslog)
- support AVPF and SAVPF in SDP
- clean addition struct memory at the end of an audit/anonymize/merge
- make anonymized DNS names iso mapped IP addresses
- use more natural filename after anonymize (xxx_ANON)
- correct rewriting of SDP length after anonymize
- optimize TCP re-assembly mechanism
- optimize cleanup of leftovers after TCP assembly
- give warning when zip file is opened
- correct processing of abbreviated headers
- TCP reassembly rework + hexdump in hex2pcap format

- gzip for pcapng
- cleanup/optimize IP fragmentation
- SipLog2Pcap generates incorrect "application/csta+xml" body
- optimize handling of pcapng capture with both ethernet packets as also sll packets
- Only last RTP codec is shown in the HTML RTP overview
- Update logging for abbreviated SIP headers
- Support the SIP NEGOTIATE method
- optimize logging of sip.Call-ID=="xxx"
- Update SipLog2Pcap help file
- SipLog2Pcap: support Mitel Sip log conversion to pcap
- SipLog2Pcap: add Mitel and OpenScape Voice RTT log conversion to pcap
- Correct PCAP with wrong TCP flags (e.g. push flag)
- solve progress bar > 100% issue
- Support detection of IEEE802.3br preemption
- Add proprietary X-RTP-Stat headers
- LinkLayerType as short
- update on IEEE 802.3br detection
- Add proprietar Siemens SIP headers
- Add proprietar ThigSbc SIP "X-" headers
- SipLog2Pcap: add vendor OneAccess for SIP log conversion to pcap
- SipLog2Pcap: also detect abbreviated content-type SIP header "c:"
- Read QSIG in body as bytes, not as chars
- SipLog2Pcap code optimisation: make separate classes
- support ^M
- SipLog2Pcap: detect splitted SIP headers and combine them
- Add also "SIP Reason header" in HTML table for Register, Options etc
- Show SIP 403 Forbidden in the HTML ERROR tables
- SipLog2Pcap: detect SDP splitted on 2 lines for AudioCodes syslog logs.
- SipLog2Pcap: optimize splitted SIP messages
- SipLog2Pcap: support SIP messages on one line with numerous \n
- SipLog2Pcap: only search for \n if also SIP/2.0 can be found in the string

- add icons to Web projects and put header on index page
- SVG corrupted for "var protmessage0" when \r leftover occurs
- first detection SIP Common Log Format (CLF)
- error in cleanup tcp stream
- siplog2pcap html corrections (header)
- web: correct clear page for Firefox + make buttons
- Show errors/warnings when SIP RFC errors occur

2.1.17 v21.12.27.00

- Support "RAck" SIP header (RFC3262)
- support IP fragmentation with duplicate packets
- adjust handling of fragmented packets
- Adjust default OpenScape SBC ports from 50000-50019 to 50000-50039
- check maximum framesize of 64K after IP or TCP assembly
- do not use duplicate RTP packets for wave files
- cleanup at the end of IP fragments and TCP segments
- hex2pcap for online tool on website <https://hex2pcap.voipanalyzer.com/>
- hex2pcap: detect de-chunked data and skip it
- allow a tab character for Hex2Pcap splitting
- allow maximal merged filesize of 4 Gb
- optimize link layer detection
- detect RTP packets when they use well known SIP ports
- allow any SIP response code in the range 100-699
- add remark in HTML when RTP delay is higher than 60ms
- check if the 5 mandatory SIP headers are available during audit
- prevent false hits on RTP and RTCP after SIP BYE
- SipLog2Pcap for online tool on website <https://siplog2pcap.voipanalyzer.com/>
- online web tool: make specific page for wrong cases (e.g. wrong input)
- Wireshark OSPF packet not always correct parsed
- support radius and diagram protocol (not in GUI yet)
- adjust parsing of MGCP request line

- adjust parsing of CSeq SIP header
- do not allow SVG drawing with negative x position
- add help file for relevant commands for tshark to text
- culture dependency for DateTime
- use minimal HTML table height when table is empty
- show short names for wave files in HTML tables
- Add SIP reason header in generated HTML tables
- optimize splitting of long strings (e.g. SIP From/To/CallID) in HTML tables

2.1.18 v21.10.02.00

- now supported as Date format: day/month/year or month/day/year or year/month/day
- Support RawIP for Hex to Pcap conversions
- also anonymize SRTP
- give warning for zero duration parameter for DTMF via RFC2833/RFC4733
- use only destination IP and destination port for RTCP filenames
- check if SDP content length value header is consistent with SDP body length
- minor correction for new SDP content length after anonymize
- major performance optimisation during writing of syslog entries from Pcap to syslog text files
- correction regarding detection of multiple SIP messages in one single Wireshark packet
- support P-RTP-Stat header for RTP statistics
- ignore X-Siemens-RTP-Stats: stats not available

2.1.19 v21.09.16.00

- major performance optimisation during audit
- finetune anonymize of MGCP messages
- minor updates in help files
- create new CHM help file
- minor bug fixes

2.1.20 v21.05.12.00

- New code signing certificate
- Detect ZRTP magic cookie in RTP header

- SIP port range extended to 5060-5080 and 5090
- Time processing : Local or UTC (also in GUI)
- Merge folder selection instead of one file selection in the merge folder
- MGCP csv file
- Support nested 802.1Q
- Useragent text added to message flow diagrams

2.1.21 v21.03.31.00

- support of the MGCP protocol
- Handling SVG message graphs more generic (also for MGCP)
- Correction on script error popup for .chm help file
- Correction with multiple linktypes in pcapng
- Filter column buttons in HTML tables
- issue solving

2.1.22 v21.02.22.00

- support Raw IP header
- use colors in RTP HTML pages to highlight issues with packet drop, jitter, skew etc
- support abbreviated SIP headers
- use always TTL value 64 after anonymize to hide network topology
- support detection of GRE tunnel with NULL encryption
- add "clear logging window" button in GUI
- TCP segmentation finetuning
- Detect SIP BYE immediate after SIP RE-INVITE (incomplete SIP dialog)
- Make ethernet address anonymous during anonymize
- Add dropzone on website
- Added free online demo on our <https://www.voipanalyzertool.com> website
- Optimize performance
- support Ubuntu 20.10 (Ubuntu 20.04 was already supported)

2.1.23 v20.11.14.00

- performance optimisation during merge action

- update of online help files
- update of offline CHM help files
- update tool icon
- bug fixes

2.1.24 v20.10.27.00

- Initial version released for any 64 bit Linux Operating system
- Supports same features as the Windows OS version
- Support of PCAPNG (pcap next generation) Wireshark format
- Support the Wireshark snoop format
- Add also a split button next to the merge button
- Improved performance in some area's
- Add progress bar in GUI
- use UTC time for wireshark captures
- make also RTP stats in CSV format
- also anonymize data TCP packets with data length zero (e.g. TCP SYN)
- support merging of Ethernet packets + Linux SLL packets at the same time to one wireshark capture
- bug fixing

2.2 Implemented Change Requests (CR's)

2.2.1 CR's

None.

3 Hardware and software compatibility

3.1 Supported Operating systems

Currently following Linux distributions are supported :

- Ubuntu 20.04 / Ubuntu 20.10

- Debian 10
- SuSE (openSUSE Leap 15.2, openSUSE Tumbleweed 20201030, SuSE Linux Enterprise Server 15 SP1)
- Red Hat 8.2
- CentOS 8.2

Is your Linux distribution or the exact version not listed here ?

Just send an email to linux@voipanalyzertool.com. We are glad to help you further.

4 Important Information

4.1 Installation

4.1.1 Package dependencies

The Linux package dependencies are :

- libc6-dev
- libgcc-s1
- libgdiplus or libgdiplus0
- xchm

The xchm package is optional and can be installed separately. This xchm package is only needed to view the compressed HTML (chm) help file voipalyzer.chm.

In this chapter is explained if some manual actions are needed before installing the voipalyzer package.

4.1.1.1 *Ubuntu 20.04 / Ubuntu 20.10*

4.1.1.1.1 Package xchm

`sudo apt install xchm`



```
bart@ubuntu:~/install$ sudo apt install xchm
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libfprint-2-tod1 libllvm9 python3-click python3-colorama
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libchm1 libwxbase3.0-0v5 libwxgtk3.0-gtk3-0v5
The following NEW packages will be installed:
  libchm1 libwxbase3.0-0v5 libwxgtk3.0-gtk3-0v5 xchm
0 upgraded, 4 newly installed, 0 to remove and 4 not upgraded.
Need to get 5,643 kB of archives.
After this operation, 22.5 MB of additional disk space will be used.
Do you want to continue? [Y/n]
Get:1 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 libchm1 amd64 2:0.40a-5 [24.5 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 libwxbase3.0-0v5 amd64 3.0.4+dfsg-15build1 [982 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 libwxgtk3.0-gtk3-0v5 amd64 3.0.4+dfsg-15build1 [4,311 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 xchm amd64 2:1.31-1build1 [278 kB]
Fetched 5,643 kB in 2s (3,094 kB/s)
Selecting previously unselected package libchm1.
(Reading database ... 186713 files and directories currently installed.)
Preparing to unpack .../libchm1_2%3a0.40a-5_amd64.deb ...
Unpacking libchm1 (2:0.40a-5) ...
Selecting previously unselected package libwxbase3.0-0v5:amd64.
Preparing to unpack .../libwxbase3.0-0v5_3.0.4+dfsg-15build1_amd64.deb ...
Unpacking libwxbase3.0-0v5:amd64 (3.0.4+dfsg-15build1) ...
Selecting previously unselected package libwxgtk3.0-gtk3-0v5:amd64.
Preparing to unpack .../libwxgtk3.0-gtk3-0v5_3.0.4+dfsg-15build1_amd64.deb ...
Unpacking libwxgtk3.0-gtk3-0v5:amd64 (3.0.4+dfsg-15build1) ...
Selecting previously unselected package xchm.
Preparing to unpack .../xchm_2%3a1.31-1build1_amd64.deb ...
Unpacking xchm (2:1.31-1build1) ...
Setting up libchm1 (2:0.40a-5) ...
Setting up libwxbase3.0-0v5:amd64 (3.0.4+dfsg-15build1) ...
Setting up libwxgtk3.0-gtk3-0v5:amd64 (3.0.4+dfsg-15build1) ...
Setting up xchm (2:1.31-1build1) ...
```

4.1.1.2 Debian 10

4.1.1.2.1 Package libgcc-s1

Before installing the voipanalyzer package two other dependant packages need to be downloaded :

wget http://mirrors.edge.kernel.org/ubuntu/pool/main/g/gcc-10/gcc-10-base_10-20200411-0ubuntu1_amd64.deb

wget http://mirrors.xmission.com/ubuntu/pool/main/g/gcc-10/libgcc-s1_10-20200411-0ubuntu1_amd64.deb

```
bart@debian:~/install$ wget http://mirrors.xmission.com/ubuntu/pool/main/g/gcc-10/libgcc-s1_10-20200411-0ubuntu1_amd64.deb
--2020-11-03 20:31:11-- http://mirrors.xmission.com/ubuntu/pool/main/g/gcc-10/libgcc-s1_10-20200411-0ubuntu1_amd64.deb
Resolving mirrors.xmission.com (mirrors.xmission.com)... 2607:fa18:0:3::13, 198.60.22.13
Connecting to mirrors.xmission.com (mirrors.xmission.com)|2607:fa18:0:3::13|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 41576 (41K) [application/octet-stream]
Saving to: 'libgcc-s1_10-20200411-0ubuntu1_amd64.deb'
```

```
libgcc-s1_10-20200411-0ubuntu1_amd 100%[=====>] 40.60K --.-KB/s
```

```
2020-11-03 20:31:11 (273 KB/s) - 'libgcc-s1_10-20200411-0ubuntu1_amd64.deb' saved [41576/41576]
```

```
bart@debian:~/install$ wget http://mirrors.edge.kernel.org/ubuntu/pool/main/g/gcc-10/gcc-10-base_10-20200411-0ubuntu1_amd64.d
--2020-11-03 20:31:31-- http://mirrors.edge.kernel.org/ubuntu/pool/main/g/gcc-10/gcc-10-base_10-20200411-0ubuntu1_amd64.deb
Resolving mirrors.edge.kernel.org (mirrors.edge.kernel.org)... 2604:1380:2001:3900::1, 147.75.101.1
Connecting to mirrors.edge.kernel.org (mirrors.edge.kernel.org)|2604:1380:2001:3900::1|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 19024 (19K) [application/octet-stream]
Saving to: 'gcc-10-base_10-20200411-0ubuntu1_amd64.deb'
```

```
gcc-10-base_10-20200411-0ubuntu1_a 100%[=====>] 18.58K --.-KB/s
```

```
2020-11-03 20:31:31 (660 KB/s) - 'gcc-10-base_10-20200411-0ubuntu1_amd64.deb' saved [19024/19024]
```

And then install both packages :

```
sudo apt install ./gcc-10-base_10-20200411-0ubuntu1_amd64.deb
```

```
sudo apt install ./libgcc-s1_10-20200411-0ubuntu1_amd64.deb
```

```
bart@debian:~/install$ sudo apt install ./gcc-10-base_10-20200411-0ubuntu1_amd64.deb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'gcc-10-base' instead of './gcc-10-base_10-20200411-0ubuntu1_amd64.deb'
The following NEW packages will be installed:
  gcc-10-base
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 0 B/19.0 kB of archives.
After this operation, 262 kB of additional disk space will be used.
Get:1 /home/bart/install/gcc-10-base_10-20200411-0ubuntu1_amd64.deb gcc-10-base amd64 10-20200411-0ubuntu1 [19.0 kB]
Selecting previously unselected package gcc-10-base:amd64.
(Reading database ... 133889 files and directories currently installed.)
Preparing to unpack .../gcc-10-base_10-20200411-0ubuntu1_amd64.deb ...
Unpacking gcc-10-base:amd64 (10-20200411-0ubuntu1) ...
Setting up gcc-10-base:amd64 (10-20200411-0ubuntu1) ...
bart@debian:~/install$ sudo apt install ./libgcc-s1_10-20200411-0ubuntu1_amd64.deb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'libgcc-s1' instead of './libgcc-s1_10-20200411-0ubuntu1_amd64.deb'
The following NEW packages will be installed:
  libgcc-s1
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 0 B/41.6 kB of archives.
After this operation, 123 kB of additional disk space will be used.
Get:1 /home/bart/install/libgcc-s1_10-20200411-0ubuntu1_amd64.deb libgcc-s1 amd64 10-20200411-0ubuntu1 [41.6 kB]
Selecting previously unselected package libgcc-s1:amd64.
(Reading database ... 133894 files and directories currently installed.)
Preparing to unpack .../libgcc-s1_10-20200411-0ubuntu1_amd64.deb ...
Unpacking libgcc-s1:amd64 (10-20200411-0ubuntu1) ...
Replacing files in old package libgcc1:amd64 (1:8.3.0-6) ...
Setting up libgcc-s1:amd64 (10-20200411-0ubuntu1) ...
Processing triggers for libc-bin (2.28-10) ...
```

