

Software Copyright Notice

Software: DRAGEN v3.3

© Illumina, Inc. 2019

This Software is licensed for use under an End User Software License Agreement:

ILLUMINA END-USER SOFTWARE LICENSE AGREEMENT

IMPORTANT-READ CAREFULLY. THIS IS A LICENSE AGREEMENT THAT YOU ARE REQUIRED TO ACCEPT BEFORE INSTALLING AND USING ILLUMINA, INC. SOFTWARE.

CAREFULLY READ ALL THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT BEFORE PROCEEDING WITH THE DOWNLOADING AND/OR INSTALLATION OF THIS SOFTWARE. YOU ARE NOT PERMITTED TO DOWNLOAD AND/OR INSTALL THIS SOFTWARE UNTIL YOU HAVE AGREED TO BE BOUND BY ALL OF THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT. BY DOWNLOADING, INSTALLING, OR OTHERWISE ACCESING OR USING THE SOFTWARE, YOU ACKNOWLEDGE THAT YOU HAVE REVIEWED AND ACCEPTED THIS LICENSE AGREEMENT, AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE AGREEMENT. YOU ALSO REPRESENT AND WARRANT THAT YOU ARE DULY AUTHORIZED TO ACCEPT THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT ON BEHALF OF YOUR EMPLOYER.

This End User License Agreement (“Agreement”) is made and entered into by and between Illumina, Inc., a Delaware corporation, having offices at 5200 Illumina Way, San Diego, CA 92122 (“Illumina”) and you as the end-user of the Software (hereinafter, “Licensee” or “you”). All computer programs identified above, software, firmware, and associated media, printed materials and online and electronic documentation, including any updates or upgrades thereof (collectively, “Software”) provided to Licensee are for use solely by Licensee and the provisions herein shall apply with respect to such Software. By using the Software, you indicate your acceptance of these terms and conditions, at which point this Agreement will become a legally binding agreement between you and Illumina.

1. License Grant. Subject to the terms and conditions of this Agreement, Illumina grants to Licensee, under the following terms and conditions, a personal, non-exclusive, revocable, non-transferable, non-sublicensable license, for its internal, end-use purposes only, in the ordinary course of Licensee’s business to use the Software in executable object code form only, solely at the Licensee’s facility to, install and use the Software on a single computer accessible only by Licensee (and not on any public network or server), where the single computer is owned, leased, or otherwise substantially controlled by Licensee, for the purpose of processing and analyzing data generated from an Illumina genetic sequencing instrument owned and operated solely by Licensee (the “Product”). In the case of Software provided by Illumina in non-compiled form, Illumina grants Licensee a personal, non-exclusive, non-sublicenseable, restricted right to compile, install and use one copy of the Software solely for processing and analyzing data generated from the Product.

2. License Restrictions. The Software is licensed to Licensee, not sold. Except as expressly permitted in Section 1, Licensee may not make, have made, import, use, copy, reproduce, distribute, display, publish,

sell, re-sell, lease, or sub-license the Software, in whole or in part, except as expressly provided for in this Agreement. Licensee may not modify, improve, translate, reverse engineer, decompile, disassemble, or create derivative works of the Software or otherwise attempt to (a) defeat, avoid, by-pass, remove, deactivate, or otherwise circumvent any software protection mechanisms in the Software including, without limitation, any such mechanism used to restrict or control the functionality of the Software, or (b) derive the source code or the underlying ideas, algorithms, structure, or organization form of the Software. Licensee will not allow, at any time, including during and after the term of the license, the Software or any portions or copies thereof in any form to become available to any third parties. Licensee may use this Software solely with genomic data that is generated using the Product; Licensee may not use this Software with any data generated from other products or instruments. Licensee may not use the Software to perform any data analysis services for any third party.

3. Ownership. The Software is protected by United States and international intellectual property laws. All right, title and interest in and to the Software (including associated intellectual property rights) are and will remain vested in Illumina or Illumina's affiliated companies or licensors. Licensee acknowledges that no rights, license or interest to any Illumina trademarks are granted hereunder. Licensee acknowledges that unauthorized reproduction or distribution of this Software, or any portion of it, may result in severe civil and criminal penalties.

4. Upgrades/Updates. Illumina may, at its sole discretion, provide updates or upgrades to the Software. In that case, Licensee shall have the same rights and obligations under such updates or upgrades as it has for the versions of the Software initially provided to Licensee hereunder. Licensee recognizes that Illumina is not obligated to provide any upgrades or updates to, or support for, the Software.

