# Viewer for Adobe Illustrator 20

User Manual







# **Contents**

1. Welcome to Viewer	4
1.1. Copyright Notice	4
1.1.1. Third party license information	6
2. Define Press Settings	28
2.1. The Default Press Settings	28
2.2. Creating a Press Setting	28
2.3. Copying a Press Setting	28
2.4. Editing a Press Setting	29
2.5. Deleting a Press Setting	29
2.6. Choosing a Press Setting	29
2.7. The Press Settings in Detail	29
3. Generate the Preview	32
3.1. Navigating in the Preview	32
4. The Viewer window	34
4.1. Viewing options	34
4.1.1. Separation visibility	
4.1.2. Measure Ink Densities	34
4.1.3. Measure Tool	35
4.1.4. Scale Ink Densities	36
4.2. Separations	36
4.3. Total Area Coverage	37
4.4. Flexo Plate	38
4.5. Flexo Print	40
4.6. Registration Error	40
4.7. Breakout	41
4.8. Moire Detection	42
4.9. Technical inks in Viewer	43
5. Viewer Preferences	44
6. Viewer Compare Tool	46
6.1. The Viewer Compare window	
6.2. Navigating the Viewer Compare window	47
6.3. Compare modes	48
6.4. Alignment	49
6.4.1. Align from Ruler	50
6.4.2. Auto Align from Ruler	51
6.4.3 Auto Align	51





6.5. Viewer Compar	e Preferences	51
7. Ink Coverage		52



# 1. Welcome to Viewer

#### **Benefits of using Viewer**

**Viewer** is a very accurate separation viewer with a lot of extra production tools. It eliminates the need for separated proofs and will help you to avoid bad plate-making.

You can preview the separations of your document as they would be produced by exporting the document using Launch Workflow, and rasterizing it on an Esko FlexRip.

#### Note:

Separations shown in Viewer may differ from the final output when an alternative workflow is used.

## **Basic concepts**

Viewer works with Press Settings. The Press Settings allow you to define press-specific characteristics such as the first printable dot, dot gain, dot gain curves, and more.

After defining your Press Settings, you can generate an accurate separation preview.

In this preview, you have access to advanced tools such as the Densitometer, TAC Limit Preview, Plate Preview, Print Preview and Registration Error Preview.

## 1.1. Copyright Notice

© Copyright 2020 Esko Software BV, Gent, Belgium

All rights reserved. This material, information and instructions for use contained herein are the property of Esko Software BV. The material, information and instructions are provided on an AS IS basis without warranty of any kind. There are no warranties granted or extended by this document. Furthermore Esko Software BV does not warrant, guarantee or make any representations regarding the use, or the results of the use of the software or the information contained herein. Esko Software BV shall not be liable for any direct, indirect, consequential or incidental damages arising out of the use or inability to use the software or the information contained herein.

The information contained herein is subject to change without notice. Revisions may be issued from time to time to advise of such changes and/or additions.

No part of this document may be reproduced, stored in a data base or retrieval system, or published, in any form or in any way, electronically, mechanically, by print, photoprint, microfilm or any other means without prior written permission from Esko Software BV.

This document supersedes all previous dated versions.

PANTONE<sup>®</sup> Colors displayed in the software application or in the user documentation may not match PANTONE-identified standards. Consult current PANTONE Color Publications for accurate color. PANTONE and other Pantone trademarks are the property of Pantone LLC. <sup>®</sup> Pantone LLC, 2015

Pantone is the copyright owner of color data and/or software which are licensed to Esko to distribute for use only in combination with Studio Visualizer. PANTONE Color Data and/or



Software shall not be copied onto another disk or into memory unless as part of the execution of Studio Visualizer.

This software is based in part on the work of the Independent JPEG Group.

Portions of this software are copyright  $^{\odot}$  1996-2002 The FreeType Project (www.freetype.org). All rights reserved.

Portions of this software are copyright 2006 Feeling Software, copyright 2005-2006 Autodesk Media Entertainment.

Portions of this software are copyright ©1998-2003 Daniel Veillard. All rights reserved.

Portions of this software are copyright ©1999-2006 The Botan Project. All rights reserved.

Part of the software embedded in this product is gSOAP software. Portions created by gSOAP are Copyright ©2001-2004 Robert A. van Engelen, Genivia inc. All rights reserved.

Portions of this software are copyright ©1998-2008 The OpenSSL Project and ©1995-1998 Eric Young (eav@cryptsoft.com). All rights reserved.

This product includes software developed by the Apache Software Foundation (http://www.apache.org/).

Adobe, the Adobe logo, Acrobat, the Acrobat logo, Adobe Creative Suite, Illustrator, InDesign, PDF, Photoshop, PostScript, XMP and the Powered by XMP logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Microsoft and the Microsoft logo are registered trademarks of Microsoft Corporation in the United States and other countries.

SolidWorks is a registered trademark of SolidWorks Corporation.

Portions of this software are owned by Spatial Corp. 1986 2003. All Rights Reserved.

JDF and the JDF logo are trademarks of the CIP4 Organisation. Copyright 2001 The International Cooperation for the Integration of Processes in Prepress, Press and Postpress (CIP4). All rights reserved.

The Esko software contains the RSA Data Security, Inc. MD5 Message-Digest Algorithm.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems in the U.S. and other countries.

Part of this software uses technology by Best Color Technology (EFI). EFI and Bestcolor are registered trademarks of Electronics For Imaging GmbH in the U.S. Patent and Trademark Office.

Contains PowerNest library Copyrighted and Licensed by Alma, 2005 – 2007.

Part of this software uses technology by Global Vision. ArtProof and ScanProof are registered trademarks of Global Vision Inc.

Part of this software uses technology by Qoppa Software. Copyright © 2002-Present. All Rights Reserved.

All other product names are trademarks or registered trademarks of their respective owners.

Correspondence regarding this publication should be forwarded to:

Esko Software BV

Kortrijksesteenweg 1095

B - 9051 Gent



info.eur@esko.com

## 1.1.1. Third party license information

This product includes OpenImageIO.

BSD 3-Clause License

Copyright (c) 2008-present by Contributors to the OpenImageIO project. All Rights Reserved.

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 HOLDER 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.

\_\_\_\_\_

This product includes zlib.