4.1.1.2.2 Package xchm

sudo apt install xchm

```
bart@debian: ~  
File Edit View Search Terminal Help  
bart@debian:~$ sudo apt install xchm  
[sudo] password for bart:  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
  libchm1 libgail-common libgail18 libgtk2.0-0 libgtk2.0-bin libgtk2.0-common libwxbase3.0-0v5 libwxgtk3.0-0v5  
The following NEW packages will be installed:  
  libchm1 libgail-common libgail18 libgtk2.0-0 libgtk2.0-bin libgtk2.0-common libwxbase3.0-0v5 libwxgtk3.0-0v5 xchm  
0 upgraded, 9 newly installed, 0 to remove and 0 not upgraded.  
Need to get 257 kB/10.5 MB of archives.  
After this operation, 48.6 MB of additional disk space will be used.  
Do you want to continue? [Y/n] y  
Get:1 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libgtk2.0-common all 2.24.32-3 [2,698 kB]  
Get:2 http://deb.debian.org/debian buster/main amd64 libchm1 amd64 2:0.40a-5 [29.2 kB]  
Get:3 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libgtk2.0-0 amd64 2.24.32-3 [1,809 kB]  
Get:4 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libgail18 amd64 2.24.32-3 [55.5 kB]  
Get:5 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libgail-common amd64 2.24.32-3 [156 kB]  
Get:6 http://deb.debian.org/debian buster/main amd64 xchm amd64 2:1.23-3 [228 kB]  
Get:7 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libgtk2.0-bin amd64 2.24.32-3 [48.5 kB]  
Get:8 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libwxbase3.0-0v5 amd64 3.0.4+dfsg-8 [1,057 kB]  
Get:9 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libwxgtk3.0-0v5 amd64 3.0.4+dfsg-8 [4,398 kB]  
Fetched 257 kB in 0s (1,281 kB/s)  
Selecting previously unselected package libchm1.  
(Reading database ... 133518 files and directories currently installed.)  
Preparing to unpack .../0-libchm1_2%3a0.40a-5_amd64.deb ...  
Unpacking libchm1 (2:0.40a-5) ...  
Selecting previously unselected package libgtk2.0-common.  
Preparing to unpack .../1-libgtk2.0-common_2.24.32-3_all.deb ...  
Unpacking libgtk2.0-common (2.24.32-3) ...  
Selecting previously unselected package libgtk2.0-0:amd64.  
Preparing to unpack .../2-libgtk2.0-0_2.24.32-3_amd64.deb ...  
Unpacking libgtk2.0-0:amd64 (2.24.32-3) ...  
Selecting previously unselected package libgail18:amd64.  
Preparing to unpack .../3-libgail18_2.24.32-3_amd64.deb ...  
Unpacking libgail18:amd64 (2.24.32-3) ...  
Selecting previously unselected package libgail-common:amd64.  
Preparing to unpack .../4-libgail-common_2.24.32-3_amd64.deb ...  
Unpacking libgail-common:amd64 (2.24.32-3) ...
```

```
Selecting previously unselected package libgtk2.0-bin.  
Preparing to unpack .../5-libgtk2.0-bin_2.24.32-3_amd64.deb ...  
Unpacking libgtk2.0-bin (2.24.32-3) ...  
Selecting previously unselected package libwxbase3.0-0v5:amd64.  
Preparing to unpack .../6-libwxbase3.0-0v5_3.0.4+dfsg-8_amd64.deb ...  
Unpacking libwxbase3.0-0v5:amd64 (3.0.4+dfsg-8) ...  
Selecting previously unselected package libwxgtk3.0-0v5:amd64.  
Preparing to unpack .../7-libwxgtk3.0-0v5_3.0.4+dfsg-8_amd64.deb ...  
Unpacking libwxgtk3.0-0v5:amd64 (3.0.4+dfsg-8) ...  
Selecting previously unselected package xchm.  
Preparing to unpack .../8-xchm_2%3a1.23-3_amd64.deb ...  
Unpacking xchm (2:1.23-3) ...  
Setting up libchml (2:0.40a-5) ...  
Setting up libwxbase3.0-0v5:amd64 (3.0.4+dfsg-8) ...  
Setting up libgtk2.0-common (2.24.32-3) ...  
Setting up libgtk2.0-0:amd64 (2.24.32-3) ...  
Setting up libwxgtk3.0-0v5:amd64 (3.0.4+dfsg-8) ...  
Setting up xchm (2:1.23-3) ...  
Setting up libgail18:amd64 (2.24.32-3) ...  
Setting up libgtk2.0-bin (2.24.32-3) ...  
Setting up libgail-common:amd64 (2.24.32-3) ...  
Processing triggers for libc-bin (2.28-10) ...  
Processing triggers for man-db (2.8.5-2) ...  
Processing triggers for desktop-file-utils (0.23-4) ...  
Processing triggers for mime-support (3.62) ...  
Processing triggers for gnome-menus (3.31.4-3) ...  
bart@debian:~$
```


4.1.1.3 openSUSE Tumbleweed 20201030

4.1.1.3.1 Package xchm

sudo zypper install xchm

```
install : bash — Konsole
File Edit View Bookmarks Settings Help
bart@localhost:~/install> sudo zypper install xchm
[sudo] password for root:
Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following 7 NEW packages are going to be installed:
  libwx_baseu_net-suse3_0_4 libwx_baseu-suse3_0_4 libwx_gtk2u_aui-suse3_0_4 libwx_gtk2u_core-suse3_0_4 libwx_gtk2u_html-suse3_0_4
  wxWidgets-lang xchm

The following recommended package was automatically selected:
  wxWidgets-lang

7 new packages to install.
Overall download size: 3.6 MiB. Already cached: 0 B. After the operation, additional 12.3 MiB will be used.
Continue? [y/n/v/...? shows all options] (y): y
Retrieving package wxWidgets-lang-3.0.4-3.7.noarch ..... (1/7), 552.8 KiB ( 2.5 MiB unpacked)
Retrieving: wxWidgets-lang-3.0.4-3.7.noarch.rpm .....[done (955.1 KiB/s)]
Retrieving package libwx_baseu-suse3_0_4-3.0.4-3.7.x86_64 ..... (2/7), 658.5 KiB ( 1.8 MiB unpacked)
Retrieving: libwx_baseu-suse3_0_4-3.0.4-3.7.x86_64.rpm .....[done (1.3 MiB/s)]
Retrieving package libwx_gtk2u_core-suse3_0_4-3.0.4-3.7.x86_64 ..... (3/7), 1.5 MiB ( 5.6 MiB unpacked)
Retrieving: libwx_gtk2u_core-suse3_0_4-3.0.4-3.7.x86_64.rpm .....[done (1.3 MiB/s)]
Retrieving package libwx_baseu_net-suse3_0_4-3.0.4-3.7.x86_64 ..... (4/7), 115.7 KiB (232.7 KiB unpacked)
Retrieving: libwx_baseu_net-suse3_0_4-3.0.4-3.7.x86_64.rpm .....[done]
Retrieving package libwx_gtk2u_html-suse3_0_4-3.0.4-3.7.x86_64 ..... (5/7), 281.1 KiB (799.2 KiB unpacked)
Retrieving: libwx_gtk2u_html-suse3_0_4-3.0.4-3.7.x86_64.rpm .....[done (490.9 KiB/s)]
Retrieving package libwx_gtk2u_aui-suse3_0_4-3.0.4-3.7.x86_64 ..... (6/7), 210.4 KiB (573.9 KiB unpacked)
Retrieving: libwx_gtk2u_aui-suse3_0_4-3.0.4-3.7.x86_64.rpm .....[done]
Retrieving package xchm-1.31-2.1.x86_64 ..... (7/7), 294.4 KiB (876.8 KiB unpacked)
Retrieving: xchm-1.31-2.1.x86_64.rpm .....[done (843.5 KiB/s)]

Checking for file conflicts: .....[done]
(1/7) Installing: wxWidgets-lang-3.0.4-3.7.noarch .....[done]
(2/7) Installing: libwx_baseu-suse3_0_4-3.0.4-3.7.x86_64 .....[done]
(3/7) Installing: libwx_gtk2u_core-suse3_0_4-3.0.4-3.7.x86_64 .....[done]
(4/7) Installing: libwx_baseu_net-suse3_0_4-3.0.4-3.7.x86_64 .....[done]
(5/7) Installing: libwx_gtk2u_html-suse3_0_4-3.0.4-3.7.x86_64 .....[done]
(6/7) Installing: libwx_gtk2u_aui-suse3_0_4-3.0.4-3.7.x86_64 .....[done]
(7/7) Installing: xchm-1.31-2.1.x86_64 .....[done]
bart@localhost:~/install>
```


4.1.1.4 openSUSE Leap 15.2

4.1.1.4.1 Package xchm

Before installing the xchm package some dependant packages need to be installed.

sudo zypper in libwx_baseu_net-suse3

```
bart@localhost:~> sudo zypper in libwx_baseu_net-suse3
Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following 3 NEW packages are going to be installed:
  libwx_baseu_net-suse3 libwx_baseu-suse3 wxWidgets-lang

The following recommended package was automatically selected:
  wxWidgets-lang

3 new packages to install.
Overall download size: 1.2 MiB. Already cached: 0 B. After the operation, additional 4.9 MiB will be used.
Continue? [y/n/v/...? shows all options] (y): y
Retrieving package wxWidgets-lang-3.0.3-lp152.7.38.noarch                      (1/3), 442.9 KiB ( 2.5 M
Retrieving package wxWidgets-lang-3.0.3-lp152.7.38.noarch.rpm .....
Retrieving package libwx_baseu-suse3-3.0.3-lp152.7.38.x86_64                (2/3), 694.8 KiB ( 2.2 M
Retrieving package libwx_baseu-suse3-3.0.3-lp152.7.38.x86_64.rpm .....[done (2
Retrieving package libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64            (3/3), 90.8 KiB (240.7 K
Retrieving package libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm .....

Checking for file conflicts: .....
(1/3) Installing: wxWidgets-lang-3.0.3-lp152.7.38.noarch .....
(2/3) Installing: libwx_baseu-suse3-3.0.3-lp152.7.38.x86_64 .....
(3/3) Installing: libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64 .....
bart@localhost:~> █
```

sudo zypper in libwx_gtk2u_aui-suse3

```
bart@localhost:~> sudo zypper in libwx_gtk2u_aui-suse3
Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following 2 NEW packages are going to be installed:
  libwx_gtk2u_aui-suse3 libwx_gtk2u_core-suse3

2 new packages to install.
Overall download size: 1.5 MiB. Already cached: 0 B. After the operation, additional 6.3 MiB will be used.
Continue? [y/n/v/...? shows all options] (y): y
Retrieving package libwx_gtk2u_core-suse3-3.0.3-lp152.7.38.x86_64                (1/2), 1.4 MiB ( 5.7 M
Retrieving: libwx_gtk2u_core-suse3-3.0.3-lp152.7.38.x86_64.rpm .....
Retrieving package libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64                (2/2), 169.6 KiB (566.0 K
Retrieving: libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm .....

Checking for file conflicts: .....
(1/2) Installing: libwx_gtk2u_core-suse3-3.0.3-lp152.7.38.x86_64 .....
(2/2) Installing: libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64 .....
bart@localhost:~> █
```

sudo zypper in libwx_gtk2u_html-suse3

```
bart@localhost:~> sudo zypper in libwx_gtk2u_html-suse3
Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following NEW package is going to be installed:
  libwx_gtk2u_html-suse3

1 new package to install.
Overall download size: 255.8 KiB. Already cached: 0 B. After the operation, additional 859.4 KiB will be used.
Continue? [y/n/v/...? shows all options] (y): y
Retrieving package libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64 (1/1), 255.8 KiB (859.4 K
Retrieving: libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm .....

Checking for file conflicts: .....
(1/1) Installing: libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64 .....
bart@localhost:~> █
```

sudo zypper addrepo https://download.opensuse.org/repositories/home:Lazy_Kent/openSUSE_Leap_15.2/home:Lazy_Kent.repo

sudo zypper refresh

```
bart@localhost:~> sudo zypper addrepo https://download.opensuse.org/repositories/home:Lazy_Kent/openSUSE_Leap_15.2/home:Lazy_Kent.rep
Adding repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' .....
Repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' successfully added
```

```
URI      : https://download.opensuse.org/repositories/home:/Lazy_Kent/openSUSE_Leap_15.2/
Enabled  : Yes
GPG Check : Yes
Autorefresh : No
Priority  : 99 (default priority)
```

Repository priorities are without effect. All enabled repositories share the same priority.

```
bart@localhost:~> zypper refresh
```

Root privileges are required to run this command.

```
bart@localhost:~> sudo zypper refresh
```

```
Retrieving repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' metadata -----
```

New repository or package signing key received:

```
Repository:      Lazy_Kent's Home Project (openSUSE_Leap_15.2)
Key Name:        home:Lazy_Kent OBS Project <home:Lazy_Kent@build.opensuse.org>
Key Fingerprint: 8255E144 B0D12D64 898065E9 70C00E70 77FA2CDD
Key Created:     Fri 10 Jan 2020 07:39:31 AM CET
Key Expires:     Sun 20 Mar 2022 07:39:31 AM CET
Rpm Name:        gpg-pubkey-77fa2cdd-5e181c23
```

Do you want to reject the key, trust temporarily, or trust always? [r/t/a/?] (r): a

```
Retrieving repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' metadata .....
```

```
Building repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' cache .....
```

```
Repository 'Debug Repository' is up to date.
```

```
Repository 'Update Repository (Debug)' is up to date.
```

```
Repository 'Non-OSS Repository' is up to date.
```

```
Repository 'Main Repository' is up to date.
```

```
Repository 'Source Repository' is up to date.
```

```
Repository 'Main Update Repository' is up to date.
```

```
Repository 'Update Repository (Non-Oss)' is up to date.
```

```
Repository 'Untested Updates' is up to date.
```

```
All repositories have been refreshed.
```

```
bart@localhost:~> █
```

sudo zypper install xchm

```
bart@localhost:~> sudo zypper install xchm
Loading repository data...
Reading installed packages...
Resolving package dependencies...
```

```
The following 2 NEW packages are going to be installed:
  xchm xchm-lang
```

```
The following recommended package was automatically selected:
  xchm-lang
```

```
2 new packages to install.
```

```
Overall download size: 206.1 KiB. Already cached: 0 B. After the operation, additional 722.5 KiB will be used.
```

```
Continue? [y/n/v/...? shows all options] (y): y
```

```
Retrieving package xchm-1.23-2.1.lk.x86_64 (1/2), 177.1 KiB (0 B already cached)
```

```
Retrieving: xchm-1.23-2.1.lk.x86_64.rpm .....
```

```
Retrieving package xchm-lang-1.23-2.1.lk.noarch (2/2), 29.0 KiB (0 B already cached)
```

```
Retrieving: xchm-lang-1.23-2.1.lk.noarch.rpm .....
```

```
Checking for file conflicts: .....
```

```
(1/2) Installing: xchm-1.23-2.1.lk.x86_64 .....
```

```
(2/2) Installing: xchm-lang-1.23-2.1.lk.noarch .....
```

```
bart@localhost:~> █
```

4.1.1.5 SLES 15 SP1

4.1.1.5.1 Package libgdiplus or libgdiplus0

For the additional repository go to

<https://software.opensuse.org/download/package?package=libgdiplus0&project=home%3Azkrd2%3Amono>

and then

sudo zypper addrepo https://download.opensuse.org/repositories/home:zkrd2:mono/SLE_15_SP1/home:zkrd2:mono.repo

sudo zypper refresh

```
bart@linux-sqe9:~/install
File Edit View Search Terminal Help
bart@linux-sqe9:~/install> sudo zypper addrepo https://download.opensuse.org/repositories/home:zkrd2:mono/SLE_15_SP1/home:zkrd2:mono.repo
[sudo] password for root:
Adding repository 'Mono - Cross platform, open source .NET framework (SLE_15_SP1)' .....[done]
Repository 'Mono - Cross platform, open source .NET framework (SLE_15_SP1)' successfully added

URI      : https://download.opensuse.org/repositories/home:zkrd2:mono/SLE_15_SP1/
Enabled  : Yes
GPG Check : Yes
Autorefresh : No
Priority  : 99 (default priority)

Repository priorities are without effect. All enabled repositories share the same priority.
bart@linux-sqe9:~/install> zypper refresh
Root privileges are required to run this command.
bart@linux-sqe9:~/install> sudo zypper refresh
Repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' is up to date.
Retrieving repository 'Mono - Cross platform, open source .NET framework (SLE_15_SP1)' metadata -----[\\]

New repository or package signing key received:

Repository:      Mono - Cross platform, open source .NET framework (SLE_15_SP1)
Key Name:        home:zkrd2 OBS Project <home:zkrd2@build.opensuse.org>
Key Fingerprint: 269E01FB 48E7CCF0 9FFAF6E0 E67E3458 B73A323A
Key Created:     Tue 26 Nov 2019 02:13:15 PM CET
Key Expires:     Thu 03 Feb 2022 02:13:15 PM CET
Rpm Name:        gpg-pubkey-b73a323a-5ddd24eb

Do you want to reject the key, trust temporarily, or trust always? [r/t/a/?] (r): a
Retrieving repository 'Mono - Cross platform, open source .NET framework (SLE_15_SP1)' metadata .....[done]
Building repository 'Mono - Cross platform, open source .NET framework (SLE_15_SP1)' cache .....[done]
Repository 'rep1' is up to date.
Repository 'rep2' is up to date.
All repositories have been refreshed.
bart@linux-sqe9:~/install>
```

```
sudo zypper install libgdiplus0
```

```
bart@linux-sqe9:~/install> sudo zypper install libgdiplus0
Loading repository data...
Reading installed packages...
Resolving package dependencies...
```

```
The following 2 NEW packages are going to be installed:
  libgdiplus0 libgif7
```

```
The following 2 packages have no support information from their vendor:
  libgdiplus0 libgif7
```

```
2 new packages to install.
```

```
Overall download size: 206.5 KiB. Already cached: 0 B. After the operation, additional 619.1 KiB will be used.
```

```
Continue? [y/n/v/...? shows all options] (y): y
```

```
Retrieving package libgif7-5.1.4-2.19.x86_64 (1/2), 28.9 KiB (35.4 KiB)
```

```
Retrieving package libgdiplus0-6.0.5-2.1.x86_64 (2/2), 177.6 KiB (583.6 KiB)
```

```
Retrieving: libgdiplus0-6.0.5-2.1.x86_64.rpm .....
```

```
Checking for file conflicts: .....
```

```
(1/2) Installing: libgif7-5.1.4-2.19.x86_64 .....
```

```
(2/2) Installing: libgdiplus0-6.0.5-2.1.x86_64 .....
```

```
bart@linux-sqe9:~/install>
```

