**OPEN SOURCE SOFTWARE NOTICE**

The open source software notice for the open source software used in this openEuler distribution (“openEuler distribution”) is provided in this document. The open source software licenses are granted by the respective right holders. With regard to the respective open source software contained in the openEuler distribution, the applicable open source software license will prevail all other license agreement, including but not limited to the openEuler Software License, in case of any conflicts.

**Warranty Disclaimer**

**THE OPEN SOURCE SOFTWARE IN THIS OPENEULER DISTRIBUTION IS PROVIDED ON AN "AS IS" BASIS, WITHOUT ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.  
See the applicable licenses for more details.**

**Copyright Notice and License Texts**

**Software:** R-stringi 1.6.2

**Copyright notice:**

Copyright (C) 2002-2006, International Business Machines Corporation and others. All Rights Reserved.  
© 2017 and later: Unicode, Inc. and others.  
Copyright (C) 1996-2014, International Business Machines Corporation and others.  
Copyright (C) 2010-2012,2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2000-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2010-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2014, Google, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2011 IBM and others. All rights reserved.  
Copyright (c) 2002-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2011-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1996-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2014-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2004-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2005, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2005-2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2004-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2010-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2012-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1998-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2011, International Business Machines Corporation and others.  
Copyright (C) 2003-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) {1999-2001}, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2011,2014 IBM and others. All rights reserved.  
Copyright (C) 2002-2015 International Business Machines Corporation and others.  
Copyright (C) 2002-2003, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) IBM Corporation, 2000-2011. All rights reserved.  
Copyright (C) 2010-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright © 1991-2021 Unicode, Inc. All rights reserved.  
Copyright (C) 2008-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2005-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2010-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1997-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1996-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1997-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1995-2016 International Business Machines Corporation and others All rights reserved.  
Copyright (C) 2008-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2001-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2006-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2017, International Business Machines Corporation, Google, and others. All Rights Reserved.  
Copyright (C) 1999-2014 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2011,2014-2015 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2003-2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2015, International Business Machines Corporation and others.  
Copyright (C) 2001-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2011, International Business Machines Corporation and others.  
Copyright (C) 2010-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1996-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1996-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) IBM Corporation, 2000-2014. All rights reserved.  
Copyright (c) 2008-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2015-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2006 International Business Machines Corporation and others. All rights reserved.  
Copyright (C) 2000-2015, International Business Machines Corporation and others. All Rights Reserved.  
 Copyright (C) 2015, International Business Machines Corporation and others. All Rights Reserved.   
define UISSUPPLEMENTARY(c) ((uint32t)((c)-0x10000)<=0xfffff)  
Copyright (C) 2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 2006-2011, the V8 project authors. All rights reserved.  
Copyright (C) 2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2011-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2011-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1997-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2005-2009, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2003, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2012-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 2006-2008 the V8 project authors. All rights reserved.  
Copyright (C) 2008-2014, Google, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2009,2014 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2011-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2011-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2014 International Business Machines Corporation and others. All rights reserved.  
Copyright (c) 2001-2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2013, International Business Machines Corporation and others.  
Copyright (C) 2001-2008,2010 IBM and others. All rights reserved.  
Copyright (C) 1996-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1998-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2002-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2008-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2012,2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2014, International Business Machines Corporation and others.  
Copyright (c) 1995-2015 International Business Machines Corporation and others   
Copyright (C) 2002-2015 International Business Machines Corporation and others. All rights reserved.  
Copyright (C) 2002-2016 International Business Machines Corporation and others.  
Copyright (C) 2007-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2000-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2004-2014 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2007-2008,2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 2012 the V8 project authors. All rights reserved.  