5. Data Integrity/Loss. You are responsible for the integrity and availability, including preventing the loss of data that you generate, use, analyze, manage, or store in connection with or through use of this Software, including without limitation, investigating and implementing industry appropriate policies and procedures regarding the provision of access to your data, monitoring access and use of your data, conducting routine backups and archiving of your data, and ensuring the adequacy of anti-virus software. Accordingly, you agree that Illumina is not responsible for any inability to access, loss or corruption of data as a result of your use of this Software and Illumina has no liability to you in connection with such inability to access, loss or corruption of data.

6. Term of License. This Agreement shall be in effect from the time Licensee expressly accepts the terms and conditions of this license, or otherwise installs the Software, thereby accepting the terms and conditions contained herein, and shall remain in effect until terminated. This license will otherwise terminate upon the conditions set forth in this Agreement, if revoked by Illumina, or if Licensee fails to comply with any term or condition of this Agreement including failure to pay any applicable license fee. Licensee agrees upon termination of this Agreement for any reason to immediately discontinue use of and un-install the Software and destroy all copies of the Software in its possession and/or under its control, and return or destroy, at Illumina's option, any compact disks, floppy disks or other media provided by Illumina storing the Software thereon (together with any authorized copies thereof), as well as any documentation associated therewith

7. Limited Warranty. Illumina warrants that, for a period of 6 months from the date of delivery of the Software to Licensee, the Software will perform in all material respects in accordance with the accompanying user manual, and the media on which the Software resides (if provided to Licensee by Illumina) will be free from defects in materials and workmanship under normal use. EXCEPT AND TO THE EXTENT EXPRESSLY PROVIDED IN THE FOREGOING, THE SOFTWARE IS PROVIDED "AS IS" AND ILLUMINA EXPRESSLY DISCLAIMS ALL WARRANTIES AND CONDITIONS REGARDING THE SOFTWARE AND RESULTS GENERATED BY THE SOFTWARE, INCLUDING WITHOUT LIMITATION, TO THE FULLEST EXTENT ALLOWABLE BY LAW, ALL OTHER EXPRESS OR IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE, AND THOSE ARISING BY STATUTE OR OTHERWISE IN LAW OR FROM A COURSE OF DEALING OR USAGE OF TRADE. ILLUMINA DOES NOT WARRANT THAT THE FUNCTIONS CONTAINED IN THE SOFTWARE WILL MEET LICENSEE'S REQUIREMENTS, OR THAT THE OPERATION OF THE SOFTWARE WILL BE ERROR FREE OR UNINTERRUPTED.

8. Limitation of Liability.

(a) ILLUMINA'S ENTIRE LIABILITY AND LICENSEE'S EXCLUSIVE REMEDY UNDER THE LIMITED WARRANTY PROVISION OF SECTION 7 ABOVE SHALL BE, AT ILLUMINA'S OPTION, EITHER (i) RETURN OF THE PRICE PAID FOR THE SOFTWARE, OR (ii) REPAIR OR REPLACEMENT OF THE PORTIONS OF THE SOFTWARE THAT DO NOT COMPLY WITH ILLUMINA'S LIMITED WARRANTY. THIS LIMITED WARRANTY IS VOID AND ILLUMINA SHALL HAVE NO LIABILITY AT ALL IF FAILURE OF THE SOFTWARE TO COMPLY WITH ILLUMINA LIMITED WARRANTY HAS RESULTED FROM: (w) FAILURE TO USE THE SOFTWARE IN ACCORDANCE WITH ILLUMINA'S THEN CURRENT USER MANUAL OR THIS AGREEMENT; (x) ACCIDENT, ABUSE, OR MISAPPLICATION; (y) PRODUCTS OR EQUIPMENT NOT SPECIFIED BY ILLUMINA AS BEING COMPATIBLE WITH THE SOFTWARE; OR (z) IF LICENSEE HAS NOT NOTIFIED ILLUMINA IN WRITING OF THE DEFECT WITHIN THE ABOVE WARRANTY PERIOD.