4.1.1.5.2 Package xchm

Before installing the xchm package some dependant packages need to be installed.

```
sudo zypper addrepo https://download.opensuse.org/repositories/X11:common:Factory/SLE\_15\_SP1/X11:common:Factory.repo
```

```
sudo zypper refresh
```

```
sudo zypper install libchm0
```



```

bart@linux-sqe9:~/install> sudo zypper addrepo https://download.opensuse.org/repositories/X11:common:Factory/SLE_15_SP1/X11:common:Factory.repo
Adding repository 'devel repository for Factory updates (SLE_15_SP1)' .....
Repository 'devel repository for Factory updates (SLE_15_SP1)' successfully added

URI          : https://download.opensuse.org/repositories/X11:/common:/Factory/SLE_15_SP1/
Enabled      : Yes
GPG Check    : Yes
Autorefresh  : No
Priority     : 99 (default priority)

Repository priorities are without effect. All enabled repositories share the same priority.
bart@linux-sqe9:~/install> sudo zypper refresh
Retrieving repository 'devel repository for Factory updates (SLE_15_SP1)' metadata .....
Building repository 'devel repository for Factory updates (SLE_15_SP1)' cache .....
Repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' is up to date.
Repository 'Mono - Cross platform, open source .NET framework (SLE_15_SP1)' is up to date.
Repository 'rep1' is up to date.
Repository 'rep2' is up to date.
All repositories have been refreshed.
bart@linux-sqe9:~/install> sudo zypper install libchm0
Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following NEW package is going to be installed:
  libchm0

The following package has no support information from its vendor:
  libchm0

1 new package to install.
Overall download size: 32.0 KiB. Already cached: 0 B. After the operation, additional 61.7 KiB will be used.
Continue? [y/n/v/...? shows all options] (y): y
Retrieving package libchm0-0.40-33.1.x86_64 ..... (1/1), 32.0 KiB (61.7 KiB)
Retrieving: libchm0-0.40-33.1.x86_64.rpm ..... [done]
Checking for file conflicts: .....
(1/1) Installing: libchm0-0.40-33.1.x86_64 .....
bart@linux-sqe9:~/install> █

```

wget https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm


```
bart@linux-sqe9:~/install> wget https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm
--2020-11-05 00:43:17-- https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm
Resolving download.opensuse.org (download.opensuse.org)... 2001:67c:2178:8::13, 195.135.221.134
Connecting to download.opensuse.org (download.opensuse.org)|2001:67c:2178:8::13|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://download.opensuse.org/distribution/leap/15.2/repo/oss/x86_64/libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm [following]
--2020-11-05 00:43:17-- https://download.opensuse.org/distribution/leap/15.2/repo/oss/x86_64/libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm
Reusing existing connection to [download.opensuse.org]:443.
HTTP request sent, awaiting response... 302 Found
Location: http://ftp2.nluug.nl/os/Linux/distr/opensuse/distribution/leap/15.2/repo/oss/x86_64/libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm [following]
--2020-11-05 00:43:17-- http://ftp2.nluug.nl/os/Linux/distr/opensuse/distribution/leap/15.2/repo/oss/x86_64/libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm
Resolving ftp2.nluug.nl (ftp2.nluug.nl)... 2001:67c:6ec:221:145:220:21:40, 145.220.21.40
Connecting to ftp2.nluug.nl (ftp2.nluug.nl)|2001:67c:6ec:221:145:220:21:40|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 92996 (91K) [application/x-rpm]
Saving to: 'libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm'

libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm 100%[=====>] 90.82K 293 KB/s
2020-11-05 00:43:18 (293 KB/s) - 'libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm' saved [92996/92996]

bart@linux-sqe9:~/install> █
```

wget https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm

```
bart@linux-sqe9:~/install> wget https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm
--2020-11-05 00:45:02-- https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm
Resolving download.opensuse.org (download.opensuse.org)... 2001:67c:2178:8::13, 195.135.221.134
Connecting to download.opensuse.org (download.opensuse.org)|2001:67c:2178:8::13|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://download.opensuse.org/distribution/leap/15.2/repo/oss/x86_64/libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm [following]
--2020-11-05 00:45:02-- https://download.opensuse.org/distribution/leap/15.2/repo/oss/x86_64/libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm
Reusing existing connection to [download.opensuse.org]:443.
HTTP request sent, awaiting response... 302 Found
Location: http://ftp2.nluug.nl/os/Linux/distr/opensuse/distribution/leap/15.2/repo/oss/x86_64/libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm [following]
--2020-11-05 00:45:03-- http://ftp2.nluug.nl/os/Linux/distr/opensuse/distribution/leap/15.2/repo/oss/x86_64/libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm
Resolving ftp2.nluug.nl (ftp2.nluug.nl)... 2001:67c:6ec:221:145:220:21:40, 145.220.21.40
Connecting to ftp2.nluug.nl (ftp2.nluug.nl)|2001:67c:6ec:221:145:220:21:40|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 173652 (170K) [application/x-rpm]
Saving to: 'libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm'

libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64 100%[=====>] 169.58K 867KB/s

2020-11-05 00:45:03 (867 KB/s) - 'libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm' saved [173652/173652]

bart@linux-sqe9:~/install> █
```

wget https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm

```

bart@linux-sqe9:~/install> wget https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm
--2020-11-05 00:45:51-- https://download.opensuse.org/repositories/openSUSE:/Leap:/15.2/standard/x86_64/libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm
Resolving download.opensuse.org (download.opensuse.org)... 2001:67c:2178:8::13, 195.135.221.134
Connecting to download.opensuse.org (download.opensuse.org)|2001:67c:2178:8::13|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://download.opensuse.org/distribution/leap/15.2/repo/oss/x86_64/libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm [following]
--2020-11-05 00:45:51-- https://download.opensuse.org/distribution/leap/15.2/repo/oss/x86_64/libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm
Reusing existing connection to [download.opensuse.org]:443.
HTTP request sent, awaiting response... 302 Found
Location: http://ftp2.nluug.nl/os/Linux/distr/opensuse/distribution/leap/15.2/repo/oss/x86_64/libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm [following]
--2020-11-05 00:45:51-- http://ftp2.nluug.nl/os/Linux/distr/opensuse/distribution/leap/15.2/repo/oss/x86_64/libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm
Resolving ftp2.nluug.nl (ftp2.nluug.nl)... 2001:67c:6ec:221:145:220:21:40, 145.220.21.40
Connecting to ftp2.nluug.nl (ftp2.nluug.nl)|2001:67c:6ec:221:145:220:21:40|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 261908 (256K) [application/x-rpm]
Saving to: 'libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm'

libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm 100%[=====>] 255.77K 639KB/s

2020-11-05 00:45:52 (639 KB/s) - 'libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm' saved [261908/261908]

bart@linux-sqe9:~/install> █

```

```

sudo zypper in ./libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm ./libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm ./libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64.rpm

```

```

bart@linux-sqe9:~/install> sudo zypper in ./libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64.rpm ./libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64.rpm ./libwx_
3-3.0.3-lp152.7.38.x86_64.rpm

Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following 3 NEW packages are going to be installed:
  libwx_baseu_net-suse3 libwx_gtk2u_aui-suse3 libwx_gtk2u_html-suse3

The following 3 packages have no support information from their vendor:
  libwx_baseu_net-suse3 libwx_gtk2u_aui-suse3 libwx_gtk2u_html-suse3

3 new packages to install.
Overall download size: 516.2 KiB. Already cached: 0 B. After the operation, additional 1.6 MiB will be used.
Continue? [y/n/v/...? shows all options] (y): y
Retrieving package libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64 (1/3), 90.8 KiB (240
Retrieving package libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64 (2/3), 169.6 KiB (566
Retrieving package libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64 (3/3), 255.8 KiB (859
Checking for file conflicts: .....
(1/3) Installing: libwx_baseu_net-suse3-3.0.3-lp152.7.38.x86_64 .....
(2/3) Installing: libwx_gtk2u_aui-suse3-3.0.3-lp152.7.38.x86_64 .....
(3/3) Installing: libwx_gtk2u_html-suse3-3.0.3-lp152.7.38.x86_64 .....
bart@linux-sqe9:~/install> █

```

sudo zypper addrepo https://download.opensuse.org/repositories/home:Lazy_Kent/openSUSE_Leap_15.2/home:Lazy_Kent.repo

sudo zypper refresh

```
bart@linux-sqe9:~/install> sudo zypper addrepo https://download.opensuse.org/repositories/home:Lazy_Kent/openSUSE_Leap_15.2/home:Lazy_Kent.repo
Adding repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' .....
Repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' successfully added
```

```
URI          : https://download.opensuse.org/repositories/home:/Lazy_Kent/openSUSE_Leap_15.2/
Enabled      : Yes
GPG Check    : Yes
Autorefresh  : No
Priority     : 99 (default priority)
```

Repository priorities are without effect. All enabled repositories share the same priority.

```
bart@linux-sqe9:~/install> zypper refresh
```

Root privileges are required to run this command.

```
bart@linux-sqe9:~/install> sudo zypper refresh
```

Repository 'devel repository for Factory updates (SLE_15_SP1)' is up to date.

Retrieving repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' metadata

Building repository 'Lazy_Kent's Home Project (openSUSE_Leap_15.2)' cache

Repository 'Mono - Cross platform, open source .NET framework (SLE_15_SP1)' is up to date.

Repository 'rep1' is up to date.

Repository 'rep2' is up to date.

All repositories have been refreshed.

```
bart@linux-sqe9:~/install>
```

sudo zypper install xchm

```

bart@linux-sqe9:~/install> sudo zypper install xchm
Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following 2 NEW packages are going to be installed:
  xchm xchm-lang

The following recommended package was automatically selected:
  xchm-lang

The following 2 packages have no support information from their vendor:
  xchm xchm-lang

2 new packages to install.
Overall download size: 206.1 KiB. Already cached: 0 B. After the operation, additional 722.5 KiB will be used.
Continue? [y/n/v/...? shows all options] (y): y
Retrieving package xchm-1.23-2.1.lk.x86_64 ..... (1/2), 177.1 KiB (638.4
Retrieving: xchm-1.23-2.1.lk.x86_64.rpm .....
Retrieving package xchm-lang-1.23-2.1.lk.noarch ..... (2/2), 29.0 KiB ( 84.1
Retrieving: xchm-lang-1.23-2.1.lk.noarch.rpm .....
Checking for file conflicts: .....
(1/2) Installing: xchm-1.23-2.1.lk.x86_64 .....
(2/2) Installing: xchm-lang-1.23-2.1.lk.noarch .....
bart@linux-sqe9:~/install>

```

4.1.1.6 Red Hat 8.2

4.1.1.6.1 Package xchm

For some distributions (Red Hat, CentOS) the xchm package is not available as a binary package and has to be built from the source.

For the xchm package see :

<https://github.com/rzvncj/xCHM>

4.1.1.7 CentOS 8.2

4.1.1.7.1 Package xchm

For some distributions (Red Hat, CentOS) the xchm package is not available as a binary package and has to be built from the source.

For the xchm package see :

<https://github.com/rzvncj/xCHM>

4.1.2 Setup executable

The public key and software can be downloaded from <https://www.voipanalyzertool.com/download-linux>

Download the public key voipanalyzertool_pubkey.asc

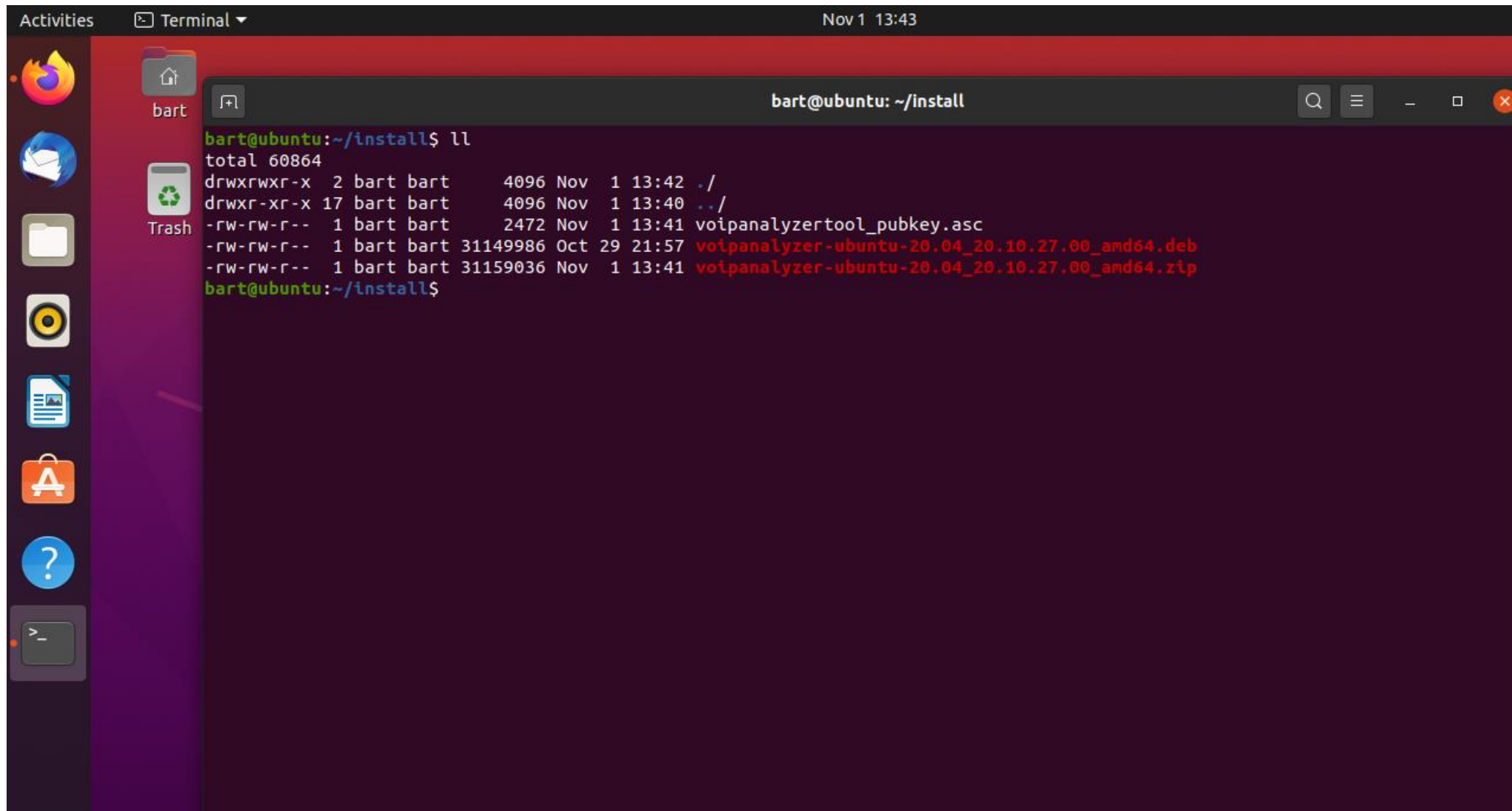
Download the install package. The downloaded install package is a .zip file that contains the Linux .deb or .rpm package so first unzip with :

`unzip <VoIPAnalyzer Tool package name>`

(note: the package name can differ a bit from the screenshot, e.g. containing a different version number)

Before installing the voipanalyzer package please verify the package dependencies (previous chapter). The xchm package is not mandatory to be installed.