(C) 1995-2017 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

- The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
- Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
- 3. This notice may not be removed or altered from any source distribution.

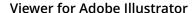
Jean-loup Gailly Mark Adler jloup@gzip.org madler@alumni.caltech.edu

-----

This product includes curl.

Copyright (c) 1996 - 2015, Daniel Stenberg, <daniel@haxx.se>. 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.

-----

This product includes patented technology.

This product and use of this product is under license from Markzware under U.S. Patent No. 5,963,641.

\_\_\_\_\_

This product includes appleseed. The MIT License (MIT)

Copyright (c) 2010-2013 Francois Beaune, Jupiter Jazz Limited Copyright (c) 2014-2019 The appleseedhq Organization

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.

-----

This product includes bcd.

Copyright (c) 2017 Malik Boughida and Tamy Boubekeur. All rights reserved.

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.
- 2. 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.
- 3. 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 HOLDER 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.

You are under no obligation whatsoever to provide any bug fixes, patches, or



upgrades to the features, functionality or performance of the source code ("Enhancements") to anyone; however, if you choose to make your Enhancements available either publicly, or directly to the authors of this software, without imposing a separate written license agreement for such Enhancements, then you hereby grant the following license: a non-exclusive, royalty-free perpetual license to install, use, modify, prepare derivative works, incorporate into other computer software, distribute, and sublicense such enhancements or derivative works thereof, in binary and source code form.

\_\_\_\_\_\_

This product includes glad.

The MIT License (MIT)

Copyright (c) 2013-2018 David Herberth

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.

\_\_\_\_\_\_

This product includes murmurhash3.

MurmurHash3 was written by Austin Appleby, and is placed in the public domain. The author hereby disclaims copyright to this source code.

\_\_\_\_\_

This product includes lzw-ab.

Copyright (c) David Bryant All rights reserved.

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

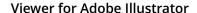
- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the
- documentation and/or other materials provided with the distribution.
  \* Neither the name of Conifer Software 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 REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, 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.

-----

This product includes OpenJPEG.