(b) TO THE EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL ILLUMINA BE LIABLE UNDER ANY THEORY OF CONTRACT, TORT, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES, EVEN IF ILLUMINA HAS BEEN ADVISED OF THE POSSIBILITY THEREOF INCLUDING, WITHOUT LIMITATION, LOST PROFITS, LOST DATA, INTERRUPTION OF BUSINESS, LOST BUSINESS REVENUE, OTHER ECONOMIC LOSS OR ANY LOSS OF RECORDED DATA ARISING OUT OF THE USE OF OR INABILITY TO USE THE SOFTWARE. EXCEPT AND TO THE EXTENT EXPRESSLY PROVIDED IN SECTION 7 AND 8(a) ABOVE OR AS OTHERWISE PERMITTED BY LAW, THE AGGREGATE LIABILITY OF ILLUMINA, IF ANY, ARISING OUT OF OR IN ANY WAY RELATED TO THIS AGREEMENT OR THE SUBJECT MATTER HEREOF, IS LIMITED TO DIRECT MONEY DAMAGES NOT TO EXCEED THE TOTAL OF PRIOR PAYMENTS MADE BY LICENSEE TO ILLUMINA FOR THE SOFTWARE, OR, AT ILLUMINA'S DISCRETION, TO REPLACEMENT OF THE SOFTWARE OR EQUITABLE ADJUSTMENT OF THE PAYMENTS. IN NO EVENT SHALL ILLUMINA BE LIABLE UNDER ANY THEORY OF CONTRACT, TORT, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY INDIRECT, CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES, EVEN IF ILLUMINA HAS BEEN ADVISED OF THE POSSIBILITY THEREOF INCLUDING, WITHOUT LIMITATION, LOST PROFITS, LOST BUSINESS REVENUE, OTHER ECONOMIC LOSS OR ANY LOSS OF RECORDED DATA ARISING OUT OF THE USE OF OR INABILITY TO USE THE SOFTWARE.

9. Survival. The limitations of liability and ownership rights of Illumina contained herein and Licensee's obligations following termination of this Agreement shall survive the termination of this Agreement for any reason.

10. Research Use Only. The Software is labeled with a For Research Use Only or similar labeling statement and the performance characteristics of the Software have not been established and the Software is not for use in diagnostic procedures. You acknowledge that (i) the Software has not been approved, cleared, or licensed by the United States Food and Drug Administration or any other regulatory entity whether foreign or domestic for any specific intended use, whether research, commercial, diagnostic, or otherwise, and (ii) you must ensure you have any regulatory approvals that are necessary for your intended uses of the Software. You further agree to comply with all applicable laws and regulations when using and maintaining the Software.

11. General. Licensee may not sublicense, assign, share, pledge, rent or transfer any of its rights under this Agreement in relation to the Software or any portion thereof including documentation. Illumina reserves the right to change this Agreement at any time. When Illumina makes any changes, Illumina will provide the updated Agreement, or a link to it, on Illumina's website (www.illumina.com) and such updated Agreement shall become effective immediately. Licensee's continued access to or use of the Software represents Licensee's agreement to any revised Agreement. If one or more provisions of this Agreement are found to be invalid or unenforceable, this Agreement shall not be rendered inoperative but the remaining provisions shall continue in full force and effect. This Agreement constitutes the entire agreement between the parties with respect to the subject matter of this Agreement and merges all prior communications except that a "hard-copy" form of licensing agreement relating to the Software previously agreed to in writing by Illumina and Licensee shall supersede and govern in the event of any conflicting provisions.

12. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the state of California, USA, without regard to its conflicts of laws principles, and independent of where a suit or action hereunder may be filed.

13. Contact. Any questions regarding legal rights, duties, obligations, or restrictions associated with the software hereunder should be directed to Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122, Attention: Legal Department, Phone: (858) 202-4500, Fax: (858) 202-4599, web site: www.illumina.com <<http://www.illumina.com>>.

14. Third Party Components. This software includes third party software ("Third Party Programs"). Some of the Third Party Programs are available under open source or free software licenses. The License Agreement accompanying the Licensed Software does not alter any rights or obligations you may have under those open source or free software licenses. The licenses that govern the terms and conditions of use of the Third Party Programs included in the Licensed Software are provided below. This section contains copyright statements for the various open source software components (or portions thereof) that are distributed with the Licensed Software.

END OF END-USER SOFTWARE LICENSE AGREEMENT

This product includes third party software ("Third Party Programs"). Some of the Third Party Programs are available under open source or free software licenses. The License Agreement accompanying the Licensed Software does not alter any rights or obligations you may have under those open source or free software licenses. The licenses that govern the terms and conditions of use of the Third Party Programs included in the Licensed Software are provided in this file. This document also contains copyright statements for the various open source software components (or portions thereof) that are distributed with the Licensed Software.

The following components are covered under the Apache 2.0 license

- aws-sdk-cpp-1.3.23 v1.3.23

Apache License, Version 2.0

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial

revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License.

Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution.

You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

1. You must give any other recipients of the Work or Derivative Works a copy of this License; and
2. You must cause any modified files to carry prominent notices stating that You changed the files; and

3. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
4. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work provided that such additional attribution notices cannot be construed as modifying the License.
5. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions.

Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks.

This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty.

Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any

Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability.