4.1.2.1 Ubuntu 20.04 / Ubuntu 20.10



The screenshot shows a terminal window titled "bart@ubuntu: ~/install" with the following output:

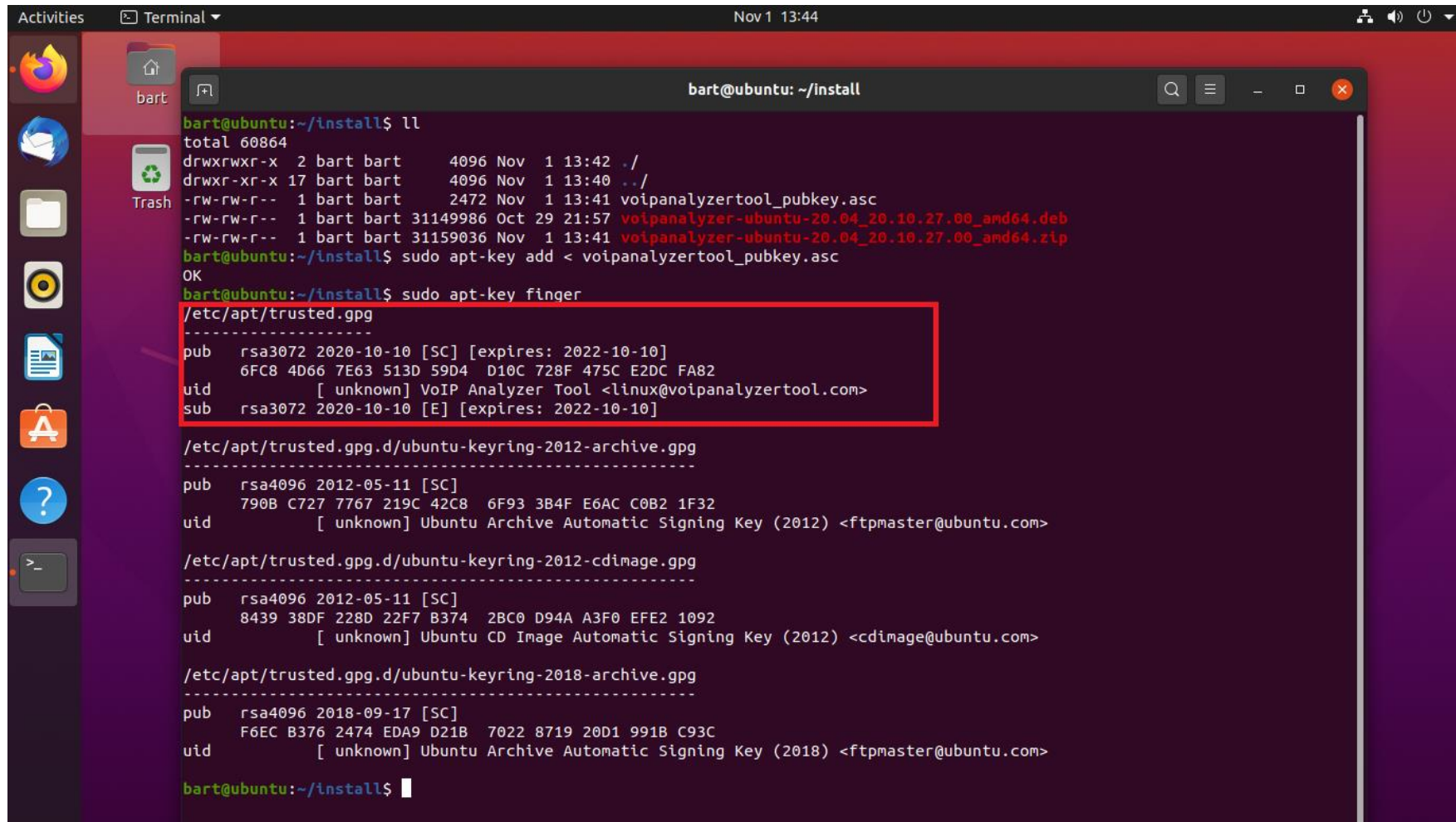
```
bart@ubuntu:~/install$ ll
total 60864
drwxrwxr-x  2 bart bart    4096 Nov  1 13:42 ./
drwxr-xr-x 17 bart bart    4096 Nov  1 13:40 ../
-rw-rw-r--  1 bart bart    2472 Nov  1 13:41 voipanalyzertool_pubkey.asc
-rw-rw-r--  1 bart bart 31149986 Oct 29 21:57 voipalyzer-ubuntu-20.04_20.10.27.00_amd64.deb
-rw-rw-r--  1 bart bart 31159036 Nov  1 13:41 voipalyzer-ubuntu-20.04_20.10.27.00_amd64.zip
bart@ubuntu:~/install$
```

The terminal window is part of a desktop environment with a sidebar on the left containing icons for Activities, Terminal, Home, Trash, and various applications. The top bar shows the date and time as "Nov 1 13:43".

Install and verify the public key :

`sudo apt-key add < voipanalyzertool_pubkey.asc`

`sudo apt-key finger`



The screenshot shows a terminal window titled 'bart@ubuntu: ~/install' with the following commands and output:

```
bart@ubuntu:~/install$ ll
total 60864
drwxrwxr-x 2 bart bart 4096 Nov 1 13:42 ./
drwxr-xr-x 17 bart bart 4096 Nov 1 13:40 ../
-rw-rw-r-- 1 bart bart 2472 Nov 1 13:41 voipanalyzertool_pubkey.asc
-rw-rw-r-- 1 bart bart 31149986 Oct 29 21:57 voipalyzer-ubuntu-20.04_20.10.27.00_amd64.deb
-rw-rw-r-- 1 bart bart 31159036 Nov 1 13:41 voipalyzer-ubuntu-20.04_20.10.27.00_amd64.zip
bart@ubuntu:~/install$ sudo apt-key add < voipanalyzertool_pubkey.asc
OK
bart@ubuntu:~/install$ sudo apt-key finger
/etc/apt/trusted.gpg
-----
pub   rsa3072 2020-10-10 [SC] [expires: 2022-10-10]
      6FC8 4D66 7E63 513D 59D4 D10C 728F 475C E2DC FA82
uid   [ unknown] VoIP Analyzer Tool <linux@voipanalyzertool.com>
sub   rsa3072 2020-10-10 [E] [expires: 2022-10-10]

/etc/apt/trusted.gpg.d/ubuntu-keyring-2012-archive.gpg
-----
pub   rsa4096 2012-05-11 [SC]
      790B C727 7767 219C 42C8 6F93 3B4F E6AC C0B2 1F32
uid   [ unknown] Ubuntu Archive Automatic Signing Key (2012) <ftpmaster@ubuntu.com>

/etc/apt/trusted.gpg.d/ubuntu-keyring-2012-cdimage.gpg
-----
pub   rsa4096 2012-05-11 [SC]
      8439 38DF 228D 22F7 B374 2BC0 D94A A3F0 EFE2 1092
uid   [ unknown] Ubuntu CD Image Automatic Signing Key (2012) <cdimage@ubuntu.com>

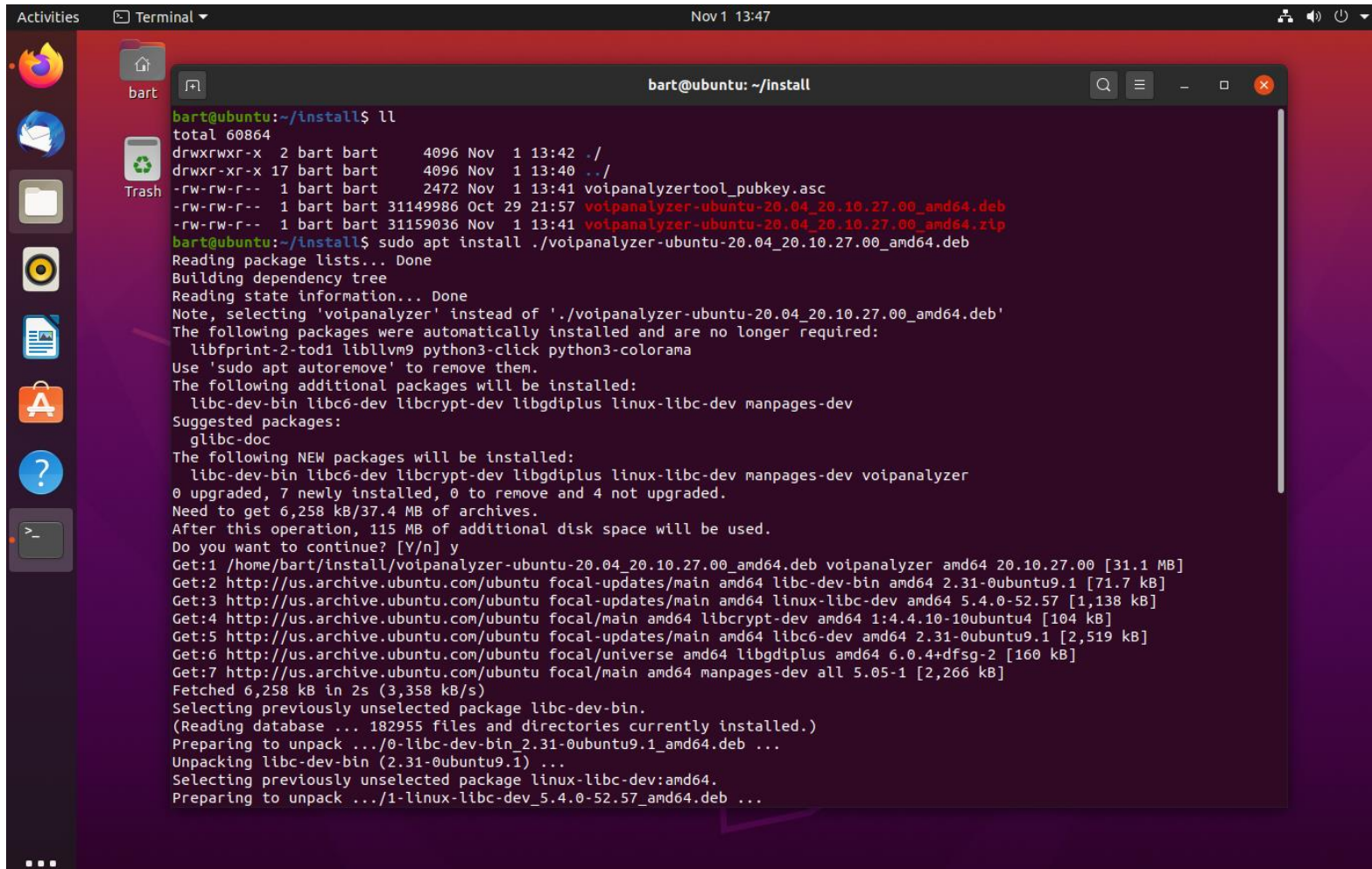
/etc/apt/trusted.gpg.d/ubuntu-keyring-2018-archive.gpg
-----
pub   rsa4096 2018-09-17 [SC]
      F6EC B376 2474 EDA9 D21B 7022 8719 20D1 991B C93C
uid   [ unknown] Ubuntu Archive Automatic Signing Key (2018) <ftpmaster@ubuntu.com>

bart@ubuntu:~/install$
```

The output of the `apt-key finger` command is highlighted with a red box in the original image.

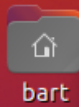
Install the voipanalyzer package with :

`sudo apt install <voipanalyzer .deb package name>`



The screenshot shows a terminal window titled "bart@ubuntu: ~/install" with a search icon, menu icon, and window controls. The terminal output is as follows:

```
bart@ubuntu:~/install$ ll
total 60864
drwxrwxr-x 2 bart bart 4096 Nov 1 13:42 ./
drwxr-xr-x 17 bart bart 4096 Nov 1 13:40 ../
-rw-rw-r-- 1 bart bart 2472 Nov 1 13:41 voipanalyzertool_pubkey.asc
-rw-rw-r-- 1 bart bart 31149986 Oct 29 21:57 voipanalyzer-ubuntu-20.04_20.10.27.00_amd64.deb
-rw-rw-r-- 1 bart bart 31159036 Nov 1 13:41 voipanalyzer-ubuntu-20.04_20.10.27.00_amd64.zip
bart@ubuntu:~/install$ sudo apt install ./voipanalyzer-ubuntu-20.04_20.10.27.00_amd64.deb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'voipanalyzer' instead of './voipanalyzer-ubuntu-20.04_20.10.27.00_amd64.deb'
The following packages were automatically installed and are no longer required:
 libbprint-2-todi libllvm9 python3-click python3-colorama
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
 libc-dev-bin libc6-dev libcrypt-dev libgdiplus linux-libc-dev manpages-dev
Suggested packages:
 glibc-doc
The following NEW packages will be installed:
 libc-dev-bin libc6-dev libcrypt-dev libgdiplus linux-libc-dev manpages-dev voipanalyzer
0 upgraded, 7 newly installed, 0 to remove and 4 not upgraded.
Need to get 6,258 kB/37.4 MB of archives.
After this operation, 115 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 /home/bart/install/voipanalyzer-ubuntu-20.04_20.10.27.00_amd64.deb voipanalyzer amd64 20.10.27.00 [31.1 MB]
Get:2 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libc-dev-bin amd64 2.31-0ubuntu9.1 [71.7 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 linux-libc-dev amd64 5.4.0-52.57 [1,138 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu focal/main amd64 libcrypt-dev amd64 1:4.4.10-10ubuntu4 [104 kB]
Get:5 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libc6-dev amd64 2.31-0ubuntu9.1 [2,519 kB]
Get:6 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 libgdiplus amd64 6.0.4+dfsg-2 [160 kB]
Get:7 http://us.archive.ubuntu.com/ubuntu focal/main amd64 manpages-dev all 5.05-1 [2,266 kB]
Fetched 6,258 kB in 2s (3,358 kB/s)
Selecting previously unselected package libc-dev-bin.
(Reading database ... 182955 files and directories currently installed.)
Preparing to unpack .../0-libc-dev-bin_2.31-0ubuntu9.1_amd64.deb ...
Unpacking libc-dev-bin (2.31-0ubuntu9.1) ...
Selecting previously unselected package linux-libc-dev:amd64.
Preparing to unpack .../1-linux-libc-dev_5.4.0-52.57_amd64.deb ...
```