The copyright in this software is being made available under the 2-clauses BSD License, included below. This software may be subject to other third party and contributor rights, including patent rights, and no such rights are granted under this license.





```
Copyright (c) 2002-2014, Universite catholique de Louvain (UCL), Belgium Copyright (c) 2002-2014, Professor Benoit Macq Copyright (c) 2003-2014, Antonin Descampe Copyright (c) 2003-2009, Francois-Olivier Devaux
         Copyright (c) 2005, Herve Drolon, FreeImage Team Copyright (c) 2002-2003, Yannick Verschueren Copyright (c) 2001-2003, David Janssens
         Copyright (c) 2011-2012, Centre National d'Etudes Spatiales (CNES), France Copyright (c) 2012, CS Systemes d'Information, France
         All rights reserved.
         Redistribution and use in source and binary forms, with or without
         modification, are permitted provided that the following conditions
         are met:
         1. Redistributions of source code must retain the above copyright
             notice, this list of conditions and the following disclaimer.
         2. 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.
         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.
This product includes FreeType.
     Portions of this software are copyright (C) 2014 The FreeType
     Project (www.freetype.org) licensed under the Freetype License.
    All rights reserved.
This product includes Qt.
        The Qt Toolkit is Copyright (C) 2015 Digia Plc and/or its subsidiary(-ies).
This product includes svgio.
 Copyright Oleg Maximenko 2014.
 Distributed under the Boost Software License, Version 1.0.
This product includes pugixml.
       MIT License
       Copyright (c) 2006-2019 Arseny Kapoulkine
       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.

-----

This product includes GLEW: The OpenGL Extension Wrangler Library.

The OpenGL Extension Wrangler Library
Copyright (C) 2002-2007, Milan Ikits <milan ikits[]ieee org>
Copyright (C) 2002-2007, Marcelo E. Magallon <mmagallo[]debian org>
Copyright (C) 2002, Lev Povalahev
All rights reserved.

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.
- \* The name of the author 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.

Mesa 3-D graphics library Version: 7.0

Copyright (C) 1999-2007 Brian Paul All Rights Reserved.

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:

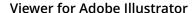
The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

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 BRIAN PAUL 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.

Copyright (c) 2007 The Khronos Group Inc.

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





THE MATERIALS ARE 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 MATERIALS OR THE USE OR OTHER DEALINGS IN THE MATERIALS.

-----

This product includes OpenSSL.

Copyright (c) 1998-2017 The OpenSSL Project. All rights reserved.

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.
- 3. All advertising materials mentioning features or use of this software must display the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
- 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
- 5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.
- 6. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY EXPRESSED 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 OPENSL PROJECT OR ITS 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.

-----

This product includes OpenSSL.

Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com) All rights reserved.

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 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.
- 3. All advertising materials mentioning features or use of this software must display the following acknowledgement: "This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)"



The word 'cryptographic' can be left out if the rouines from the library being used are not cryptographic related :-).

4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement: "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``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 AUTHOR 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.

\_\_\_\_\_\_

This product includes JPEGLib.

This software is copyright (C) 1991-2016, Thomas G. Lane, Guido Vollbeding. All Rights Reserved.

This software is based in part on the work of the Independent JPEG Group.

This product includes QtCopyDialog.

Copyright (c) 2009 Nokia Corporation and/or its subsidiary (-ies). All rights reserved.

BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

\_\_\_\_\_

This product includes QtMigration.

Copyright (C) 2013 Digia Plc and/or its subsidiary(-ies).

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 Digia Plc and its Subsidiary(-ies) 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."

\_\_\_\_\_

This product includes QtService.



Copyright (C) 2010 Nokia Corporation and/or its subsidiary(-ies).

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 Nokia Corporation and its Subsidiary(-ies) 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.

\_\_\_\_\_\_

This product includes QtSingleApplication.

Copyright (C) 2010 Nokia Corporation and/or its subsidiary(-ies). All rights reserved.

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 Nokia Corporation and its Subsidiary(-ies) 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.

-----

This product includes Qt SQL driver plugin (qsqlodbc).

Copyright (C) 1992-2008 Trolltech ASA. All rights reserved.

Warranty Disclaimer: The Licensed Software is licensed to Licensee "as is". To the maximum extent permitted by applicable law, Trolltech on behalf of itself and its suppliers, disclaims all warranties and conditions, either express or implied, including, but not limited to, implied warranties of merchantability, fitness for a particular purpose, title and non-infringement with regard to the Licensed Software.

Limitation of Liability: If, Trolltech's warranty disclaimer notwithstanding, Trolltech is held liable to Licensee, whether in



contract, tort or any other legal theory, based on the Licensed Software, Trolltech's entire liability to Licensee and Licensee's exclusive remedy shall be, at Trolltech's option, either (A) return of the price Licensee paid for the Licensed Software, or (B) repair or replacement of the Licensed Software, provided Licensee returns to Trolltech all copies of the Licensed Software as originally delivered to Licensee. Trolltech shall not under any circumstances be liable to Licensee based on failure of the Licensed Software if the failure resulted from accident, abuse or misapplication, nor shall Trolltech under any circumstances be liable for special damages, punitive or exemplary damages, damages for loss of profits or interruption of business or for loss or corruption of data. Any award of damages from Trolltech to Licensee shall not exceed the total amount Licensee has paid to Trolltech in connection with this Agreement.

-----

This product includes QtSql.

Copyright (c) 2009 Nokia Corporation and/or its subsidiary(-ies).

BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

\_\_\_\_\_\_

This product includes tesseract.

Copyright (C) 2016 Google, Inc. Licensed under the Apache License, Version 2.0

-----

This product includes cereal.

Copyright (c) 2014, Randolph Voorhies, Shane Grant All rights reserved.

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 cereal 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 RANDOLPH VOORHIES OR SHANE GRANT 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.

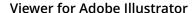
\_\_\_\_\_

This product includes robin-map.

MIT License

Copyright (c) 2017 Tessil

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.

-----

This product includes LibTIFF.

Copyright (c) 1988-1997 Sam Leffler Copyright (c) 1991-1997 Silicon Graphics, Inc.