While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

The following components are under the Boost Software License

- boost.context-boost-1.58.0
- boost.function-boost-1.58.0
- boost.signals2-boost-1.58.0
- boost-boost_1_68_0
- geometry-boost-1.58.0
- type_index-boost-1.58.0

Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE

DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The following components are covered under the BSD-3 license

gatk-3.1	3.1	Copyright (c) 2009-2018, Broad Institute, Inc. All rights reserved.
htslib-1.9	1.9	Copyright (C) 2012-2019 Genome Research Ltd.
htslib-intel_mods	intel_mods	
opencv-2.4.13.6	2.4.13.6	"Copyright (C) 2000-2019, Intel Corporation, all rights reserved. Copyright (C) 2009-2011, Willow Garage Inc., all rights reserved. Copyright (C) 2009-2016, NVIDIA Corporation, all rights reserved. Copyright (C) 2010-2013, Advanced Micro Devices, Inc., all rights reserved. Copyright (C) 2015-2016, OpenCV Foundation, all rights reserved. Copyright (C) 2015-2016, Itseez Inc., all rights reserved."
protobuf-v2.6.1.	v2.6.1	Copyright 2008 Google Inc. All rights reserved.
staden-io_lib-v1.14.8	v1.14.8	Copyright (c) Medical Research Council 1994. All rights reserved.

BSD-3 License

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- * Neither the name of the copyright holder 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 BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS

INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Code generated by the Protocol Buffer compiler is owned by the owner of the input file used when generating it. This code is not standalone and requires a support library to be linked with it. This support library is itself covered by the above license.

The following component are covered under the MIT License

- json-v3.1.2 v3.1.2 Copyright © 2019 Kit Cambridge
- spdlog-v0.16.2 v0.16.2 Copyright (c) 2016 Gabi Melman.
- htplib-1.8 1.8 Copyright (C) 2012-2019 Genome Research Ltd.
- bamtools-v2.4.1 v2.4.1 Copyright (c) 2009-2010 Derek Barnett, Erik Garrison, Gabor Marth, Michael Stromberg
- cpr-1.3.0 1.3.0 Copyright (c) 2017 Huu Nguyen
- jsoncpp-1.8.0 1.8.0 Copyright (c) 2007-2010 Baptiste Lepilleur and The JsonCpp Authors
- kent-v367_preview v367_preview Copyright (C) 2001 UC Regent
- VectorPairHMM Copyright (c) 2012-2016 Broad Institute, Inc.

MIT License

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The following components are covered under the Mozilla Public License 2.0

- eigen-3.3-beta1
- node-v6.16.0

Mozilla Public License, Version 2.0

1. Definitions

- 1.1. “Contributor” means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.
- 1.2. “Contributor Version” means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor’s Contribution.
- 1.3. “Contribution” means Covered Software of a particular Contributor.
- 1.4. “Covered Software” means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.
- 1.5. “Incompatible With Secondary Licenses” Means that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.
- 1.6. “Executable Form” means any form of the work other than Source Code Form.
- 1.7. “Larger Work” means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.
- 1.8. “License” means this document.
- 1.9. “Licensable” means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.
- 1.10. “Modifications” means any of the following: any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or any new file in Source Code Form that contains any Covered Software.
- 1.11. “Patent Claims” of a Contributor means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.
- 1.12. “Secondary License” means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.
- 1.13. “Source Code Form” means the form of the work preferred for making modifications.
- 1.14. “You” (or “Your”) means an individual or a legal entity exercising rights under this License. For legal entities, “You” includes any entity that controls, is controlled by, or is under common control with You.

For purposes of this definition, “control” means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license: under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor: for any code that a Contributor has removed from Covered Software; or for infringements caused by: (i) Your and any other third party’s modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then: such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

6. Disclaimer of Warranty

Covered Software is provided under this License on an “as is” basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for

death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at <https://mozilla.org/MPL/2.0/>.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such

The following components are covered under the Curl license.

- curl-7_64_0 "Copyright (c) 1998, 1999 Kungliga Tekniska Högskolan"

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1996 - 2019, Daniel Stenberg, daniel@haxx.se, and many contributors, see the THANKS file.

All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

.....

For the programs or components that are licensed under an open source license that gives you the right to receive the source code for that binary, you can obtain a copy of the applicable source code on physical media by submitting a written request to:

Illumina, Inc.
Attn: Legal Department
5200 Illumina Way
San Diego, CA 92122

We may charge you a fee to cover the cost of physical media and processing. Your request must be sent (i) within three (3) years of the date you received the Illumina product that included the component or binary file(s) that are the subject of your request.