bart



Trash

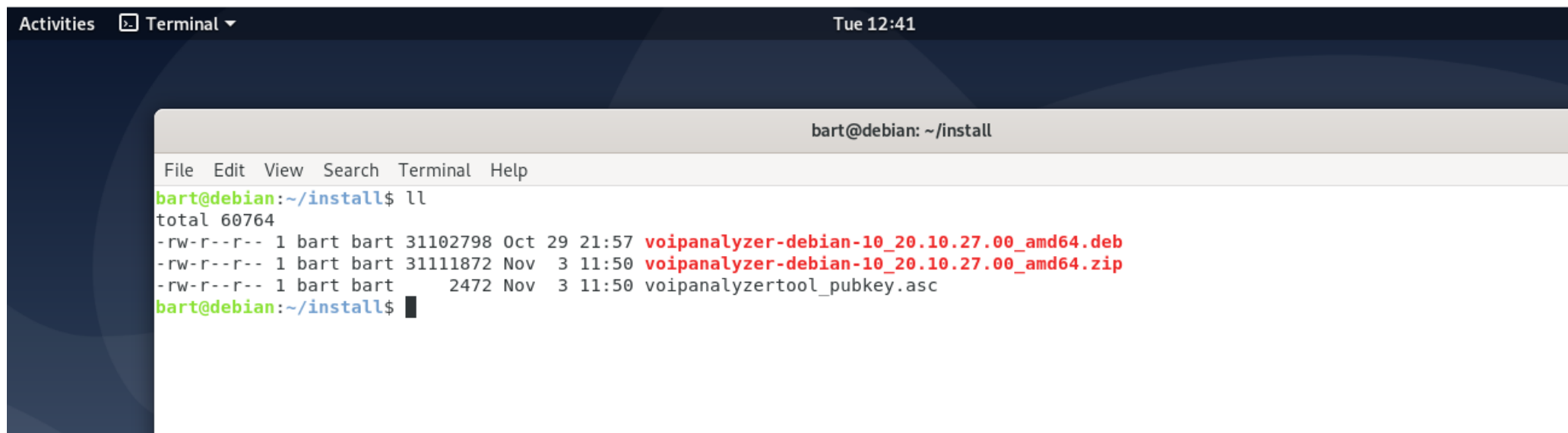


bart@ubuntu: ~/install



```
Get:7 http://us.archive.ubuntu.com/ubuntu focal/main amd64 manpages-dev all 5.05-1 [2,266 kB]
Fetched 6,258 kB in 2s (3,358 kB/s)
Selecting previously unselected package libc-dev-bin.
(Reading database ... 182955 files and directories currently installed.)
Preparing to unpack .../0-libc-dev-bin_2.31-0ubuntu9.1_amd64.deb ...
Unpacking libc-dev-bin (2.31-0ubuntu9.1) ...
Selecting previously unselected package linux-libc-dev:amd64.
Preparing to unpack .../1-linux-libc-dev_5.4.0-52.57_amd64.deb ...
Unpacking linux-libc-dev:amd64 (5.4.0-52.57) ...
Selecting previously unselected package libcrypt-dev:amd64.
Preparing to unpack .../2-libcrypt-dev_1:4.4.10-10ubuntu4_amd64.deb ...
Unpacking libcrypt-dev:amd64 (1:4.4.10-10ubuntu4) ...
Selecting previously unselected package libc6-dev:amd64.
Preparing to unpack .../3-libc6-dev_2.31-0ubuntu9.1_amd64.deb ...
Unpacking libc6-dev:amd64 (2.31-0ubuntu9.1) ...
Selecting previously unselected package libgdiplus.
Preparing to unpack .../4-libgdiplus_6.0.4+dfsg-2_amd64.deb ...
Unpacking libgdiplus (6.0.4+dfsg-2) ...
Selecting previously unselected package manpages-dev.
Preparing to unpack .../5-manpages-dev_5.05-1_all.deb ...
Unpacking manpages-dev (5.05-1) ...
Selecting previously unselected package voipanalyzer.
Preparing to unpack .../6-voipanalyzer-ubuntu-20.04_20.10.27.00_amd64.deb ...
Unpacking voipanalyzer (20.10.27.00) ...
Setting up manpages-dev (5.05-1) ...
Setting up libgdiplus (6.0.4+dfsg-2) ...
Setting up linux-libc-dev:amd64 (5.4.0-52.57) ...
Setting up libcrypt-dev:amd64 (1:4.4.10-10ubuntu4) ...
Setting up libc-dev-bin (2.31-0ubuntu9.1) ...
Setting up libc6-dev:amd64 (2.31-0ubuntu9.1) ...
Setting up voipanalyzer (20.10.27.00) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.1) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
bart@ubuntu:~/install$
```

4.1.2.2 Debian 10

A terminal window titled 'bart@debian: ~/install' is shown. The window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal output shows the command 'll' being executed, resulting in a directory listing of files in the current directory. The files are: 'voipalyzer-debian-10_20.10.27.00_amd64.deb', 'voipalyzer-debian-10_20.10.27.00_amd64.zip', and 'voipanalyzertool_pubkey.asc'. The permissions for each file are listed as '-rw-r--r--'. The total size of the files is 60764 bytes.

```
File Edit View Search Terminal Help
bart@debian:~/install$ ll
total 60764
-rw-r--r-- 1 bart bart 31102798 Oct 29 21:57 voipalyzer-debian-10_20.10.27.00_amd64.deb
-rw-r--r-- 1 bart bart 31111872 Nov  3 11:50 voipalyzer-debian-10_20.10.27.00_amd64.zip
-rw-r--r-- 1 bart bart    2472 Nov  3 11:50 voipanalyzertool_pubkey.asc
bart@debian:~/install$
```

Install and verify the public key :

```
sudo apt-key add < voipanalyzertool_pubkey.asc
```

```
sudo apt-key finger
```


bart@debian: ~/install

File Edit View Search Terminal Help

total 60764

```
-rw-r--r-- 1 bart bart 31102798 Oct 29 21:57 voipanalyzer-debian-10_20.10.27.00_amd64.deb
```

```
-rw-r--r-- 1 bart bart 31111872 Nov  3 11:50 voipanalyzer-debian-10_20.10.27.00_amd64.zip
```

```
-rw-r--r-- 1 bart bart      2472 Nov  3 11:50 voipanalyzertool_pubkey.asc
```

```
bart@debian:~/install$ sudo apt-key add < voipanalyzertool_pubkey.asc
```

OK

```
bart@debian:~/install$ sudo apt-key finger
```

```
/etc/apt/trusted.gpg
```

```
pub  rsa3072 2020-10-10 [SC] [expires: 2022-10-10]
```

```
6FC8 4D66 7E63 513D 59D4 D10C 728F 475C E2DC FA82
```

```
uid          [ unknown] VoIP Analyzer Tool <linux@voipanalyzertool.com>
```

```
sub  rsa3072 2020-10-10 [E] [expires: 2022-10-10]
```

```
/etc/apt/trusted.gpg.d/debian-archive-buster-automatic.gpg
```

```
pub  rsa4096 2019-04-14 [SC] [expires: 2027-04-12]
```

```
80D1 5823 B7FD 1561 F9F7 BCDD DC30 D7C2 3CBB ABEE
```

```
uid          [ unknown] Debian Archive Automatic Signing Key (10/buster) <ftpmaster@debian.org>
```

```
sub  rsa4096 2019-04-14 [S] [expires: 2027-04-12]
```

```
/etc/apt/trusted.gpg.d/debian-archive-buster-security-automatic.gpg
```

```
pub  rsa4096 2019-04-14 [SC] [expires: 2027-04-12]
```

```
5E61 B217 265D A980 7A23 C5FF 4DFA B270 CAA9 6DFA
```

```
uid          [ unknown] Debian Security Archive Automatic Signing Key (10/buster) <ftpmaster@debian.org>
```

```
sub  rsa4096 2019-04-14 [S] [expires: 2027-04-12]
```

Before installing the voipalyzer package two other dependant packages need to be downloaded :

wget http://mirrors.edge.kernel.org/ubuntu/pool/main/g/gcc-10/gcc-10-base_10-20200411-0ubuntu1_amd64.deb

wget http://mirrors.xmission.com/ubuntu/pool/main/g/gcc-10/libgcc-s1_10-20200411-0ubuntu1_amd64.deb

And then install both packages :

```
sudo apt install ./gcc-10-base_10-20200411-0ubuntu1_amd64.deb
```

```
sudo apt install ./libgcc-s1_10-20200411-0ubuntu1_amd64.deb
```

Install the voipalyzer package with :

```
sudo apt install <voipalyzer .deb package name>
```

File Edit View Search Terminal Help

```
bart@debian:~/install$ sudo apt install ./voipalyzer-debian-10_20.10.27.00_amd64.deb
```

Reading package lists... Done

Building dependency tree

Reading state information... Done

Note, selecting 'voipalyzer' instead of './voipalyzer-debian-10_20.10.27.00_amd64.deb'

The following additional packages will be installed:

libc-dev-bin libc6-dev libgdiplus linux-libc-dev manpages-dev

Suggested packages:

glibc-doc

The following NEW packages will be installed:

libc-dev-bin libc6-dev libgdiplus linux-libc-dev manpages-dev voipalyzer

0 upgraded, 6 newly installed, 0 to remove and 0 not upgraded.

Need to get 1,402 kB/37.8 MB of archives.

After this operation, 114 MB of additional disk space will be used.

Do you want to continue? [Y/n] y

Get:1 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libc-dev-bin amd64 2.28-10 [275 kB]

Get:2 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libc6-dev amd64 2.28-10 [91 kB]

Get:3 http://security.debian.org/debian-security buster/updates/main amd64 linux-libc-dev amd64 4.19.152-1 [1,402 kB]

Get:4 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 libgdiplus amd64 6.0.9.2 [1,402 kB]

Get:5 cdrom://[Debian GNU/Linux 10.3.0 _Buster_ - Official amd64 DVD Binary-1 20200208-12:08] buster/main amd64 manpages-dev all 4.12 [32 kB]

Get:6 /home/bart/install/voipalyzer-debian-10_20.10.27.00_amd64.deb voipalyzer amd64 20.10.27.00 [31.1 MB]

Fetched 1,402 kB in 0s (3,387 kB/s)

Selecting previously unselected package libc-dev-bin.

(Reading database ... 133896 files and directories currently installed.)

Preparing to unpack .../0-libc-dev-bin_2.28-10_amd64.deb ...

Unpacking libc-dev-bin (2.28-10) ...

Selecting previously unselected package linux-libc-dev:amd64.

Preparing to unpack .../1-linux-libc-dev_4.19.152-1_amd64.deb ...

Unpacking linux-libc-dev:amd64 (4.19.152-1) ...

Selecting previously unselected package libc6-dev:amd64.

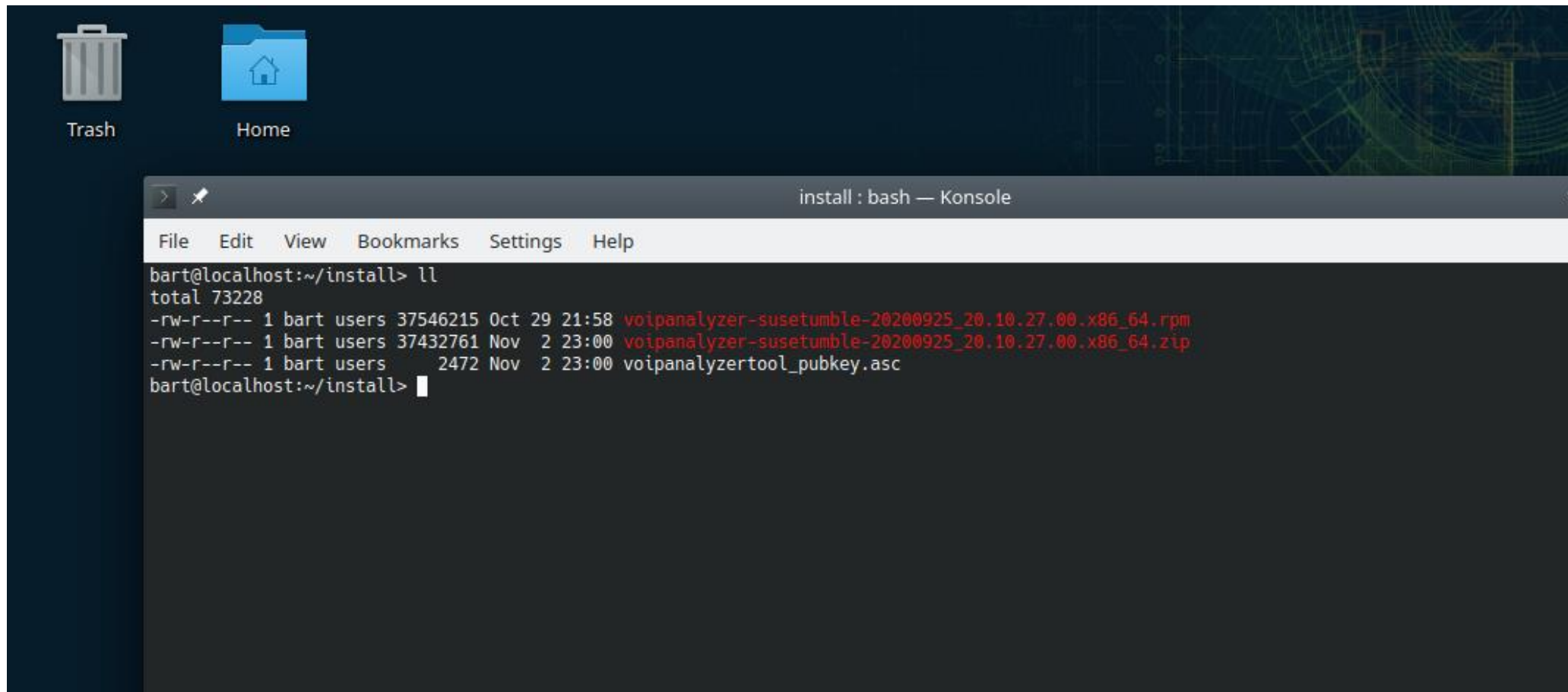
Preparing to unpack .../2-libc6-dev_2.28-10_amd64.deb ...

Unpacking libc6-dev:amd64 (2.28-10) ...

Selecting previously unselected package libgdiplus.

```
Preparing to unpack .../3-libgdiplus_4.2-2_amd64.deb ...
Unpacking libgdiplus (4.2-2) ...
Selecting previously unselected package manpages-dev.
Preparing to unpack .../4-manpages-dev_4.16-2_all.deb ...
Unpacking manpages-dev (4.16-2) ...
Selecting previously unselected package voipanalyzer.
Preparing to unpack .../5-voipanalyzer-debian-10_20.10.27.00_amd64.deb ...
Unpacking voipanalyzer (20.10.27.00) ...
Setting up manpages-dev (4.16-2) ...
Setting up libgdiplus (4.2-2) ...
Setting up linux-libc-dev:amd64 (4.19.152-1) ...
Setting up libc-dev-bin (2.28-10) ...
Setting up libc6-dev:amd64 (2.28-10) ...
Setting up voipanalyzer (20.10.27.00) ...
Processing triggers for mime-support (3.62) ...
Processing triggers for gnome-menus (3.31.4-3) ...
Processing triggers for libc-bin (2.28-10) ...
Processing triggers for man-db (2.8.5-2) ...
Processing triggers for desktop-file-utils (0.23-4) ...
bart@debian:~/install$
```