Permission to use, copy, modify, distribute, and sell this software and its documentation for any purpose is hereby granted without fee, provided that (i) the above copyright notices and this permission notice appear in all copies of the software and related documentation, and (ii) the names of Sam Leffler and Silicon Graphics may not be used in any advertising or publicity relating to the software without the specific, prior written permission of Sam Leffler and Silicon Graphics.

THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL SAM LEFFLER OR SILICON GRAPHICS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF DAMAGE, AND ON ANY THEORY OF LIABILITY, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

-----

This product includes libpng.

Copyright (c) 2000-2002 Glenn Randers-Pehrson

The PNG Reference Library is supplied "AS IS". The Contributing Authors and Group 42, Inc. disclaim all warranties, expressed or implied, including, without limitation, the warranties of merchantability and of fitness for any purpose. The Contributing Authors and Group 42, Inc. assume no liability for direct, indirect, incidental, special, exemplary, or consequential damages, which may result from the use of the PNG Reference Library, even if advised of the possibility of such damage. There is no warranty against interference with your enjoyment of the library or against infringement. There is no warranty that our efforts or the library will fulfill any of your particular purposes or needs. This library is provided with all faults, and the entire risk of satisfactory quality, performance, accuracy, and effort is with the user.

\_\_\_\_\_

This product includes OpenShadingLanguage.

BSD 3-Clause License

Copyright (c) 2009-2019 Sony Pictures Imageworks Inc., et al. All Rights Reserved.

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.
- 2. 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.

3. 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 HOLDER 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.

\_\_\_\_\_\_

This product includes libxml2.

Copyright (C) 1998-2012 Daniel Veillard. All Rights Reserved.

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.

\_\_\_\_\_

This product includes ICC Profiles.

Some ICC Profiles were created by FFEI Ltd. (www.ffei.co.uk) using Fujifilm ColourKit Profiler Suite (www.colourprofiling.com)

\_\_\_\_\_

This product includes ICC Profiles.

Some ICC profiles are copyright (C) by European Color Initiative, www.eci.org

-----

This product includes ICC Profiles.

Some ICC profiles are copyright (C) of WAN-IFRA, www.wan-ifra.org

\_\_\_\_\_

This product includes ICC Profiles.

Some ICC profiles are copyright (C) IDEAlliance(R). G7(R), GRACol(R) and SWOP(R) are all registered trademarks of IDEAlliance(C).

\_\_\_\_\_

This product includes PANTONE Color Libraries.

PANTONE $^{\oplus}$  and other Pantone trademarks are the property of Pantone LLC. Pantone is a wholly owned subsidiary of X-Rite, Incorporated.

\_\_\_\_\_



This product includes LibTIFF.

Copyright (c) 1988-1997 Sam Leffler Copyright (c) 1991-1997 Silicon Graphics, Inc.

Permission to use, copy, modify, distribute, and sell this software and its documentation for any purpose is hereby granted without fee, provided that (i) the above copyright notices and this permission notice appear in all copies of the software and related documentation, and (ii) the names of Sam Leffler and Silicon Graphics may not be used in any advertising or publicity relating to the software without the specific, prior written permission of Sam Leffler and Silicon Graphics.

THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL SAM LEFFLER OR SILICON GRAPHICS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF DAMAGE, AND ON ANY THEORY OF LIABILITY, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

\_\_\_\_\_\_

This product includes llvm.

University of Illinois/NCSA Open Source License

Copyright (c) 2003-2019 University of Illinois at Urbana-Champaign. All rights reserved.

Developed by:

LLVM Team

University of Illinois at Urbana-Champaign

http://llvm.org

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal with 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:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimers.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimers in the documentation and/or other materials provided with the distribution.
- \* Neither the names of the LLVM Team, University of Illinois at Urbana-Champaign, nor the names of its contributors may be used to endorse or promote products derived from this Software without specific prior written permission.

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 CONTRIBUTORS 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 WITH THE SOFTWARE.

-----

This product includes xxHash.

xxHash Library Copyright (c) 2012-2014, Yann Collet All rights reserved.



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.

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 HOLDER 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.

\_\_\_\_\_\_

This product includes 1z4.

Copyright (C) 2011-present, Yann Collet.

BSD 2-Clause License (http://www.opensource.org/licenses/bsd-license.php)

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are  $_{\text{met}}.$ 

 $^{\star}$  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.

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.

\_\_\_\_\_

This product includes JBIG2Lib.

Portions of this product copyrights (C) 2002 Glyph & Cog, LLC.

-----

This product includes PCRE.

Copyright (c) 1997-2016 University of Cambridge All rights reserved.

Copyright(c) 2010-2016 Zoltan Herczeg All rights reserved.

Copyright(c) 2009-2016 Zoltan Herczeg All rights reserved.

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 University of Cambridge nor the names of any 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.

-----

This product includes ICU.

Copyright (c) 1995-2014 International Business Machines Corporation and others All rights reserved.

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, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

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 COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

-----

This product includes Little CMS.

Little CMS

Copyright (c) 1998-2011 Marti Maria Saguer

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.

-----

This product includes ZXing C++ Library.

NOTICES FOR C++ Big Integer Library



I, Matt McCutchen, the sole author of the original Big Integer Library, waive my copyright to it, placing it in the public domain. The library comes with absolutely no warranty.

This product includes gSOAP.

EXHIBIT B.

Part of the software embedded in this product is qSOAP software. Portions created by gSOAP are Copyright (C) 2001-2007 Robert A. van Engelen, Genivia inc. All Rights Reserved.

THE SOFTWARE IN THIS PRODUCT WAS IN PART PROVIDED BY GENIVIA INC 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 AUTHOR 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.

This product includes XercesC.

NOTICE file corresponding to section 4(d) of the Apache License, Version 2.0, in this case for the Apache Xerces distribution.

This product includes software developed by The Apache Software Foundation (http://www.apache.org/).

Portions of this software were originally based on the following: - software copyright (c) 1999, IBM Corporation., http://www.ibm.com.

This product includes leptonica.

- Copyright (C) 2001-2016 Leptonica. All rights reserved.
- Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions
- 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- 2. 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.
- 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 ANY 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

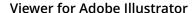
- PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes FCollada.

Copyright 2006 Feeling Software. All rights reserved.

Copyright 2005-2006 Feeling Software and Copyright 2005-2006 Autodesk Media Entertainment.

Copyright (C) 1998-2003 Daniel Veillard. All Rights Reserved.





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.

\_\_\_\_\_\_

This product includes OpenJDK.

The GNU General Public License (GPL)

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

#### Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software—to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification



follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

O. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

- 2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
  - a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
  - b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
  - c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

- 3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
  - a) Accompany it with the complete corresponding machine-readable source



code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

- 4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
- 5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.
- 6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
- 7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.



This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

- 8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
- 9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

- 11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
- 12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for



more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'. This is free software, and you are welcome to redistribute it under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than 'show w' and 'show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program 'Gnomovision' (which makes passes at compilers) written by James Hacker.

signature of Ty Coon, 1 April 1989

Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

"CLASSPATH" EXCEPTION TO THE GPL

Certain source files distributed by Oracle America and/or its affiliates are subject to the following clarification and special exception to the GPL, but only where Oracle has expressly included in the particular source file's header the words "Oracle designates this particular file as subject to the "Classpath" exception as provided by Oracle in the LICENSE file that accompanied this code."

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License cover the whole combination.

As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module which is not derived from or based on this library. If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.

-----

This product includes XMP Toolkit.

Copyright (c) 1999 - 2010, Adobe Systems Incorporated All rights reserved.

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

 $^{\star}$  Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

 $^{\star}$  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 Adobe Systems Incorporated, 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.

-----

This product includes openexr.

Copyright Contributors to the OpenEXR Project. All rights reserved.

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 HOLDER 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.

-----

This product includes Bonjour SDK.

Copyright (c) 2003-2004, Apple Computer, Inc. All rights reserved.

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.
- 2. 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
- and/or other materials provided with the distribution.3. Neither the name of Apple Computer, Inc. ("Apple") 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 APPLE AND ITS 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 APPLE OR ITS 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.







# 2. Define Press Settings

Before you can start working with Viewer in a meaningful way, you should define your **Press Settings**. Without basic information on the properties of the press you are using, Viewer cannot simulate accurately.

You can open the Press Settings window by selecting **Press Settings...** in the fly-out menu

## 2.1. The Default Press Settings

If no **Press Settings Folder** is defined in the Viewer Preferences, a fixed setting will be used, and you will not be able to change or create Press Settings. See *Viewer Preferences* on page 44.

In the list of Press Settings, there is always one Press Setting called **Default**, which you can edit but not delete.

You can select it by selecting it in the **Press** dropdown in the **Viewer** dialog, and edit it using **Press Settings...** in the fly-out menu

## 2.2. Creating a Press Setting

To create a Press Setting in Viewer:

- 1. Select Press Settings... in the fly-out menu.
- 2. Click New... in the Press Settings dialog.
- 3. Enter the name of the new press setting in the **New** dialog.
- 4. Click OK

# 2.3. Copying a Press Setting

To copy (duplicate) a Press Setting:

- 1. Select it in the **Press Settings** dialog.
- 2. Click the Copy... button.
- 3. Give it a new Name.
- **4.** Change its parameters as you wish (see *The Press Settings in Detail* on page 29).
- 5. Click OK.



# 2.4. Editing a Press Setting

To edit a Press Setting:

- 1. Select it in the **Press Settings** dialog.
- 2. Click the Modify... button.
- **3.** Change its parameters as you wish (see *The Press Settings in Detail* on page 29).
- 4. Click OK.

## 2.5. Deleting a Press Setting

To delete a Press Setting:

- 1. Select it in the **Press Settings** dialog.
- 2. Click the Delete button.
- **3.** Confirm that you want to delete it.

## 2.6. Choosing a Press Setting

To select a Press Setting, select it in the Press dropdown in the Viewer dialog

## 2.7. The Press Settings in Detail

#### First Dot (%)

Specifies which minimal gray value (expressed in %) in the file still will yield a dot on the plate, provided the RIP and platemaking occur under normal conditions.

#### Note:

Normal conditions indicate that the DGC must have been set up completely. The value does not correspond with any measurement that has been made prior or during DGC set up, nor does it correspond with any densitometer measurement on plate or on print. In fact, this value is (implicitly) chosen by the person who set up the DGC and plate-making. Typical values range from 0.4% to 1.6%.

Adobe Illustrator uses 8-bit precision, yielding 256 different possible gray values. A single gray value in an image may make the difference between a dot or no dot on a flexo plate. To allow for this precision, Viewer uses percentages with one decimal digit.

8-bit gray value in Illustrator	Percentage
0	0.0%



8-bit gray value in Illustrator	Percentage
1	0.4%
2	0.8%
3	1.2%
254	99.6%
255	100%

#### Note:

If you do not specify a first dot, you will not be able to use the following Viewer view modes for this press setting:

- The Flexo Plate Preview
- The Flexo Print Preview

#### **Dot Gain in Highlights**

When you have specified a First Dot job percentage, you can also specify how dark it should actually print. Enable Dot Gain In Highlights and specify the dot gain parameters:

- **First Dot Prints As**: indicates the dot gain for the first dot. Typical values range from 5% to 15% depending on the substrate. The value is a job percentage, that will print on an ideal reference press as dark as the first dot prints on this press.
- **Range**: while the previous value measured the amount of dot gain in the highlights, this value expresses how far this effect penetrates into the midtones. Typically plate making is configured in such a way that the mid-tones print like an offset press.

#### Note:

If you do not specify Dot Gain In Highlights, you will not be able to use the following Viewer viewing mode: **Flexo Print Preview**.

#### **Limited Total Area Coverage**

The **Total Area Coverage** is the sum of percentages of the different channels on the same location. A higher total area coverage means more of the various inks is printed on top of each other.

If you want, you can specify the Maximum Total Area Coverage to specify the maximum amount of ink that the substrate can take on the same spot on your press.

#### Note:

Exceeding the Maximum Total Area Coverage for the press may cause drying problems, unexpected color results, and other problems.

## **Registration Error**

Specifies the average maximum Registration Error on your press.