Copyright (C) 2003-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2010-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2009,2012,2016 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2016, International Business Machines Corporation and others.  
Copyright (C) 2001-2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2013-2014, International Business Machines Corporation and others.  
Copyright (C) 2005-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 2010 the V8 project authors. All rights reserved.  
Copyright (C) 2009-2016, International Business Machines Corporation, Google, and others. All Rights Reserved.  
Copyright (C) 2008, Google, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1996-2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2002-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2014 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2010-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2013-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 1996 Chih-Hao Tsai @ Beckman Institute, University of Illinois c-tsai4@uiuc.edu http:casper.beckman.uiuc.edu/c-tsai4  
Copyright (C) 2010 , Yahoo! Inc.  
Copyright (C) 1999-2011 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2000-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2005, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2007-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1996-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) IBM Corporation, 2000-2012. All rights reserved.  
Copyright (C) 2013-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2006-2012, International Business Machines Corporation and others.  
Copyright (c) 2001-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2013 Brian Eugene Wilson, Robert Martin Campbell.  
Copyrighy (c) 1999 TaBE Project.  
Copyright (C) 2004-2015, International Business Machines Corporation and others.  
Copyright (C) 1997-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2009, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2016, International Business Machines Corporation and others.  
Copyright (C) 2014-2015, International Business Machines Corporation and others.  
Copyright (c) 2003-2010 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2014-2016, International Business Machines Corporation and others.  
Copyright (C) 2009-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1999 TaBE Project.  
Copyright (C) 1999-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2002-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1996-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) IBM Corporation, 2000-2010. All rights reserved.  
Copyright (C) 2001-2014, International Business Machines Corporation.  
Copyright (c) 1997-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2010, Google, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2000-2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2015, International Business Machines Corporation and others.  
Copyright (C) 2011-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2014 IBM and others. All rights reserved.  
Copyright (C) 1996-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2005-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2010-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2015-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 2000, 2001, 2002, 2003 Nara Institute of Science and Technology. All Rights Reserved.  
Copyright (C) 1999-2001, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2011, International Business Machines Corporation.  
Copyright (C) 2007-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2003-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2005-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2002-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2013-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) IBM Corporation, 2000-2012. All rights reserved.  
Copyright (C) 2007-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2013-2021, Marek Gagolewski <https://www.gagolewski.com>  
Copyright 2001 and onwards Google Inc.  
Copyright (C) 2015-2016, International Business Machines Corporation and others.  
Copyright (C) 2002-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2009, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2009,2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2000-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2003, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1998-2004, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2004-2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2009, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2011, International Business Machines Corporation, Google and others. All Rights Reserved.  
Copyright (C) 1998-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2011 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2010-2012,2015 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2006-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2000-2005, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1996-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1997-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2005, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1996-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2001-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2015 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2010-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2004, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2013, International Business Machines Corporation and others.  
Copyright (C) 2005-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 2007 Google Inc. All Rights Reserved.  
Copyright (C) 1999-2004, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2016 and later: Unicode, Inc. and others.  
Copyright (C) 1999-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2006-2008, Google Inc.  
Copyright (C) 1998-2005, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1999 Computer Systems and Communication Lab, Institute of Information Science, Academia Sinica. All rights reserved.  
Copyright (C) 2008-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1998-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 1996 Chih-Hao Tsai @ Beckman Institute, University of Illinois  
Copyright (C) 2004-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2015, Google, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2004-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2015, International Business Machines Corporation and others. All Rights Reserved.  
((uint32t)((c)-0x10000)>0xfffff ? 3 : 4) \  