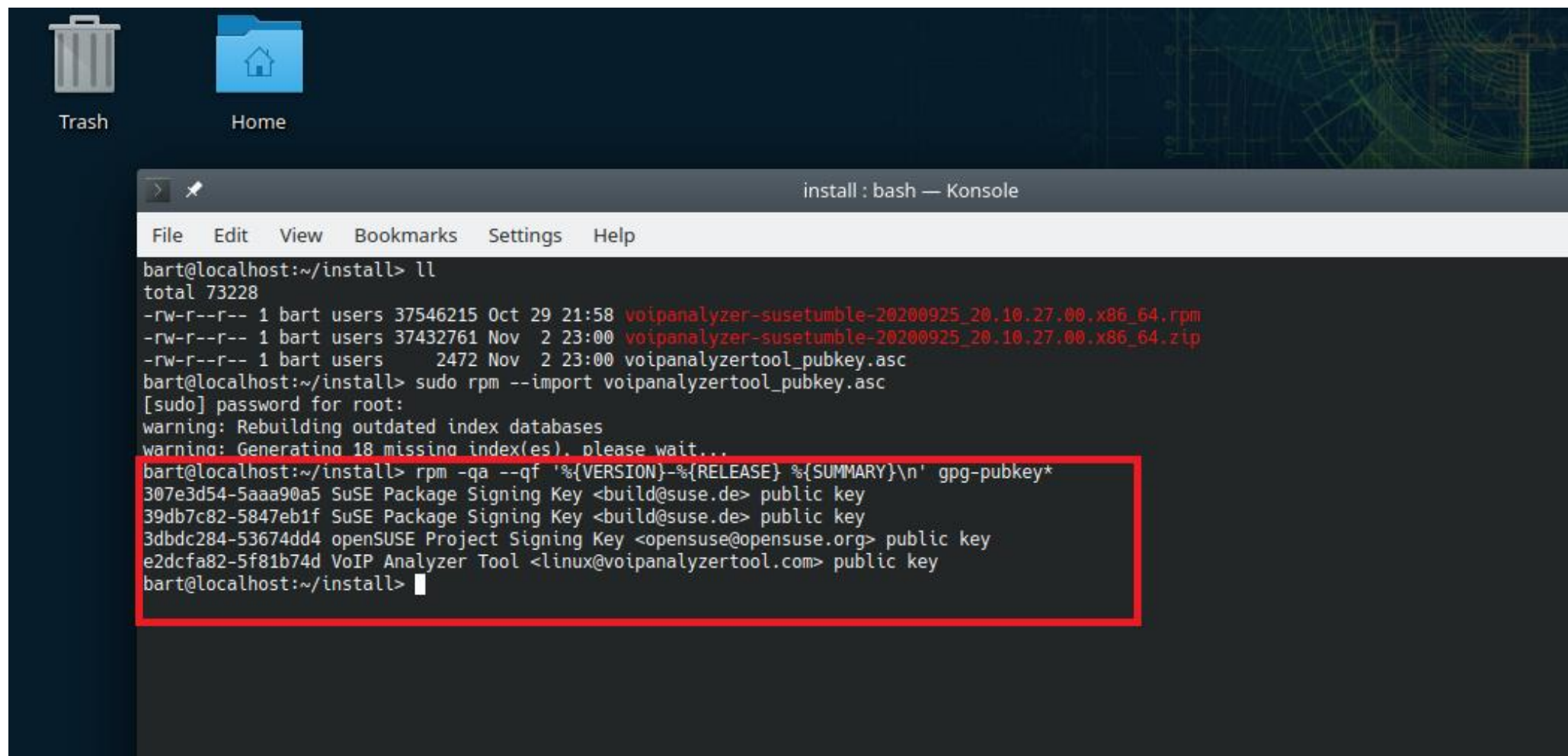

4.1.2.3 openSUSE Tumbleweed 20201030 / openSUSE Leap 15.2 / SLES 15 SP1



Install and verify the public key :

```
sudo rpm --import voipanalyzertool_pubkey.asc
```

```
rpm -qa --qf '%{VERSION}-%{RELEASE} %{SUMMARY}\n' gpg-pubkey*
```



Install the voipalyzer package with :

`sudo zypper install <voipalyzer .rpm package name>`



Trash



Home

install : bash — Konsole

File Edit View Bookmarks Settings Help

```
bart@localhost:~/install> ll
```

```
total 73228
```

```
-rw-r--r-- 1 bart users 37546215 Oct 29 21:58 voipalyzer-susetumble-20200925_20.10.27.00.x86_64.rpm
```

```
-rw-r--r-- 1 bart users 37432761 Nov 2 23:00 voipalyzer-susetumble-20200925_20.10.27.00.x86_64.zip
```

```
-rw-r--r-- 1 bart users 2472 Nov 2 23:00 voipalyzertool_pubkey.asc
```

```
bart@localhost:~/install> sudo zypper install voipalyzer-susetumble-20200925_20.10.27.00.x86_64.rpm
```

```
Loading repository data...
```

```
Reading installed packages...
```

```
Resolving package dependencies...
```

```
The following 2 NEW packages are going to be installed:
```

```
libgdiplus0 voipalyzer
```

```
2 new packages to install.
```

```
Overall download size: 36.0 MiB. Already cached: 0 B. After the operation, additional 81.1 MiB will be used.
```

```
Continue? [y/n/v/...? shows all options] (y): y
```

```
Retrieving package libgdiplus0-6.0.4-1.2.x86_64
```

```
(1/2), 197.4 KiB (525.8 KiB unpacked)
```

```
Retrieving: libgdiplus0-6.0.4-1.2.x86_64.rpm .....[done (24.1 KiB)]
```

```
Retrieving package voipalyzer-20.10.27.00-1.susetumble.x86_64
```

```
(2/2), 35.8 MiB (80.6 MiB unpacked)
```

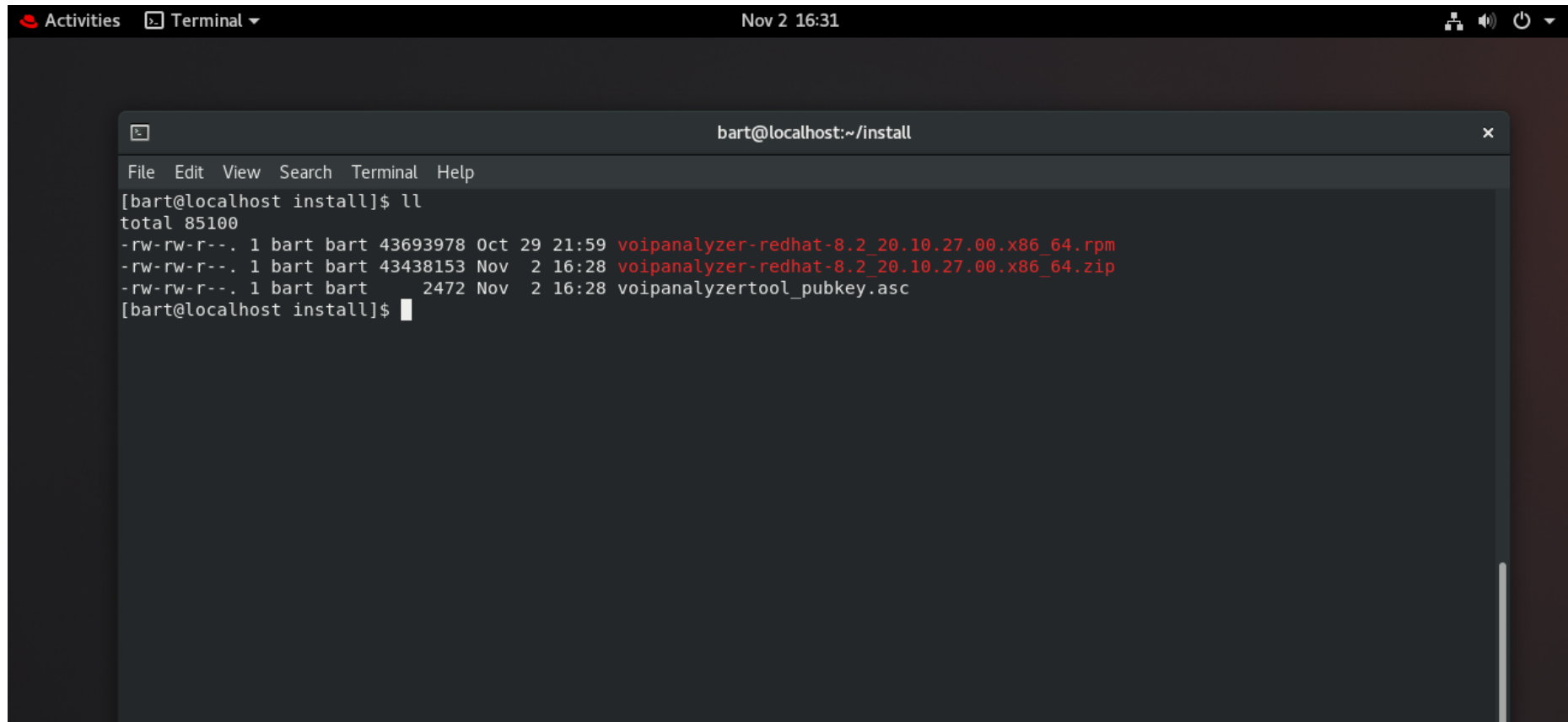
```
Checking for file conflicts: .....[done]
```

```
(1/2) Installing: libgdiplus0-6.0.4-1.2.x86_64 .....[done]
```

```
(2/2) Installing: voipalyzer-20.10.27.00-1.susetumble.x86_64 .....[done]
```

```
bart@localhost:~/install>
```

4.1.2.4 Red Hat 8.2 / CentOS 8.2

A screenshot of a Linux terminal window. The window title is "bart@localhost: ~/install". The terminal shows the output of the "ll" command, listing files in the current directory. The output shows three files: "voipanalyzer-redhat-8.2_20.10.27.00.x86_64.rpm", "voipanalyzer-redhat-8.2_20.10.27.00.x86_64.zip", and "voipanalyzer-tool_pubkey.asc". The terminal window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal prompt is "[bart@localhost install]\$".

```
File Edit View Search Terminal Help
[bart@localhost install]$ ll
total 85100
-rw-rw-r--. 1 bart bart 43693978 Oct 29 21:59 voipanalyzer-redhat-8.2_20.10.27.00.x86_64.rpm
-rw-rw-r--. 1 bart bart 43438153 Nov  2 16:28 voipanalyzer-redhat-8.2_20.10.27.00.x86_64.zip
-rw-rw-r--. 1 bart bart      2472 Nov  2 16:28 voipanalyzer-tool_pubkey.asc
[bart@localhost install]$
```

Install and verify the public key :

```
sudo rpm --import voipanalyzer-tool_pubkey.asc
```

```
rpm -qa --qf '%{VERSION}-%{RELEASE} %{SUMMARY}\n' gpg-pubkey*
```

```
bart@localhost:~/install
File Edit View Search Terminal Help
[bart@localhost install]$ sudo rpm --import voipanalyzertool_pubkey.asc
[bart@localhost install]$ rpm -qa --qf '%{VERSION}-%{RELEASE} %{SUMMARY}\n' gpg-pubkey*
e2dcfa82-5f81b74d gpg(VoIP Analyzer Tool <linux@voipanalyzertool.com>)
[bart@localhost install]$
```

Download epel-release-8-8.el8.noarch.rpm with :

wget <https://download-ib01.fedoraproject.org/pub/epel/8/Everything/aarch64/Packages/e/epel-release-8-8.el8.noarch.rpm>

and install :

sudo rpm -i epel-release-8-8.el8.noarch.rpm

then install GetPageSpeed repository :

sudo dnf install <https://extras.getpagespeed.com/release-el8-latest.rpm>

```
bart@localhost:~/install

File Edit View Search Terminal Help

[bart@localhost install]$ ll
total 85124
-rw-rw-r--. 1 bart bart    22332 Nov  2 16:49 epel-release-8-8.el8.noarch.rpm
-rw-rw-r--. 1 bart bart 43693978 Oct 29 21:59 voipalyzer-redhat-8.2_20.10.27.00.x86_64.rpm
-rw-rw-r--. 1 bart bart 43438153 Nov  2 16:28 voipalyzer-redhat-8.2_20.10.27.00.x86_64.zip
-rw-rw-r--. 1 bart bart    2472 Nov  2 16:28 voipanalyzertool_pubkey.asc
[bart@localhost install]$ sudo rpm -i epel-release-8-8.el8.noarch.rpm
[sudo] password for bart:
warning: epel-release-8-8.el8.noarch.rpm: Header V3 RSA/SHA256 Signature, key ID 2f86d6a1: NOKEY
[bart@localhost install]$ sudo dnf install https://extras.getpagespeed.com/release-el8-latest.rpm
Updating Subscription Management repositories.
Unable to read consumer identity
This system is not registered to Red Hat Subscription Management. You can use subscription-manager to register.
Extra Packages for Enterprise Linux Modular 8 - x86_64      79 kB/s | 97 kB 0
Extra Packages for Enterprise Linux 8 - x86_64             1.6 MB/s | 8.2 MB 0
release-el8-latest.rpm                                     23 kB/s | 16 kB 0
Dependencies resolved.

=====
Package                                Architecture      Version           Repository
=====
Installing:
getpagespeed-extras-release            noarch            10-16             @commandline

Transaction Summary
=====
Install 1 Package

Total size: 16 k
Installed size: 6.9 k
Is this ok [y/N]: 
```



bart@localhost:~/install

File Edit View Search Terminal Help

Transaction Summary

=====

Install 1 Package

Total size: 16 k

Installed size: 6.9 k

Is this ok [y/N]: y

Downloading Packages:

Running transaction check

Transaction check succeeded.

Running transaction test

Transaction test succeeded.

Running transaction

Preparing :

Installing : getpagespeed-extras-release-10-16.noarch

Running scriptlet: getpagespeed-extras-release-10-16.noarch

The GetPageSpeed repository has been installed.

To enable package installs, subscribe using the following link:

https://www.getpagespeed.com/repo-subscribe?server_ip=91.180.243.157

Verifying : getpagespeed-extras-release-10-16.noarch

Installed products updated.

Installed:

getpagespeed-extras-release-10-16.noarch

Complete!

Install the voipanalyzer package with :

`sudo yum install <voipanalyzer .rpm package name>`

```
bart@localhost:~/install
File Edit View Search Terminal Help
[bart@localhost install]$ sudo yum install ./voipanalyzer-redhat-8.2_20.10.27.00.x86_64.rpm
Updating Subscription Management repositories.
Unable to read consumer identity
This system is not registered to Red Hat Subscription Management. You can use subscription-manager to register.
GetPageSpeed packages for Enterprise Linux 8 - x86_64 565 kB/s | 1.2 MB 0
GetPageSpeed packages for Enterprise Linux 8 - noarch 174 kB/s | 275 kB 0
Dependencies resolved.
=====
Package Architecture Version Repository
=====
Installing:
voipanalyzer x86_64 20.10.27.00-1.redhat @commandline
Installing dependencies:
libgdiplus x86_64 6.0.4-3.el8 epel
Transaction Summary
=====
Install 2 Packages

Total size: 42 M
Total download size: 191 k
Installed size: 102 M
Is this ok [y/N]: █
```



```

bart@localhost:~/install

File Edit View Search Terminal Help

voipalyzer x86_64 20.10.27.00-1.redhat @commandline 42
Installing dependencies:
libgdiplus x86_64 6.0.4-3.el8 epel 191

Transaction Summary
=====
Install 2 Packages

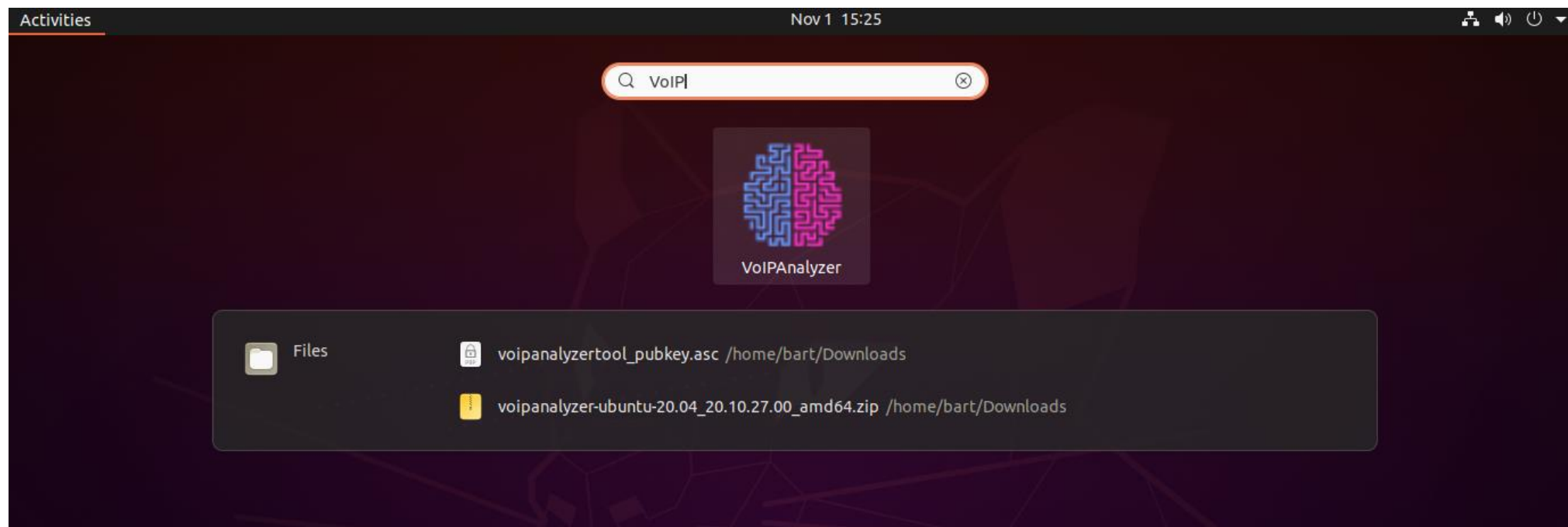
Total size: 42 M
Total download size: 191 k
Installed size: 102 M
Is this ok [y/N]: y
Downloading Packages:
libgdiplus-6.0.4-3.el8.x86_64.rpm 540 kB/s | 191 kB 00:00
-----
Total 379 kB/s | 191 kB 00:00
warning: /var/cache/dnf/epel-fafd94c310c51e1e/packages/libgdiplus-6.0.4-3.el8.x86_64.rpm: Header V4 RSA/SHA256 Signature
ID 2f86d6a1: NOKEY
Extra Packages for Enterprise Linux 8 - x86_64 1.6 MB/s | 1.6 kB 00:00
Importing GPG key 0x2F86D6A1:
  Userid      : "Fedora EPEL (8) <epel@fedoraproject.org>"
  Fingerprint: 94E2 79EB 8D8F 25B2 1810 ADF1 21EA 45AB 2F86 D6A1
  From        : /etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-8
Is this ok [y/N]: y
Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      : 1/
  Installing     : libgdiplus-6.0.4-3.el8.x86_64 1/
  Installing     : voipalyzer-20.10.27.00-1.redhat.x86_64 2/
  Running scriptlet: voipalyzer-20.10.27.00-1.redhat.x86_64 2/
  Verifying      : libgdiplus-6.0.4-3.el8.x86_64 1/
```