If you enable this option in the Press Settings, you can use the **Registration Errors** preview in Viewer to check whether your trapping is sufficient to compensate for possible registration errors on the press.

## **Moiré Settings**

In the Moiré Detection settings of the Press Settings, you can define the default values for the settings in the Moiré Detection window.

For more info on the different settings, see *Moire Detection* on page 42



# 3. Generate the Preview

Before you can use Viewer, you have to generate a preview of the current document, based on your specific Press Settings.

After you make changes to the document, you need to update the preview. This is reflected in the Viewer palette: the **Generate** button changes to the **Update** button.

Click the Generate or Update button to render a Viewer preview on your computer.

The preview is displayed in the Viewer palette once the rendering finishes.

You can also use the shortcuts:

- Command+option+V (Mac) or Control+option+V (Windows) to open the Viewer window
- Command+shift+7 (Mac) or Control+shift+7 (Windows) to generate / update the Viewer preview

## 3.1. Navigating in the Preview

The Viewer window shows the preview of your document in the left pane, and the list of used inks in the right pane of your Viewer palette.

At the bottom of the palette, you will find:



- **1.** a zoom-in and zoom-out button and a dropdown menu with several zoom percentages, and two extra zoom factors: fit artboard and fit graphics.
- **2.** a zoom-link button. When in link mode, the Viewer window will reflect what your Adobe Illustrator Document window does.
- **3.** a Densitometer (see *Measure Ink Densities* on page 34), Measure tool (see *Measure Tool* on page 35) and Zoom tool (see below).
- **1.** a Pan tool (see below), a Zoom tool (see below) and a Densitometer tool (see *Measure Ink Densities* on page 34)
- **2.** a zoom-in and zoom-out button and a field showing the current zoom percentage.
- 3. the Refresh button.
- 4. the Minimize button.

#### Zoom in - zoom out

To zoom in the preview pane of the Viewer palette, select the zoom tool and just click, and the view will zoom in using the clicked point as center point.

To zoom out, click while holding the ALT key pressed, and the view will zoom out using the clicked point as center point.



You can also drag a rectangle to zoom in, and the new viewport will be a closest match to the rectangle you dragged.

To pan the view, hold down the spacebar and drag a line in the preview pane. The view will move the direction and the length of the line you drag.

#### Note:

You can minimalize the user interface by selecting **Hide options** from the dropdown menu.





# 4. The Viewer window

## 4.1. Viewing options

Options particular to certain **Viewer** previews are grouped under **View Options**. You can expand or collapse them using the triangle beside **View Options**.

The following options are available in all Previews:

## 4.1.1. Separation visibility

In the Ink list, you can:

- Click the eye icon in front of a separation/color name to show or hide it.
- Alt-click an eye button to quickly hide all other separations and go in single-separation mode. Alt-click the same eye button again to show all separations.

**Note:** If **Show Technical Inks** in the fly-out menu of the Viewer is enabled, Technical Inks are also shown in this list. See also *Technical inks in Viewer* on page 43

#### 4.1.2. Measure Ink Densities

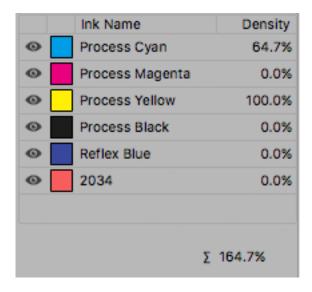
 To use the Densitometer, select Separations from the Viewer preview list, and click in the Viewer preview window while holding down the ALT and CONTROL key (Windows) or ALT and Command key (Mac).

The densitometer will correctly measure through linework and images, even placed DCS2 multichannel images that normally cannot be measured in Adobe Illustrator.

Viewer is compatible with Xinet fullpress and Helios OPI systems and is able to show the high resolution images stored on the OPI server.

The densities are shown to the right of each separation. The total density of all inks on the point that is being measured (the TAC value) is shown at the bottom of the separation list.





#### Note:

When the TAC value exceeds the TAC limit specified in the currently selected press settings, a warning icon will be displayed next to the TAC value.

**Note:** The percentages of technical lnks are not included in the TAC. See also *Technical inks in Viewer* on page 43

## 4.1.3. Measure Tool

Measure tool helps you to measure the:

- Horizontal and vertical distance from the Adobe Illustrator axis zero point.
- Horizontal and vertical distance between first and second point.
- The total distance and the angle between first and second point.

#### To use the Measure Tool:

- 1. Click the Measure tool on the Viewer pallet.
- 2. Click the first point and then click or drag to the second point on the Preview.

The following details are displayed on the right hand side;

- X: x-axis
- Y: y-axis
- D: Distance between the first and second point.
- · W: Width
- · H: Height
- · A: Angle



X: 574,667 px W: 714,667 px Y: 463 px H: -370,667 px D: 805,073 px A: -27.4 degr.

## 4.1.4. Scale Ink Densities

When viewing a document containing very dark overprinting areas (e.g. traps into dark colors) it is sometimes difficult to examine the color composition of such areas in Viewer.

Therefore the Separations view mode offers a slider control to temporarily dim (= reduce the density of) one or more selected separations.

For example: setting the density value to 50% will reduce the actual density values of the selected separations by 50% when computing the composite (RGB) view.

• Select the ink(s) you want to dim in the ink list and use the **Density (%)** slider or the edit field to scale down the density of the selected separations.

## 4.2. Separations

The first viewing mode shows a list of all used inks.

In the fly-out menu, you can set if you want to see the **Ruling**, **Angle**, **Dot Shape**, **DGC Curve** and **Printing Method** for every ink in the list.

**Note:** The separation list in Viewer will show the DGC Curve defined for an ink, but this DGC curves are not used when rendering the file.

#### Mode

By default a separation is displayed in color. In order to see a separation as it would appear on film, you can switch to "Show as Film: Positive".

By switching to "Show as Film: Negative", the visible separation will be shown in negative.

#### Note:

As both "Show as Film: Positive" and "Show as Film: Negative" are only useful on a single separation, the **Mode** radio buttons are disabled if more than one separation is shown.

## Highlight

#### **Transparency**

This will highlight all objects that have an opacity percentage, a blend mode or an opacity mask (regardless of what is underneath).

#### **Overprint**

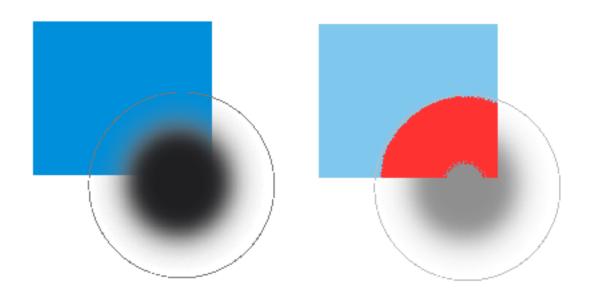
Highlight Overprint will highlight the areas where an "overprint" setting in the paint style takes effect.



#### **Screening Conflict**

The Screening Conflict checkbox highlights areas where a screening conflict can occur. They can occur if an object with transparency (opacity mask, opacity percentage or blend mode) is overlapping on an object with another screening. The PDF definition clearly states that screening is always taken from the topmost object, even if that object is completely transparent in some areas. In most cases, this is not what you would expect.

In the example underneath, you can see a cyan rectangle, and a circle on top, with an opacity mask. The objects have a different screening. Where the circle is on top of the cyan rectangle, the cyan will take the screening of the blended circle. Therefore, as shown on the right, these areas will be highlighted as Screen Conflict.



#### Color

When you enable a Highlight option, the objects are highlighted in the color you chose in the Color Picker.

## 4.3. Total Area Coverage

The Total Area Coverage (TAC) is the sum of all separation-densities at a certain point in your document.

#### **TAC Limit**

The **TAC Limit** is the maximal Total Area Coverage that your document may contain. This value depends on the press and the substrate your design will be printed on. Your printer should provide you with the TAC Limit value to use.

