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. 3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "The Jakarta Project", "Struts", and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation. THIS SOFTWARE IS PROVIDED "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 APACHE SOFTWARE FOUNDATION 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.

Progress Orbix v6.3.5 incorporates Jakarta-bcel 5.0 from the Apache Software Foundation (http://www.apache.org/). Such Apache Technology is subject to the following terms and conditions: The Apache Software License, Version 1.1 Copyright (c) 2001 The Apache Software Foundation. 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. 3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "Apache" and "Apache Software Foundation" and "Apache BCEL" must not be used to endorse or promote products derived from this software with out prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", "Apache BCEL", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation. THIS SOFTWARE IS PROVIDED "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 APACHE SOFTWARE FOUNDATION 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 software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Progress Orbix v6.3.5 incorporates Jakarta-regexp 1.2 from the Apache Software Foundation (http://www.apache.org). Such Apache Technology is subject to the following terms and conditions: The Apache Software License, Version 1.1 Copyright (c) 1999 The Apache Software Foundation. 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 other materials provided with the distribution. 3. The end-user documentation included with the distribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "The Jakarta Project", "Jakarta-Regexp", and "Apache Software Foundation" and "Apache BCEL" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation. THIS SOFTWARE IS PROVIDED ``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 APACHE SOFTWARE FOUNDATION 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 software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Progress Orbix v6.3.5 incorporates the Jakarta-log4j 1.2.6 from the Apache Software Foundation (http://www.apache.org). Such Apache Technology is subject to the following terms and conditions: The Apache Software License, Version 1.1 Copyright (c) 1999 The Apache Software Foundation. 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. 3. The end-user documentation included with the distribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in
the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "log4j" and "Apache Software Foundation" and "Apache BCEL" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation.

THIS SOFTWARE IS PROVIDED "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 APACHE SOFTWARE FOUNDATION 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 software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Progress Orbix v6.3.5 incorporates Ant 1.5 from the Apache Software Foundation (http://www.apache.org). Such technology is subject to the following terms and conditions: The Apache Software License, Version 1.1 Copyright (c) 2000-2002 The Apache Software Foundation. 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. 3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "Ant" and "Apache Software Foundation" and "Apache BCEL" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation. THIS SOFTWARE IS PROVIDED "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 APACHE SOFTWARE FOUNDATION 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 software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.
Progress Orbix v6.3.5 incorporates Xalan-j 2.3.1 from the Apache Software Foundation (http://www.apache.org). Such Apache Technology is subject to the following terms and conditions: The Apache Software License, Version 1.1. Copyright (c) 1999 The Apache Software Foundation. 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. 3. The end-user documentation included with the distribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "Xalan" and "Apache Software Foundation" and "Apache BCEL" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation. THIS SOFTWARE IS PROVIDED ``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 APACHE SOFTWARE FOUNDATION 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 software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Progress Orbix v6.3.5 incorporates the Xerces-c++ 2.4 from the Apache Software Foundation (http://www.apache.org). Such Apache Technology is subject to the following terms and conditions: The Apache Software License, Version 1.1. Copyright (c) 1999-2001 The Apache Software Foundation. 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. 3. The end-user documentation included with the distribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "Xerces" and "Apache Software Foundation" and "Apache BCEL" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation. THIS SOFTWARE IS PROVIDED ``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
APACHE SOFTWARE FOUNDATION 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 software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Progress Orbix v6.3.5 incorporates xerces-j 2.5 from the Apache Software Foundation (http://www.apache.org). Such Apache Technology is subject to the following terms and conditions: The Apache Software License, Version 1.1. Copyright (c) 1999-2002 The Apache Software Foundation. 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. 3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "Xerces" and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation. THIS SOFTWARE IS PROVIDED "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 APACHE SOFTWARE FOUNDATION 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 software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Progress Orbix v6.3.5 incorporates the Tomcat 4.0.4 from the Apache Software Foundation (http://www.apache.org). Such Apache Technology is subject to the following terms and conditions: The Apache Software License, Version 1.1. Copyright (c) 1999, 2000 The Apache Software Foundation. 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. 3. The end-user documentation included with the
redistribution, if any, must include the following acknowledgment: "This product includes software developed by the Apache Software Foundation (http://www.apache.org/)." Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear. 4. The names "The Jakarta Project", "Tomcat" and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org. 5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation. THIS SOFTWARE IS PROVIDED ``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 APACHE SOFTWARE FOUNDATION 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 software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Progress Orbix v6.3.5 incorporates MCPP 2.6.4 from the MCPP Project. Such technology is subject to the following terms and conditions:Copyright (c) 1998, 2002-2007 Kiyoshi Matsui kmatsui@t3.rim.or.jp All rights reserved. This software including the files in this directory is provided under the following license. 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 AUTHOR ``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 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.

