

PANalyzr™ SW Install Procedure for macOS

02/18/2022

Table of Contents

Copyright, Confidentiality and Disclaimer Statements.....	2
Spanalytics, LLC End-User License Agreement	3
PANalyzr Release Notes	5
New Features	5
Spanalytics Contact Details.....	5
Open-Source Utilities.....	5
License Clauses	5
libpcap.....	5
Introduction	6
System Requirements	6
Install Wireshark (Prior to installing the PANalyzr software)	7
Install the PANalyzr Software	7
Run PANalyzr.....	8

Copyright, Confidentiality and Disclaimer Statements

While the information in this publication is believed to be accurate, Spanalytics, LLC makes no warranty of any kind to this material, and Spanalytics, LLC hereby disclaims all warranties and conditions with respect to this material, either express, implied, or statutory, including, but not limited to, the implied warranties and/or conditions of merchantability, of satisfactory quality, of fitness for a particular purpose, of accuracy or completeness, of quiet enjoyment, and of noninfringement of third-party rights. Spanalytics, LLC assumes no responsibility for errors or omissions contained in this material. This publication and features described herein are subject to change without notice. All products or services mentioned in this manual are covered by trademarks, service marks, or product names as designated by the companies who market those products. Spanalytics, LLC, the Spanalytics, LLC logo, and Panalyzr™ are trademarks of Spanalytics, LLC, and may be registered in some jurisdictions. The Bluetooth® wordmark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Spanalytics, LLC is under license. Wi-Fi® and the Wi-Fi Alliance logo are trademarks of Wi-Fi Alliance. USB Type-C™ and USB-C™ are trademarks of USB Implementers Forum, Inc. Other trademarks and trade names are those of their respective owners. This manual is populated throughout with screenshots captured from a specific version of Spanalytics, LLC Panalyzr hardware and software. All information contained in these screenshots should be considered samples and are intended to serve for instructional purposes only.

Copyright © Spanalytics, LLC 2021

Spanalytics, LLC End-User License Agreement

READ CAREFULLY: This End-User License Agreement (“EULA”) is a legal agreement between you (either an individual person or a single legal entity, who will be referred to in the following as “you”) and Spanalytics, LLC, a Virginia limited liability company (“Spanalytics”). In the following, “this product” refers to the software displaying this agreement, accompanying software, associated print and electronic documentation, as well as software updates, web-based materials, and electronic services that Spanalytics may provide to you in conjunction with your use of this software, to the extent that these items are not accompanied by a separate license agreement. By installing, copying, accessing, or otherwise using this product, you agree to be bound by the terms of this EULA. If you do not agree to the terms of this EULA, do not install, copy, access, or otherwise use this product. Note that this product is licensed to you and is not sold to you.

1. You may install this product on an unlimited number of machines within your company or organization. You may duplicate and distribute this product within your company or organization, provided that each copy is a true and complete copy, including all copyright and trademark notices, and includes a copy of this EULA.
2. You may not duplicate or distribute this product outside of your company or organization. You may not modify this product in any manner.
3. Your license to use this product terminates if you violate any of the terms and conditions of this EULA. Upon termination, you agree to destroy all copies of this product and accompanying materials, including any alterations and merged portions, and to purge it from all computers in your possession or control.
4. Spanalytics products must not be used to design, develop, debug, or characterize a product directly or indirectly competitive to any Spanalytics product. You acknowledge your breach of this clause causes Spanalytics to suffer irreparable harm, namely harm for which damages would be inadequate remedy. You further acknowledge that Spanalytics might suffer irreparable harm due to delay if as a condition to obtaining an injunction, restraining order, or other equitable remedy with respect to such a breach Spanalytics was required to demonstrate that it would suffer irreparable harm. The parties therefore intend that if you breach this clause, then for purposes of determining whether to grant an equitable remedy any court will assume that that breach would cause Spanalytics irreparable harm.
5. This EULA does not grant you any rights in connection with any trademarks of Spanalytics.
6. All title and intellectual property rights in and to this product, including but not limited to all code, algorithms, text, images, and other media incorporated into this product, are owned by Spanalytics.
7. You agree to comply with all applicable state and federal laws and international treaties that apply to this product, including as well as end-user, end-use, and destination restrictions issued by the United States and other governments.
8. YOU EXPRESSLY ACKNOWLEDGE AND AGREE THAT USE OF THIS PRODUCT IS AT YOUR SOLE RISK. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS PRODUCT AND ANY SERVICES PERFORMED OR PROVIDED BY THIS PRODUCT ARE PROVIDED “AS IS” AND “AS AVAILABLE,” WITH ALL FAULTS AND WITHOUT WARRANTY OF ANY KIND, AND SPANALYTICS HEREBY DISCLAIMS ALL WARRANTIES AND CONDITIONS WITH RESPECT TO THIS PRODUCT AND ANY SERVICES, EITHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES AND/OR CONDITIONS OF MERCHANTABILITY, OF SATISFACTORY QUALITY, OF FITNESS FOR A PARTICULAR PURPOSE, OF ACCURACY OR COMPLETENESS, OF QUIET ENJOYMENT, AND OF NONINFRINGEMENT OF THIRD-PARTY RIGHTS. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY SPANALYTICS OR ITS AUTHORIZED REPRESENTATIVE SHALL CREATE A WARRANTY. SHOULD THIS PRODUCT OR SERVICES PROVE DEFECTIVE, YOU ASSUME THE ENTIRE COST OF ALL NECESSARY SERVICING, REPAIR, OR CORRECTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR LIMITATIONS ON APPLICABLE STATUTORY RIGHTS OF A CONSUMER, SO THE ABOVE EXCLUSION AND LIMITATIONS MAY NOT APPLY TO YOU.
9. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT SHALL SPANALYTICS BE LIABLE FOR PERSONAL INJURY OR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES WHATSOEVER, INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, LOSS OF DATA, BUSINESS INTERRUPTION, OR ANY OTHER COMMERCIAL DAMAGES OR LOSSES, ARISING OUT OF OR RELATED TO YOUR USE OF OR INABILITY TO USE THIS PRODUCT, HOWEVER CAUSED, REGARDLESS OF THE THEORY OF LIABILITY (CONTRACT, TORT, OR OTHERWISE) AND