#### **Defining the TAC Limit**

The TAC limit is defined in the Press settings. See *Define Press Settings* on page 28). By default the TAC Limit is set to 270%.



#### Viewing areas over the TAC Limit

When you switch to the **Total Area Coverage** preview, the image in the preview pane will be dimmed and all areas where the sum of the densities is higher than the TAC limit specified in the current Press Setting will be displayed in 100% black.



#### Note:

You can Alt-Control-click (Windows) or Alt-Command-click (Mac) the black pixels to use the densitometer tool, and to measure the actual TAC amount in that specific area. See *Measure Ink Densities* on page 34.

To quickly see the maximum TAC in your document, use the **TAC Limit** slider.

Move the slider to the right to use a TAC Limit value higher than that used by your current Press Setting. The more you move the slider to the right, the less pixels will typically be over the TAC Limit.

Note: Technical Inks are not taken into account. See also Technical inks in Viewer on page 43

### 4.4. Flexo Plate

If you change the **Viewer** Preview mode to **Flexo Plate**, a single separation (by default the first in the list) will be shown as a simulated flexo plate.

#### Note:

In this Preview mode, only one separation can be viewed at a time.



#### Note:

**Viewer** uses the same technology as the Esko Flexo Tools for Photoshop.



#### **First Visible Dot**

The Flexo Plate preview will use the **First Visible Dot** percentage from the press settings (see *Define Press Settings* on page 28).

Pixels with a percentage lower than the First Visible Dot percentage will be shown as areas without dots.

Pixels with a percentage equal or higher than the First Visible Dot percentage will be shown as areas with dots.

#### **Plate Color**

The Flexo Plate preview predicts how clean your flexo plates will be. Especially in very light or very dark areas, you could end up with isolated dots or holes on the flexo plate, and those areas are difficult to hold on the plate or the substrate.

You can choose the plate color (Cyrel Red, Blue, Green or Safran Yellow, or a High Contrast Blue&White) to match the type of plate you are using.



### 4.5. Flexo Print

This **Viewer** preview mode shows the effect of highlight dot gain on the image.



This effect is equivalent to a curve adjustment. To determine this curve, the Flexo Print Preview will use the **First dot** and the **Dot gain in highlights** settings from the Press Settings (see *Define Press Settings* on page 28).

Going from light to dark:

- The Flexo Print Preview will display percentages below the First visible dot percentage as 0%
- The **First visible dot** percentage will be shown using the **First Dot Prints as** percentage.
- Percentages above the **First visible dot** percentage will be shown darker.
- Towards the midtones this darkening effect will fade out until the Range value.
- Percentages above the **Range** value are displayed unchanged.

# 4.6. Registration Error

The Registration Error Preview is a simulation of a design printed with registration errors of a specific press (defined in the Press Settings, see *Define Press Settings* on page 28). It can be very helpful to see if trapping is applied sufficiently and correctly.

The **Registration Error** value is taken from the Press Setting you selected.



The separations are randomly shifted. In fact, all separations are moved exactly the distance of the Registration Error, but all under a random angle.

If you want to see another random registration error simulation, click the **Simulate Again** button.



In the example above, you can see a small area of a job in regular preview (left) and with registration errors (right). In this case, you can clearly see no trapping was applied, so white lines appear at the registration shifts.

### 4.7. Breakout

A Breakout is an area where the percentage of a single separation is lower than the **First Visible Dot** value. This can be used to track areas that won't show up on print because the values are too low.

Your printer should provide you with the First visible Dot value. The First visible dot is set in the Press Settings: see *Define Press Settings* on page 28.When switching to Breakout mode, the preview will be dimmed and all areas where a single separation has a value lower than the **First Visible Dot** value (but higher than 0%), will be displayed in highlight color.

You can measure the actual percentages in that specific area using the densitometer (see *Measure Ink Densities* on page 34).





Note: Technical Inks are not taken into account. See also Technical inks in Viewer on page 43

### 4.8. Moire Detection

**Moire Detection** allows to detect possible screening problems (Moire) in the file.

You can set the options to **highlight overlapping areas**, to detect situations in which Moire might occur:

- when the two overlapping areas have screening angles that do not differ 30 degrees.
- · when the two overlapping areas have the same angle
- when the two overlapping areas have different rulings
- when the two overlapping areas have different dot shapes.

You can use the **Ignore inks** option to ignore inks that have

- · a density lower than a certain value,
- · a density higher than a certain value
- a Luminance higher than a certain value

as in all those cases, the Moire patterning will hardly be visible.

All these Moire Detection options are stored in the Press Settings. See *Define Press Settings* on page 28



Note: Technical Inks are not taken into account. See also Technical Inks in Viewer on page 43

## 4.9. Technical inks in Viewer

By default, all **technical inks** are shown in Viewer, and rendered as opaque inks.

You can disable **Show Technical Inks** in the fly-out menu of the Viewer. In that case, technical inks will not be shown in the Viewer, nor in the separation list. However, if a technical ink influences another separation (e.g. if an object in a technical ink is knocking out the background), this will still be visible.

Even when shown, technical inks have no influence on the TAC limit, Breakout or Moire Detection. See *Total Area Coverage* on page 37, *Breakout* on page 41 and *Moire Detection* on page 42

Technical inks are also not included in the total ink value below the separation list when measuring a color. See *Measure Ink Densities* on page 34



# 5. Viewer Preferences

Open the Viewer **Preferences** dialog by choosing **Preferences** > **Esko** > **Viewer Preferences** to set one or more of the following options:

#### **Image Display Quality:**

Allows you to selected the preferred quality for displaying the contone images present in a document.

Following options can be selected:

- **Low**: A low resolution preview image (< 72dpi) will be used (if present). When such preview image is not available, a gray box will be displayed.
- **High**: A preview image of at least 150dpi will be used. When such preview image is not available, a gray box will be displayed. This is the default option.
- **Very High**: If sufficient memory is available, the real data (not subsampled) of the image will be displayed. When the image is too large to fit into memory (typically if the size is larger than 64MB) a high resolution display image will be shown.

**Anti-Aliasing**: This preference offers control over the Anti-Aliasing method used to prevent display-artifacts like rough ("blocky") edges in rendered artwork.

Following settings are available:

- Off: Do not perform any anti-aliasing (default value, fastest).
- Low: Some anti-aliasing (slower).
- High: Highly accuracte anti-aliasing (slowest).

#### Note:

Setting Anti-Aliasing to "High" will result in high-quality preview at the expense of significantly slower rendering / viewing speed (up to ten times slower than when Anti-Aliasing is turned off). It is advised to only use the "High" setting on fast workstations (Macintosh with a 1.8 Ghz G5 processor or higher).