4.2 Run executable

To run the VoIP Analyzer Tool GUI execute in a terminal window :

VoIPAnalyzer

or search for example on the keyword VoIP :



For the command line version execute in a Terminal window :

VoIPAnalyzerCmd

```
bart@ubuntu:~/install$ VoIPAnalyzerCmd -h
```

```
20201101_152726: #####
20201101_152726: Program Version [20.10.27.00]
20201101_152726: #####
```

```
Reading the XML Config file parameters at
[/home/bart/.voipanalyzer/VoIPAnalyzer_xmlconfig.xml]
```

```
No filter active during merge/split based on Source or Destination IP addresses of wireshark packets.
```

```
XMLConfig: process SIP      INVITE  = true (always)
XMLConfig: process SIP      REGISTER = true (always)
XMLConfig: process SIP      OPTIONS  = true (always)
XMLConfig: process SIP      SUBSCRIBE = true (always)
XMLConfig: process SIP      NOTIFY   = true (always)
XMLConfig: process SIP      PUBLISH  = true (always)
```

```
Lines in HTML = 300
```

```
Max file size for merge [MB] = 100
```

```
XMLConfig: anonymize output RTP + SIP
```

```
WARNING: Linux OS detection ambiguous W[True] L[False] M[False]
```

```
uname : linux
```

```
20201101_152727: Program running on OS LINUX
```

```
20201101_152727: Little Endian
```

```
20201101_152727: PCAP LIB2 used
```

```
20201101_152727:
```

```
20201101_152727: Merging, auditing and anonymizing of Wireshark network traces
```

```
20201101_152727:
```

```
20201101_152727: Usage:
```

```
20201101_152727: VoIPAnalyzerCmd -m -d <path>
```

```
20201101_152727: VoIPAnalyzerCmd -s -f <filename> [-fs <filesize>]
```

```
20201101_152727: VoIPAnalyzerCmd -a -f <filename>
```

```
20201101_152727: VoIPAnalyzerCmd -an -f <filename>
```

```
20201101_152727:
```

```
20201101_152727:      -m          Merge files in directory
```

```
20201101_152727:      -s          Split file
```

```
20201101_152727:      -d <path>   Full directory path where the network traces are
```

File Edit View Bookmarks Settings Help

```
bart@localhost:~/install> VoIPAnalyzerCmd -h
```

```
20201102_233742: #####
```

```
20201102_233742: Program Version [20.10.27.00]
```

```
20201102_233742: #####
```

```
Reading the XML Config file parameters at
[/home/bart/.voipalyzer/VoIPAnalyzer_xmlconfig.xml]
```

```
No filter active during merge/split based on Source or Destination IP addresses of wireshark packets.
```

```
XMLConfig: process SIP INVITE = true (always)
```

```
XMLConfig: process SIP REGISTER = true (always)
```

```
XMLConfig: process SIP OPTIONS = true (always)
```

```
XMLConfig: process SIP SUBSCRIBE = true (always)
```

```
XMLConfig: process SIP NOTIFY = true (always)
```

```
XMLConfig: process SIP PUBLISH = true (always)
```

```
Lines in HTML = 300
```

```
Max file size for merge [MB] = 100
```

```
XMLConfig: anonymize output RTP + SIP
```

```
WARNING: Linux OS detection ambiguous W[True] L[False] M[False]
```

```
uname : linux
```

```
20201102_233742: Program running on OS LINUX
```

```
20201102_233742: Little Endian
```

```
20201102_233742: PCAP LIB2 used
```

```
20201102_233742:
```

```
20201102_233742: Merging, auditing and anonymizing of Wireshark network traces
```

```
20201102_233742:
```

```
20201102_233742: Usage:
```

```
20201102_233742: VoIPAnalyzerCmd -m -d <path>
```

```
20201102_233742: VoIPAnalyzerCmd -s -f <filename> [-fs <filesize>]
```

```
20201102_233742: VoIPAnalyzerCmd -a -f <filename>
```

```
20201102_233742: VoIPAnalyzerCmd -an -f <filename>
```

```
20201102_233742:
```

```
20201102_233742: -m Merge files in directory
```

```
20201102_233742: -s Split file
```

```
20201102_233742: -d <path> Full directory path where the network traces are
```

```
20201102_233742: -a Audit a network trace (one file)
```

```
20201102_233742: -an Anonymize a network trace (one file)
```

```
20201102_233742: -f <filename> Location of network file to audit or to anonymize
```

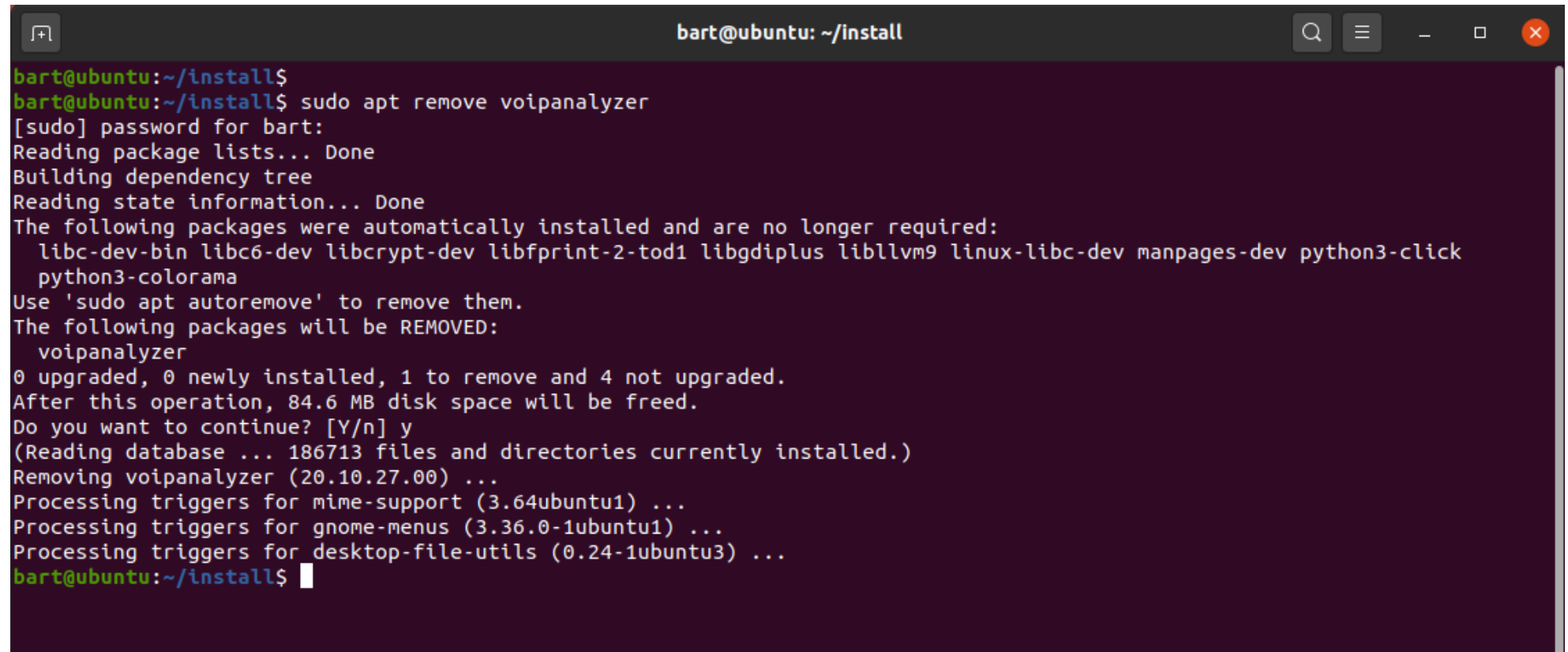
```
20201102_233742: -fs <filesize> Show Output in browser or in file explorer after processing (only output was)
```

4.3 Uninstall / Repair

Ubuntu 20.04 / Ubuntu 20.10 :

The .deb package can be uninstalled with :

`sudo apt remove voipanalyzer`

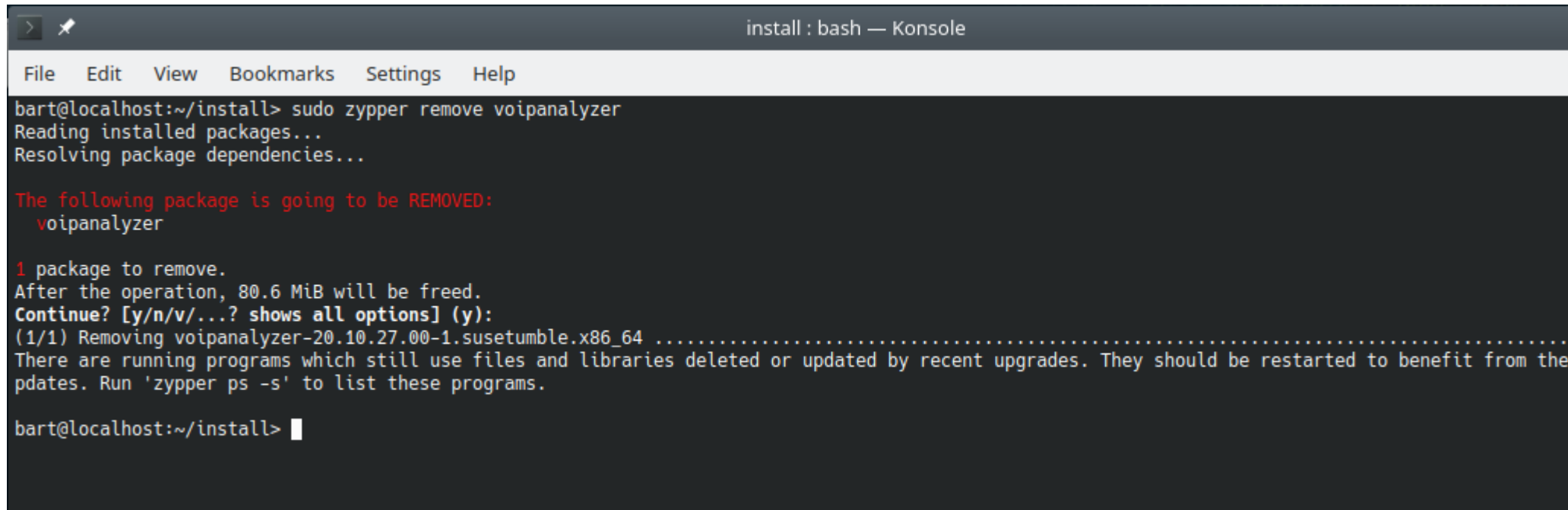
A terminal window titled 'bart@ubuntu: ~/install' with standard Ubuntu window controls. The terminal shows the execution of 'sudo apt remove voipanalyzer'. It lists several packages that will be automatically removed along with voipanalyzer, including libc-dev-bin, libc6-dev, libcrypt-dev, libfprint-2-tod1, libgdiplus, libllvm9, linux-libc-dev, manpages-dev, python3-click, and python3-colorama. It then shows the removal of voipanalyzer (20.10.27.00) and the processing of triggers for mime-support, gnome-menus, and desktop-file-utils.

```
bart@ubuntu:~/install$ sudo apt remove voipanalyzer
[sudo] password for bart:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libc-dev-bin libc6-dev libcrypt-dev libfprint-2-tod1 libgdiplus libllvm9 linux-libc-dev manpages-dev python3-click
  python3-colorama
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED:
  voipanalyzer
0 upgraded, 0 newly installed, 1 to remove and 4 not upgraded.
After this operation, 84.6 MB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 186713 files and directories currently installed.)
Removing voipanalyzer (20.10.27.00) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
bart@ubuntu:~/install$
```

openSUSE Tumbleweed 20201030 / openSUSE Leap 15.2 / SLES 15 SP1 :

The .rpm package can be uninstalled with :

sudo zypper remove voipalyzer

A terminal window titled 'install : bash — Konsole' showing the execution of the command 'sudo zypper remove voipalyzer'. The output indicates that the package 'voipalyzer' is being removed, 80.6 MiB will be freed, and the operation is confirmed. It also lists the package 'voipalyzer-20.10.27.00-1.susetumble.x86_64' and mentions that there are running programs which still use files and libraries deleted or updated by recent upgrades, suggesting they should be restarted to benefit from the updates. The terminal prompt returns to 'bart@localhost:~/install>'.

```
install : bash — Konsole
File Edit View Bookmarks Settings Help
bart@localhost:~/install> sudo zypper remove voipalyzer
Reading installed packages...
Resolving package dependencies...

The following package is going to be REMOVED:
  voipalyzer

1 package to remove.
After the operation, 80.6 MiB will be freed.
Continue? [y/n/v/...? shows all options] (y):
(1/1) Removing voipalyzer-20.10.27.00-1.susetumble.x86_64 .....
There are running programs which still use files and libraries deleted or updated by recent upgrades. They should be restarted to benefit from the
updates. Run 'zypper ps -s' to list these programs.

bart@localhost:~/install> █
```

Red Hat 8.2 / CentOS 8.2 :

The .rpm package can be uninstalled with :

sudo yum remove voipalyzer



bart@localhost:~/install

File Edit View Search Terminal Help

[bart@localhost install]\$

[bart@localhost install]\$ sudo yum remove voipanalyzer

Updating Subscription Management repositories.

Unable to read consumer identity

This system is not registered to Red Hat Subscription Management. You can use subscription-manager to register.

Dependencies resolved.

```
=====
Package                                Architecture      Version                                Repository
=====
Removing:
voipanalyzer                          x86_64             20.10.27.00-1.redhat                  @@commandline
Removing unused dependencies:
libgdiplus                            x86_64             6.0.4-3.el8                          @epel
=====
```

Transaction Summary

Remove 2 Packages

Freed space: 102 M

Is this ok [y/N]: y

Running transaction check

Transaction check succeeded.

Running transaction test

Transaction test succeeded.

Running transaction

```
Preparing      :
Erasing        : voipanalyzer-20.10.27.00-1.redhat.x86_64
Running scriptlet: voipanalyzer-20.10.27.00-1.redhat.x86_64
Erasing        : libgdiplus-6.0.4-3.el8.x86_64
Running scriptlet: libgdiplus-6.0.4-3.el8.x86_64
Verifying      : libgdiplus-6.0.4-3.el8.x86_64
Verifying      : voipanalyzer-20.10.27.00-1.redhat.x86_64
```

Installed products updated.