EVEN IF SPANALYTICS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OF LIABILITY FOR PERSONAL INJURY, OR OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS LIMITATION MAY NOT APPLY TO YOU. SPANALYTICS CUMULATIVE LIABILITY TO YOU OR ANY OTHER PARTY FOR ANY LOSS OF DAMAGES RESULTING FROM ANY CLAIMS, DEMANDS, OR ACTIONS ARISING OUT OF OR RELATING TO THIS EULA SHALL NOT EXCEED THE PRODUCT PRICE PAID TO SPANALYTICS FOR THIS PRODUCT.

10. This product may contain technological defects and omissions, typographic errors, and technical inaccuracies. Spanalytics may modify this product at any time.
11. You may not use or otherwise export or re-export this product except as authorized by United States law and the laws of the jurisdiction in which this product was obtained. In particular, but without limitation, this product may not be exported or re-exported (a) into any U.S.-embargoed countries or (b) to anyone on the U.S. Treasury Department's Specially Designated Nationals List or the U.S. Department of Commerce Denied Persons List or Entity List. By using the Licensed Application, you represent and warrant that you are not located in any such country or on any such list. You also agree that you will not use this product for any purposes prohibited by United States law, including, without limitation, the development, design, manufacture, or production of nuclear, missile, or chemical or biological weapons.
12. This product and related documentation are "Commercial Items", as that term is defined at 48 C.F.R. §2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software Documentation", as such terms are used in 48 C.F.R. §12.212 or 48 C.F.R. §227.7202, as applicable. Consistent with 48 C.F.R. §12.212 or 48 C.F.R. §227.7202-1 through 227.7202-4, as applicable, the Commercial Computer Software and Commercial Computer Software Documentation are being licensed to U.S. Government end-users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions herein. Unpublished-rights are reserved under the copyright laws of the United States.
13. Except to the extent expressly provided in the following paragraph, this EULA and the relationship between you and Spanalytics shall be governed by the laws of the Commonwealth of Virginia, excluding its conflicts of law provisions. You and Spanalytics agree to submit to the personal and exclusive jurisdiction of the courts located within the county of Henrico, Virginia, to resolve any dispute or claim arising from this EULA. If (a) you are not a U.S. citizen; (b) you do not reside in the U.S.; (c) you are not accessing the Service from the U.S.; and (d) you are a citizen of one of the countries identified below, you hereby agree that any dispute or claim arising from this EULA shall be governed by the applicable law set forth below, without regard to any conflict of law provisions, and you hereby irrevocably submit to the non-exclusive jurisdiction of the courts located in the state, province, or country identified below whose law governs: If you are a citizen of any European Union country or Switzerland, Norway or Iceland, the governing law and forum shall be the laws and courts of your usual place of residence. Specifically excluded from application to this EULA is that law known as the United Nations Convention on the International Sale of Goods.
14. You acknowledge that this EULA constitutes the entire agreement between you and Spanalytics relating to this product and supersedes all prior or contemporaneous oral or written communications, proposals, and representations regarding this product. This EULA does not, however, limit any rights that Spanalytics may have under trade secret, copyright, trademark, patent, or other laws that may be available to it.
15. If any provision of this EULA is invalid or unenforceable under applicable law, it is, to that extent, deemed omitted and the remaining provisions will continue in full force and effect.