**Densitometer Mode**: This option lets you select the preferred resolution of the densitometer. Following options are offered:

- Exact: Ink densities will be measured with an accuracy (resolution) of 1/255 percent. This corresponds to the (8 bits per pixel) accuracy typically used by a Rip for outputting (unscreened) separations. In other words what is measured will correspond "exactly" to the digital output of the Rip.
- Rounded: Ink densities will be measured and presented with an accuracy of 1%. Densities with a non-integral (e.g. 33.2%) value will be rounded to the nearest integral value (e.g. 33%).

If Densitometer Mode is set to "Rounded", the values shown in the Ink Coverage palette will also be rounded.

**Press Settings Folder**: allows to define the folder from which the Press Settings should be loaded.

If no folder is set up, Viewer will try to use the default location: DeskPack Container/Settings/Press. If there is no DeskPack Container mounted or available, then it will





automatically switch to <code>Users/Shared/EskoArtwork/Settings/Press</code> on Mac OS, or <code>C:/Users/Public/Documents/EskoArtwork/Settings/Press</code> on Windows. The Viewer installer will automatically create these folders.

If no Press Settings Folder is available (e.g. the defined or default folder has been removed), you will not be able to change or create Press Settings.



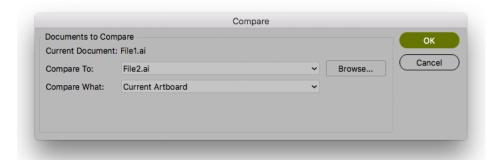
# 6. Viewer Compare Tool

You can use the Viewer Compare tool to compare the active document with another document.

To compare the active job:

1. Go to Window > Esko > Viewer > Compare...

The Compare dialog opens, and the name for the Current Document is shown.



- **2.** Select the file you want to compare the active document to:
  - If you want to compare it to an open document, select its file name from the dropdown list
  - If you want to compare it to a document on disk, click the browse button and select the file
- **3.** Define what to compare:
  - all artwork
  - · the current Artboard
  - only Trim Box or Media Box (if they are defined)
  - · only the selected area.
- 4. Click OK

A Viewer Compare window will open, showing a comparison between the two jobs.

#### Note:

If you have a Trim Box defined in the Illustrator job, the Viewer Compare tool will only show what's inside the trim box.

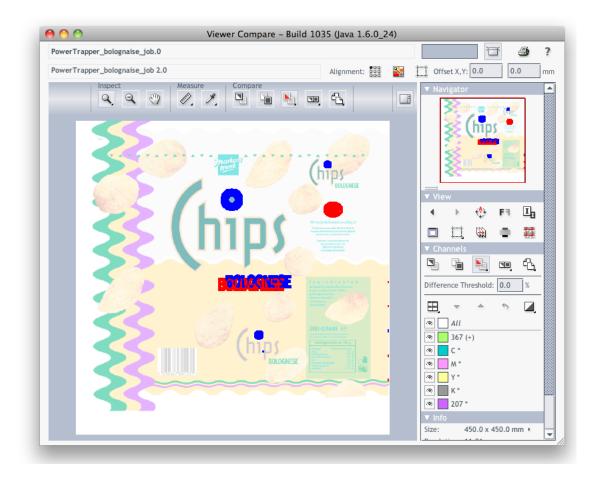
# 6.1. The Viewer Compare window

The Viewer Compare window shows the two jobs and their differences, and contains a number of tools and buttons to inspect these differences in various ways.



Move over a button with the cursor and the tooltip will indicate what it stands for.

Buttons with a triangle in the lower right corner contain additional options: Control-click (Windows) or Command-click (Mac) the button, or click and hold the button to see the extra options.



# 6.2. Navigating the Viewer Compare window

The Viewer Compare window contains different ways to navigate:

#### The Inspect tools



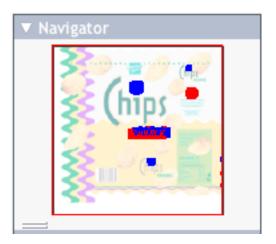
- The **Zoom** tool. Under the zoom tool you find
  - · Zoom out



- Fit document in view
- Fit document width / height
- Zoom to 1:1 view
- Show Zoom Options (showing all these options as individual buttons)
- The **Zoom out** tool
- The **Pan** tool

#### **The Navigator**

By dragging the red rectangle (when zoomed in), you can navigate through the job.



#### The View options

The **View** options allow to go back to the previous view, or use additional settings, such as rotate, invert or mirror the view.



# 6.3. Compare modes

Using the **Compare** butons, you can choose different Compare modes / views





- View Current version only
- View Reference version only
- View Both documents on top of each other.

Additional options:

- View Both in their original colors
- **View Both Show difference**: the differences will be shown in the "Added" and "Substracted" highlight colors.
- **View Both highlight difference**: same as above, but the identical parts are dimmed.
- View Both only difference: same as above, but the identical parts are hidden.
- Change "Added" Highlight Color, Change "Substracted" Highlight Color and Change Both Highlight Color, to change the colors in which differences are shown
- Reset Difference Highlight Colors to reset the default colors
- Channel Matching, to match corresponding channels/inks for the two documents.
- View Both side by side shows both versions next to each other. You can choose between
  - · Automatic tiling
  - · Horizontal tiling
  - · Vertical tiling.
- **View both mirror reference** shows the current document on top of the mirrored reference document.

## 6.4. Alignment

Comparing files with different sizes may seem like a challenge as they are not aligned in the Viewer Compare window, but it provides some tools that make it very easy.



- Alignment
  - on one of 9 corner / center points
  - Align From Ruler: see Align from Ruler on page 50



Auto Align From Ruler: see Auto Align from Ruler on page 51

• Auto Align: see Auto Align on page 51

• Auto Align: see Auto Align on page 51

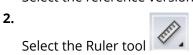
Use trim box for alignment

• Offset, Horizontal and Vertical

### 6.4.1. Align from Ruler

The ruler tool works by defining two points (one in each file) that have to be aligned.

**1.** Select the reference version of the file by clicking the



**3.** Indicate the ruler anchor point



4. Switch to the other version by clicking the icon (or use <u>Ctrl + S</u>).

The anchor point, here in the red circle, will be in a different location in the second file version.

**5.** Indicate the point that should be positioned on the ruler anchor point (here in the blue circle)





6.

Click the **Alignment** button



**Note:** Depending on how precisely you defined the second ruler point, you may have to zoom in and repeat the alignment procedure to align your files with more precision.

### 6.4.2. Auto Align from Ruler

Auto Align from Ruler is used the same way as the Align from Ruler tool, but is more accurate at high resolution.

If the details of the alignment points match, the viewer will be able to increase the alignment precision (and have a good alignment with fewer iterations).

### 6.4.3. Auto Align

Auto Align does not use the ruler, but rather the currently visible view of the two compared images to attempt an automatic alignment.

For convenience, a separate tool button is available to perform an Auto Align operation without having to open the Alignment pop-up menu. Clicking this button will perform an Auto Align from Ruler if a ruler selection is active, otherwise an Auto Align (from view).

# 6.5. Viewer Compare Preferences

You can open the Compare Preferences by choosing **Illustrator** > **Preferences** > **Esko** > **Viewer Compare Preferences** (on Mac OS) or **Edit** > **Preferences** > **Esko** > **Viewer Compare Preferences** (on Windows).

You can define the resolution for the Viewer Compare previews: either based on the document size, or at a fixed resolution. "Based on Document Size" will result in a low resolution for big documents, so e.g. aligning will become more difficult when zooming in. On the other hand, a "Fixed Resolution" can result in a very heavy preview calculation if the fixed resolution is high and the document is large.

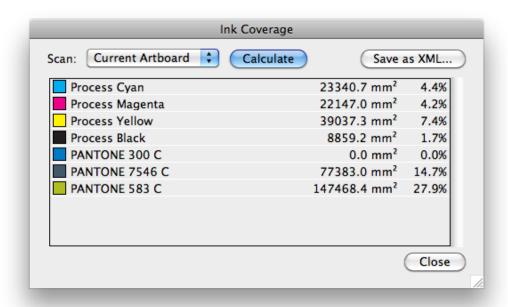
You can define if anti-aliasing should be applied.



# 7. Ink Coverage

With Ink Coverage, you can calculate the ink usage for every ink.

1. Click **Window** > **Esko** > **Viewer** > **Ink Coverage...** to open the Ink Coverage dialog.



- **2.** In the dropdown, select the area you want to scan. By default, Ink Coverage is calculated on the **Current Artboard**
- 3. Click Calculate

For every separation, the size (in square mm or square inch) and percentage of the total surface is shown.

**Note:** By setting the **Densitometer Mode** to "Rounded" in the Viewer preferences, the values in the Ink Coverage palette will be rounded off.

- **4.** Click **Save as XML...** to save the result of the lnk Coverage calculation into an XML file.
- **5.** Click **Close** to close the Ink Coverage dialog.

Note: Technical inks will not be presented in the list, nor in the exported XML.