Progress Orbix v6.3.5 incorporates Xalan c++ v1.7 from The Apache Software Foundation. Such technology is subject to the following terms and conditions: The Apache Software License, Version 1.1 Copyright (c) 1999-2004 The Apache Software Foundation. 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. 3. The end-user documentation included with the redistribution, if any, must include the follow-
This software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation and was originally based on software copyright (c) 1999, Lotus Development Corporation, http://www.lotus.com. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

Progress Orbix v6.3.5 incorporates Tcl 8.4.15 from Regents of the University of California, Sun Microsystems, Inc., Scriptics Corporation, and other parties. Such technology is subject to the following terms and conditions: This software is copyrighted by the Regents of the University of California, Sun Microsystems, Inc., Scriptics Corporation, and other parties. The following terms apply to all files associated with the software unless explicitly disclaimed in individual files. The authors hereby grant permission to use, copy, modify, distribute, and license this software and its documentation for any purpose, provided that existing copyright notices are retained in all copies and that this notice is included verbatim in any distributions. No written agreement, license, or royalty fee is required for any of the authorized uses. Modifications to this software may be copyrighted by their authors and need not follow the licensing terms described here, provided that the new terms are clearly indicated on the first page of each file where they apply. IN NO EVENT SHALL THE AUTHORS OR DISTRIBUTORS BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS SOFTWARE, ITS DOCUMENTATION, OR ANY DERIVATIVES THEREOF, EVEN IF THE AUTHORS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. THE AUTHORS AND DISTRIBUTORS SPECIFICALLY DISCLAIM ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. THIS SOFTWARE IS PROVIDED ON AN "AS IS" BASIS, AND THE AUTHORS AND DISTRIBUTORS HAVE NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS. GOVERNMENT USE: If you are acquiring this software on behalf of the U.S. government, the Government shall have only "Restricted Rights" in the software and related documentation as defined in the Federal Acquisition Regulations (FARs) in Clause 52.227.19 (c) (2). If you are acquiring the software on behalf of the Department of Defense, the software shall be classified as "Commercial Computer Software" and the Government shall have only "Restricted Rights" as defined in Clause 252.227-7013 (c) (1) of DFARs. Notwithstanding the
CORBA Tutorial

foregoing, the authors grant the U.S. Government and others acting in its behalf permission to use and distribute the software in accordance with the terms specified in this license.

Progress Orbix v6.3.5 incorporates bzip2 1.0.2 from Julian Seward. Such Technology is subject to the following terms and conditions: This program, "bzip2" and associated library "libbzip2", are copyright (C) 1996-2002 Julian R Seward. 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. 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. 3. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software. 4. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission. THIS SOFTWARE IS PROVIDED BY THE AUTHOR "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 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.

Julian Seward, Cambridge, UK.jseward@acm.org bzip2/libbzip2 version 1.0.2 of 30 December 2001.

Progress Orbix v6.3.5 incorporates zlib 1.2.3 from Jean-loup Gailly and Mark Adler. Such Technology is subject to the following terms and conditions: License /* zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.3, July 18th, 2005 Copyright (C) 1995-2000 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: 1. 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. 2. 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 jloup@gzip.org Mark Adler madler@alumni.caltech.edu */

Progress Orbix v6.3.5 incorporates the MinML 1.7 from John Wilson. Such Technology is subject to the following terms and conditions: Copyright (c) 1999, John Wilson (tug@wilson.co.uk). 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. All advertising materials mentioning features or use of this software must display the following acknowledgement: This product includes software devel oped by John
The name of John Wilson may not be used to endorse or promote products derived from this software without specific prior written permission. THIS SOFTWARE IS PROVIDED BY JOHN WILSON "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 JOHN WILSON 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.