PANalyzr Release Notes

Version 0.9.0, 02/22/2022

New Features

TBD

Spanalytics Contact Details

Technical Support: support@panalyzr.com

Technical Support Phone: 804-364-1050, option 6

Sales: sales@panalyzr.com

Other inquiries: support@panalyzr.com

Open-Source Utilities

The PANalyzr protocol analyzer software utilizes several open-source solutions to provide additional features to the system, including crackle, Knob, E0, and Wireshark. Spanalytics has modified these utilities, and the modified source code is either included in this installation or available upon request.

- Knob - The original Knob code can be found at <https://github.com/francozappa/knob>. The source code modifications made are included in this installation (located in the **/Volumes/PANalyzr_0.9.0/E0_2/e0** directory after the installation completes)
- E0 – The original E0 code can be found at <https://github.com/adelmas/e0>. The source code modifications made for this installation are available upon request
- Brackle – The original crackle code can be found at <https://github.com/mikeryan/crackle>. The source code modifications made for this installation are available upon request
- Wireshark – The original Wireshark code can be found at <https://www.wireshark.org/download.html>. The source code modifications made for this installation are available upon request
- libpcap – The original libpcap code can be found at <https://www.tcpdump.org/index.html#latest-releases>

License Clauses

libpcap

Copyright (c) 1993, 1994, 1995, 1996, 1997

The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that: (1) source code distributions retain the above copyright notice and this paragraph in its entirety, (2) distributions including binary code include the above copyright notice and this paragraph in its entirety in the documentation or other materials provided with the distribution, and (3) all advertising materials mentioning features or use of this software display the following acknowledgement: ``This

product includes software developed by the University of California, Lawrence Berkeley Laboratory and its contributors." (4) Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Introduction

This procedure describes the steps required to install and run the latest version of the PANalyzr protocol analyzer software on a macOS machine.

System Requirements

The following system settings and software are required for the PANalyzr protocol analyzer software:

- Intel Mac running Catalina (10.15.6 or 10.15.7) or Monterey (TBD)
- 10GB free hard drive space
- Internet access (to download required package dependencies)

Install Wireshark (Prior to installing the PANalyzr software)

Note: The process used to install, upgrade or downgrade Wireshark on the computer could remove existing Wireshark preferences and configuration files. A backup of these files, if they exist, is strongly recommended before running these commands.

- Download the file *Wireshark 3.6.2 Intel 64.dmg* from the website <https://www.wireshark.org/#download>
- Double-click on the downloaded Wireshark install file
- In the *Wireshark 3.6.2* window, drag the **Wireshark** icon to the **Applications** folder icon
- (If applicable) Click on the “Replace” button in the dialog window that is displayed
- When the ‘Copying “Wireshark” to “Applications”’ task completes, close the *Wireshark 3.6.2* window

Install the PANalyzr Software

The steps below should take approximately 15 minutes to complete, depending on how many of the required packages are already installed on the machine

- Download the **PANalyzr_0.9.0.dmg** Disk Image file
 - Open the *Disk Utility* app
 - From the *Disk Utility* menu, select **Images → Convert**
 - In the Open window, select the file **PANalyzr_0.9.0.dmg**, then select the **Choose** button
 - In the next window, choose **read/write** from the Image Format pull-down menu
 - Click the **Convert** button
 - Click the **Done** button
 - Quit the *Disk Utility* app
 - Delete the *original PANalyzr_0.9.0.dmg* Disk Image file
 - Using Finder, navigate to the correct folder and double-click on the file **PANalyzr_0.9.0 converted.dmg**
 - On the *Desktop*, double-click the newly mounted **PANalyzr_0.9.0** Volume
 - Double-click on the **PANalyzr-Setup** icon
 - At each of the “Okay to upgrade to newest version of <package name>” prompts, hit the Enter button
- Note: The PANalyzr application requires homebrew be installed on the computer, as well as the packages gnutls, libgcrypt, gcc, libusb, python, glib and jsoncpp. The PANalyzr setup will attempt to install them if they are not already installed, or just reinstall them at the latest version if they are. The user can enter “n” or “N” at each prompt to not allow the installation, but the PANalyzr software may not operate correctly.
- When the message “PANalyzr Setup Complete!” message is displayed, close the Panalyzr-Setup terminal window

Run PANalyzr

See the PANalyzr User Guide for details on how to utilize the PANalyzr protocol analyzer hardware and software.