Copyright (c) 2003-2004, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2001-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2002-2005, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2007-2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2000-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2012 International Business Machines Corporation and others. All rights reserved.  
Copyright (c) 2013-2021, Marek Gagolewski <https:www.gagolewski.com>  
Copyright (C) 2001-2015, International Business Machines Corporation and others. All Rights Reserved.  
© 2020 and later: Unicode, Inc. and others.  
Copyright (C) 2009, International Business Machines Corporation and others. All Rights Reserved.  
© 2016 and later: Unicode, Inc. and others.  
(C) 2013-2019 by the Kile Team (Holger Danielsson, Michel Ludwig, Licensed under the GNU General Public License Version 2.  
Copyright (C) 2007-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2014 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2013-2015, International Business Machines Corporation and others.  
Copyright (c) 2001-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright © 1991-2020 Unicode, Inc. All rights reserved.  
Copyright (C) 2009-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2007-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1996-2015, International Business Machines Corporation and others.  
Copyright (C) 2000-2004, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2008 International Business Machines Corporation and others. All rights reserved.  
Copyright (c) 1996-2015, International Business Machines Corporation and others.  
Copyright (C) 1999-2006,2013 IBM Corp. All rights reserved.  
Copyright (C) 2003 - 2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright 2004 and onwards Google Inc.  
Copyright (C) 1996-2014, International Business Machines Corporation and others. All Rights Reserved.  
define ISPRIVATEUSE(c) ((uint32t)((c)-0xe000)<0x1900 || (uint32t)((c)-0xf0000)<0x20000)  
Copyright (C) 2010-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2014-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2001-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2001-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2005, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2002-2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2010, International Business Machines Corporation and others.  
Copyright (C) 2001-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2013, LeRoy Benjamin Sharon All rights reserved.  
Copyright (c) 2002-2004, International Business Machines Corporation and others. All Rights Reserved.  
© 2019 and later: Unicode, Inc. and others.  
(C) 2013-2019 by the Kile Team (Holger Danielsson, Michel Ludwig, Jeroen Wijnhout, and others). https:kile.sourceforge.io.  
Copyright (C) 1999-2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) IBM Corporation, 2000-2016. All rights reserved.  
Copyright (C) 2013-2019 by the Kile Team (Holger Danielsson, Michel Ludwig, Jeroen Wijnhout, and others).  
Copyright (C) 1999-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2004-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2000-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2013-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1996-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2014-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2016 International Business Machines Corporation and others. All rights reserved.  
Copyright (C) 2002-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2004-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2015 IBM and others. All rights reserved.  
Copyright (C) 2002-2008, International Business Machines Corporation and others.  
Copyright (C) 1997-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1997-2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 1999-2016 International Business Machines Corporation and others. All rights reserved.  
Copyright (C) 2012,2014 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2002-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1999 Computer Systems and Communication Lab, Institute of Information Science, Academia Sinica.  
Copyright (C) 2007-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2005 International Business Machines Corporation and others. All rights reserved.  
Copyright (C) 2002-2014 International Business Machines Corporation and others. All rights reserved.  
Copyright (C) 1999-2007, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2012-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2004-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2011-2014 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2004-2012, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1996-2011, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2014-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2009-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2002-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2004 - 2008, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1996-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2002-2009, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2001-2005, International Business Machines Corporation and others. All Rights Reserved.  
© 2018 and later: Unicode, Inc. and others.  
Copyright (c) 2013 International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2008-2009, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2005-2006, International Business Machines Corporation and others. All Rights Reserved.  
Copyright © 1991-2015 Unicode, Inc. All rights reserved.  
Copyright (C) 2005-2015, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003-2010, International Business Machines Corporation and others.  
Copyright (C) 2011-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2004-2014, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2003 - 2013, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (C) 2001-2010, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 2003-2013, International Business Machines Corporation and others. All Rights Reserved.  
define IS2022CONTROL(c) (((c)<0x20) && (((uint32t)1<<(c))&0x0800c000)!=0)  
Copyright (C) 2010-2016, International Business Machines Corporation and others. All Rights Reserved.  
Copyright (c) 1999 Pai-Hsiang Hsiao.  
Copyright (C) 2003 - 2009, International Business Machines Corporation and others. All Rights Reserved.

**License:** BSD

BSD Zero Clause License  
Copyright (C) 2006 by Rob Landley <rob@landley.net>  
  
Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted.  
  
THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, 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.