Progress Orbix v6.3.5 incorporates JDOM vbeta9 from JDOM. Such Technology is subject to the following terms and conditions: LICENSE.txt, v 1.10 2003/04/10 08:36:05 jhunter Exp $ Copyright (C) 2000-2003 Jason Hunter & Brett McLaughlin. 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 disclaimer that follows these conditions in the documentation and/or other materials provided with the distribution. 3. The name "JDOM" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact <license AT jdom DOT org>. 4. Products derived from this software may not be called "JDOM", nor may "JDOM" appear in their name, without prior written permission from the JDOM Project Management <pm AT jdom DOT org>. In addition, we request (but do not require) that you include in the end-user documentation provided with the redistribution and/or in the software itself an acknowledgement equivalent to the following: "This product includes software developed by the JDOM Project (http://www.jdom.org/)." Alternatively, the acknowledgment may be graphical using the logos available at http://www.jdom.org/images/logos. THIS SOFTWARE IS PROVIDED "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 JDOM AUTHORS OR THE PROJECT 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.

Progress Orbix v6.3.5 incorporates OpenSSL 0.9.8i Copyright (c) 1998-2008 The OpenSSL Project Copyright (c) 1995-1998 Eric A. Young, Tim J. Hudson All rights reserved. Such Technology is subject to the following terms and conditions: The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit. See below for the actual license texts. Actually both licenses are BSD-style Open Source licenses. In case of any license issues related to
OpenSSL please contact openssl-core@openssl.org. OpenSSL License - Copyright (c) 1998-2008 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: 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. 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 OpenSSL 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 cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com). - Original SSLeay License - Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com) All rights reserved. This package is an SSL implementation written by Eric Young (eay@cryptsoft.com). The implementation was written so as to conform with Netscapes SSL. This library is free for commercial and non-commercial use as long as the following conditions are aheared to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, Lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com). Copy right remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package. 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 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. All advertising materials mentioning features or use of this software must display the following acknowledgment: "This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)" The word 'cryptographic' can be left out if the routines 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
Progress Orbix v6.3.5 incorporates PCRE v7.8 from the PCRE Project. Such Technology is subject to the following terms and conditions:

PCRE LICENCE
-------------

PCRE is a library of functions to support regular expressions whose syntax and semantics are as close as possible to those of the Perl 5 language. Release 7 of PCRE is distributed under the terms of the "BSD" licence, as specified below. The documentation for PCRE, supplied in the "doc" directory, is distributed under the same terms as the software itself. The basic library functions are written in C and are free-standing. Also included in the distribution is a set of C++ wrapper functions.

THE BASIC LIBRARY FUNCTIONS
-----------------------------

Written by: Philip Hazel
Email local part: ph10
Email domain: cam.ac.uk
University of Cambridge Computing Service,
Copyright (c) 1997-2008 University of Cambridge
All rights reserved.

THE C++ WRAPPER FUNCTIONS
-----------------------------

Contributed by: Google Inc.
Copyright (c) 2007-2008, Google Inc.
All rights reserved.

THE "BSD" LICENCE
-----------------

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 name of
Google Inc. nor the names of their 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.

Progress Orbix v6.3.5 incorporates IDL Compiler Front End 1 from Sun Microsystems, Inc. Copyright 1992, 1993, 1994 Sun Microsystems, Inc. Printed in the United States of America. All Rights Reserved. Such technology is subject to the following terms and conditions: This product is protected by copyright and distributed under the following license restricting its use. The Interface Definition Language Compiler Front End (CFE) is made available for your use provided that you include this license and copyright notice on all media and documentation and the software program in which this product is incorporated in whole or part. You may copy and extend functionality (but may not remove functionality) of the Interface Definition Language CFE without charge, but you are not authorized to license or distribute it to anyone else except as part of a product or program developed by you or with the express written consent of Sun Microsystems, Inc. ("Sun"). The names of Sun Microsystems, Inc. and any of its subsidiaries or affiliates may not be used in advertising or publicity pertaining to distribution of Interface Definition Language CFE as permitted herein. This license is effective until terminated by Sun for failure to comply with this license. Upon termination, you shall destroy or return all code and documentation for the Interface Definition Language CFE. INTERFACE DEFINITION LANGUAGE CFE IS PROVIDED AS IS WITH NO WARRANTIES OF ANY KIND INCLUDING THE WARRANTIES OF DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE. INTERFACE DEFINITION LANGUAGE CFE IS PROVIDED WITH NO SUPPORT AND WITHOUT ANY OBLIGATION ON THE PART OF Sun OR ANY OF ITS SUBSIDIARIES OR AFFILIATES TO ASSIST IN ITS USE, CORRECTION, MODIFICATION OR ENHANCEMENT. SUN OR ANY OF ITS SUBSIDIARIES OR AFFILIATES SHALL HAVE NO LIABILITY WITH RESPECT TO THE INFRINGEMENT OF COPYRIGHTS, TRADE SECRETS OR ANY PATENTS BY INTERFACE DEFINITION LANGUAGE CFE OR ANY PART THEREOF. IN NO EVENT WILL SUN OR ANY OF ITS SUBSIDIARIES OR AFFILIATES BE LIABLE FOR ANY LOST REVENUE OR PROFITS OR OTHER SPECIAL, INDIRECT AND CONSEQUENTIAL DAMAGES, EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 and FAR 52.227-19. Sun, Sun Microsystems and the Sun logo are trademarks or registered trademarks of Sun Microsystems, Inc. SunSoft, Inc. 2550 Garcia Avenue, Mountain View, California 94043 NOTE: SunOS, SunSoft, Sun, Solaris, Sun Microsystems or the Sun logo are trademarks or registered trademarks of Sun Microsystems, Inc.