Removed:

Debian 10 :

The .deb package can be uninstalled with :

sudo apt remove voipalyzer

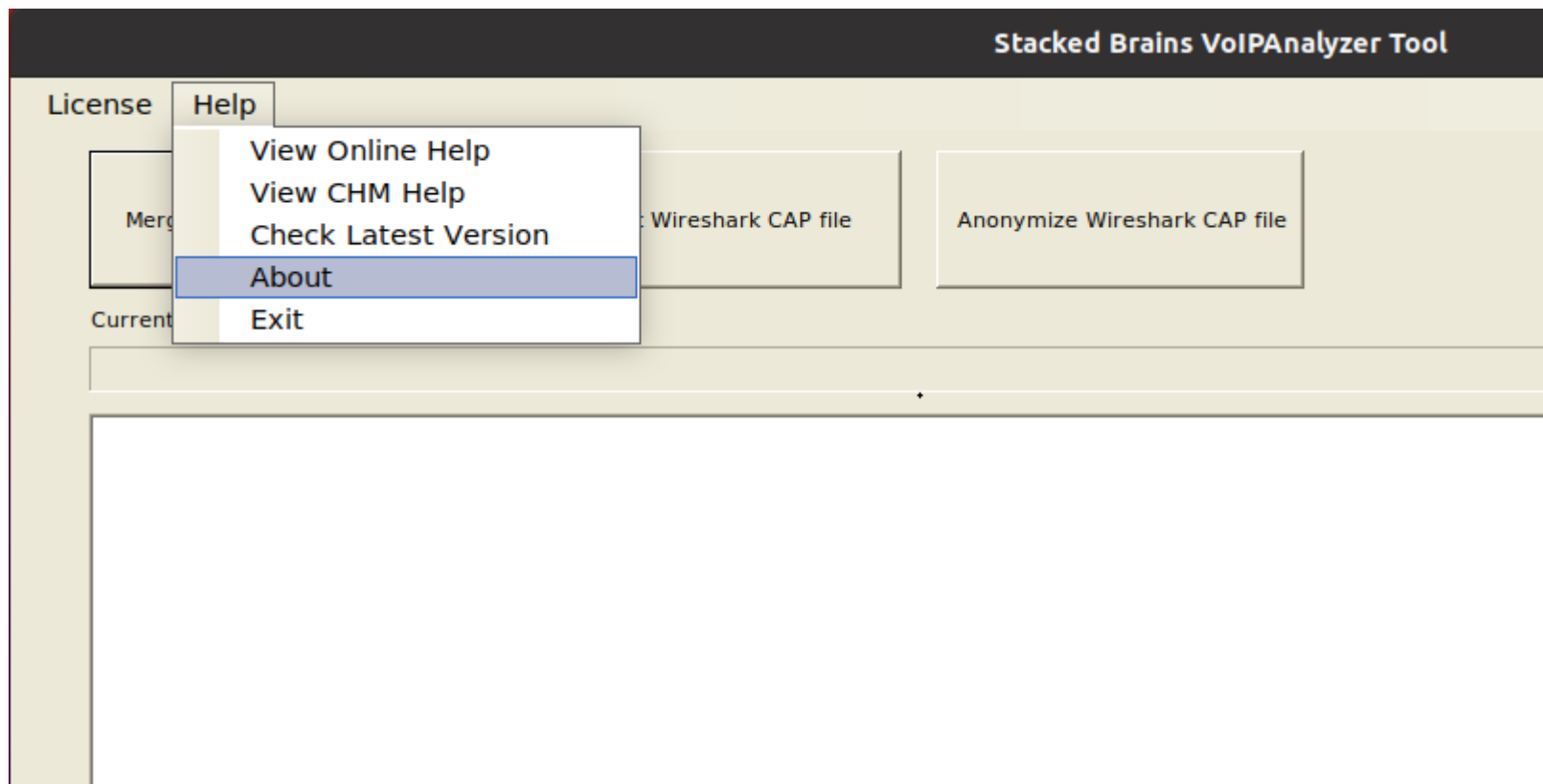
```
bart@debian: ~/install
File Edit View Search Terminal Help
bart@debian:~/install$ sudo apt remove voipalyzer
[sudo] password for bart:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libc-dev-bin libc6-dev libgdiplus linux-libc-dev manpages-dev
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED:
  voipalyzer
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 84.4 MB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 137528 files and directories currently installed.)
Removing voipalyzer (20.10.27.00) ...
Processing triggers for mime-support (3.62) ...
Processing triggers for gnome-menus (3.31.4-3) ...
Processing triggers for desktop-file-utils (0.23-4) ...
bart@debian:~/install$
```

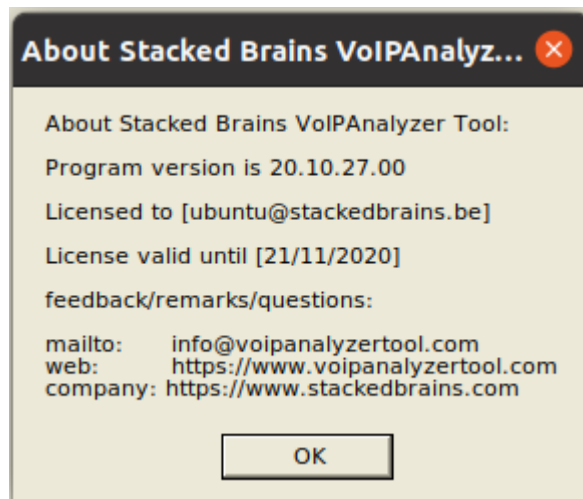

4.4 Upgrade / Update

Package upgrade / update has to be verified but as this is the first Linux release no upgrade / update is necessary.

4.4.1 Checking version

When starting the VoIP Analyzer Tool from the Menu select Help > About





4.5 Fallback

The setup executable will notify if something fails during the installation.

4.6 Security Considerations

To verify the package signature see :

<https://blog.packagecloud.io/eng/2014/10/28/howto-gpg-sign-verify-deb-packages-apt-repositories/>

<https://blog.packagecloud.io/eng/2014/11/24/howto-gpg-sign-verify-rpm-packages-yum-repositories/>

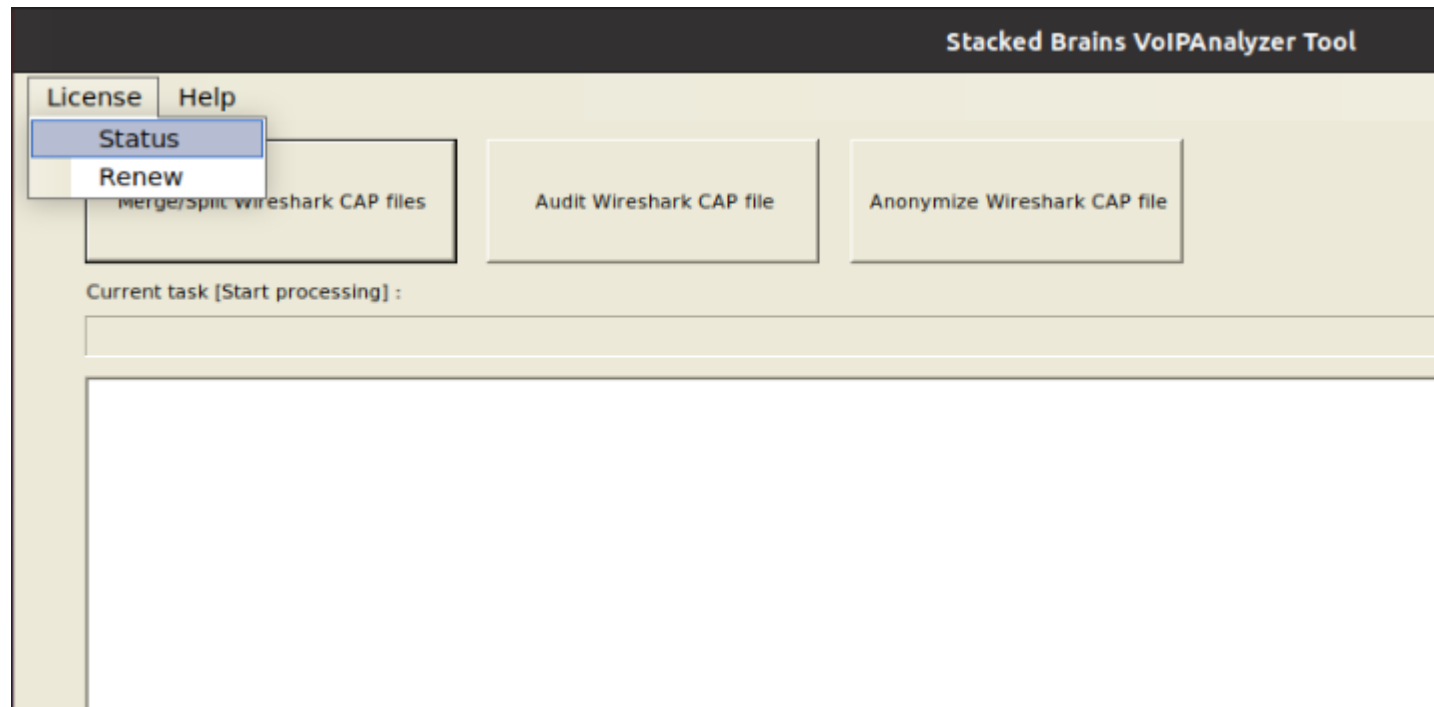
If signature is not ok then please notify with an email to certificate@voipanalyzertool.com

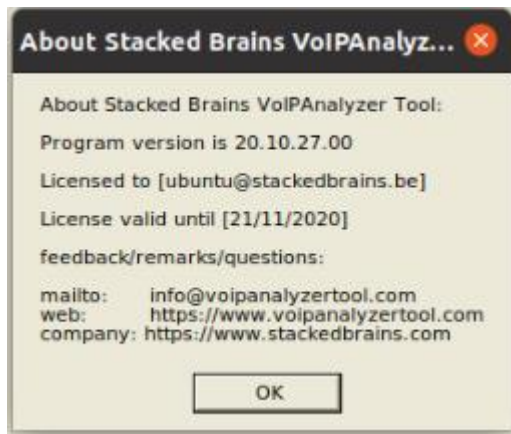
4.7 Special settings and instructions

4.7.1 Configuration Requirements / Restrictions

4.7.1.1 Licensing

The license status is given in the Menu by selecting License > Status





4.7.1.2 XML configuration file

In the `.voipanalyzer` directory under the `$HOME` directory of the user an xml configuration file `VoIPAnalyzer_xmlconfig.xml` is present :

```
bart@ubuntu: ~/install
bart@ubuntu:~/install$ ll $HOME/.voipanalyzer
total 20
drwxrwxr-x  2 bart bart 4096 Nov  1 14:07 ./
drwxr-xr-x 19 bart bart 4096 Nov  1 14:12 ../
-rw-rw-r--  1 bart bart  240 Nov  1 14:57 VoIPAnalyzer_startup_logs.txt
-rw-rw-r--  1 bart bart 6643 Nov  1 14:07 VoIPAnalyzer_xmlconfig.xml
bart@ubuntu:~/install$
```

Normally nothing has to be changed in this file but some comment can be found inside :

```

-<VoIPAnalyzer>
  <Version>1.3</Version>
  <!--
    - - -System part: general system specific parameters
  -->
  -<System>
    <DefaultStartupDirectory>/</DefaultStartupDirectory>
    <EmbedScriptsInHtml>>false</EmbedScriptsInHtml>
    <EmbedStylesInHtml>>false</EmbedStylesInHtml>
    <UseMinimizedScriptsInHtml>>true</UseMinimizedScriptsInHtml>
    <UseMinimizedStylesInHtml>>true</UseMinimizedStylesInHtml>
    <StartHtmlOverviewAfterAudit>>true</StartHtmlOverviewAfterAudit>
    <OpenFileExplorerAfterAnonymize>>true</OpenFileExplorerAfterAnonymize>
    <OpenFileExplorerAfterMerge>>true</OpenFileExplorerAfterMerge>
    <NumberOfLinesInHtml>300</NumberOfLinesInHtml>
    <UseExcelFilteringInHtml>>true</UseExcelFilteringInHtml>
  </System>
  -<Merge>
    <MergeOnlySIP_Enabled>>false</MergeOnlySIP_Enabled>
    <MergeOnlyDate_Enabled>>false</MergeOnlyDate_Enabled>
    <MergeOnlyDate>1/4/2020</MergeOnlyDate>
    <MergeOnlyTime_Enabled>>false</MergeOnlyTime_Enabled>
    <MergeOnlyStartTime>14:00</MergeOnlyStartTime>
    <MergeOnlyStopTime>15:00</MergeOnlyStopTime>
    <MergeOnlyIpAddress_Enabled>>false</MergeOnlyIpAddress_Enabled>
  -<MergeOnlyIpAddressesToFilterOnList>
    <!--
      - - -Note: multiple entries for <MergeOnlyIpAddressesToFilterOn> are supported
    -->
    <!--
      - - -Example: <MergeOnlyIpAddressesToFilterOn IP="192.168.56.25" Netmask="255.255.255.255">1</MergeOnlyIpAddressesToFilterOn>
    -->
    <MergeOnlyIpAddressesToFilterOn IP="192.168.56.25" Netmask="255.255.255.255">1</MergeOnlyIpAddressesToFilterOn>
    <MergeOnlyIpAddressesToFilterOn IP="10.10.10.0" Netmask="255.255.255.0">2</MergeOnlyIpAddressesToFilterOn>
  </MergeOnlyIpAddressesToFilterOnList>
    <MergeOnlySyslog_Enabled>>false</MergeOnlySyslog_Enabled>
    <!-- - - -Merge file size in MB (MegaBytes) -->
    <MaxFileSizeForMergeInMB>100</MaxFileSizeForMergeInMB>
  </Merge>
  -<Audit>
    <!-- - - -SIP part: SIP related specific parameters-->
    -<SIP>
      -<PortDetect SIP>

```

If more information is needed just email to xmlconfig@voipanalyzertool.com

4.7.2 VoIP Analyzer Tool Performance and Resilience

4.7.2.1 Vulnerabilities

It is the customer his responsibility to keep the Operating System and its components up to date.

5 Reported Problems / Symptoms under Analysis

None.

6 Restrictions, Workarounds and Hints

6.1 Restrictions

6.1.1 Restrictions or Exceptions

For the VoIPAnalyzer Tool the following restrictions apply :

- Only IPv4 addresses are supported and not IPv6 addresses.
- SIP via Transport Layer Security (TLS) is not supported.

6.2 Workarounds / Hints

6.2.1 Workarounds

6.2.2 Hints

6.2.2.1 XML configuration

SIP is detected on port 5060 (and 5061 if already decoded), but also on other "known" non-default SIP ports like 5070, 10000 and 50000-50039 supported.

When other non-default SIP ports are used please add port in the xml configuration file VoIPAnalyzer_xmlconfig.xml.

Add an item such as :

```
<PortDetect_SIPItem>5150</PortDetect_SIPItem>
```

The current ports and port ranges detected are :

5060-5080

5090

5150

5161

7777

10000

50000-50039

50070

62530-62531

65060-65061

7 Service information

7.1 License management

NA

7.1.1 Open Source Software

The product contains Open Source Software developed by third parties and licensed under an Open Source Software License. Such software files are protected by copyright. Your rights to use the Open Source Software beyond the VoIP Analyzer Tool application are governed by the relevant Open Source Software license conditions.

Your compliance with such license conditions will entitle you to use the Open Source Software as foreseen in the relevant license. In the event of conflicts between Stacked Brains license conditions and the Open Source Software license conditions, the Open Source Software conditions shall prevail with respect to the Open Source Software portions of the software.

Open Source Software is licensed free of royalties, i.e. no fees are charged for exercising the licensed rights, whereas fees may be charged for reimbursement of costs incurred by Stacked Brains to provide or distribute the software. The license conditions can be found in the source code or at the local management user interface, Utilities menu, Licenses section.

If programs embedded with the VoIP Analyzer Tool product are licensed under the GPL or LGPL conditions and these programs are not already delivered in source code form together with the VoIP Analyzer Tool, you can request the corresponding source code from Stacked Brains by contacting your sales representative.

7.2 Warranty

Stacked Brains gives no warranty for Open Source Software programs embedded with the VoIP Analyzer Tool if such programs are used in any manner other than originally intended by Stacked Brains. In such cases, warranty, if any, shall be provided by the authors of the Open Source Software as described in the license conditions referred above.

Stacked Brains specifically disclaims any warranties for defects caused by altering any Open Source Software program or its application or configuration within the VoIP Analyzer Tool. Technical support, if any, will only be provided for unmodified software.

You have no warranty claims against Stacked Brains in the event that the Open Source Software infringes the intellectual property rights of a third party.

7.3 Remote serviceability

In case remote support is wanted, the customer needs to deliver the remote access.