Progress Orbix v6.3.5 incorporates LibXML2 2.4.24 from Daniel Veillard. Such Technology is subject to the following terms and conditions: Except where otherwise noted in the source code (trio files, hash.c and
list.c) covered by a similar license but with different Copyright notices: Copyright (C) 1998-2002 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 with out limitation the rights to use, copy, modify, 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 DANIEL VEILLARD 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 Daniel Veillard shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from him.

=== trio.c, trio.h: Copyright (C) 1998 Bjorn Reese and Daniel Stenberg. 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. THIS SOFTWARE IS PROVIDED "AS IS" AND WITH OUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE AUTHORS AND CONTRIBUTORS ACCEPT NO RESPONSIBILITY IN ANY CONCEIVABLE MANNER.

=== triop.h: Copyright (C) 2000 Bjorn Reese and Daniel Stenberg. 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. THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE AUTHORS AND CONTRIBUTORS ACCEPT NO RESPONSIBILITY IN ANY CONCEIVABLE MANNER.

=== hash.c: Copyright (C) 2000 Bjorn Reese and Daniel Veillard. 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. THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE AUTHORS AND CONTRIBUTORS ACCEPT NO RESPONSIBILITY IN ANY CONCEIVABLE MANNER.

=== list.c: Copyright (C) 2000 Gary Pennington and Daniel Veillard. 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. THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE AUTHORS AND CONTRIBUTORS ACCEPT NO RESPONSIBILITY IN ANY CONCEIVABLE MANNER.

==== triodef.h, trionan.c, trionan.h: Copyright (C) 2001 Bjorn Reese. 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. THIS SOFTWARE IS PROVIDED "AS IS" AND
WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE AUTHORS AND CONTRIBUTORS ACCEPT NO RESPONSIBILITY IN ANY CONCEIVABLE MANNER.

triostr.c, triostr.h: Copyright (C) 2001 Bjorn Reese and Daniel Stenberg.

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. THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE AUTHORS AND CONTRIBUTORS ACCEPT NO RESPONSIBILITY IN ANY CONCEIVABLE MANNER.

Progress Orbix v6.3.5 incorporates ICU library 2.6 from IBM. Such Technology is subject to the following terms and conditions: Copyright (c) 1995-2009 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. Except as contained in this notice, the name of a copyright holder shall not be used in advertising or other wise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder. All trademarks and registered trademarks mentioned herein are the property of their respective owners.

Updated: 18-Jul-2011
Contents

Chapter 1   Getting Started with Orbix   1
   Creating a Configuration Domain   2
   Setting the Orbix Environment   11
   Setting ORB Properties for the Orbix ORB   12
   Setting Your Classpath   14
   Hello World Example   16
   Development from the Command Line   18

Index   25
You can use the CORBA Code Generation Toolkit to develop an Orbix application quickly.

Given a user-defined IDL interface, the toolkit generates the bulk of the client and server application code, including build files. You then complete the distributed application by filling in the missing business logic.

In this chapter

This chapter contains the following sections:

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating a Configuration Domain</td>
<td>2</td>
</tr>
<tr>
<td>Setting the Orbix Environment</td>
<td>11</td>
</tr>
<tr>
<td>Setting ORB Properties for the Orbix ORB</td>
<td>12</td>
</tr>
<tr>
<td>Setting Your Classpath</td>
<td>14</td>
</tr>
<tr>
<td>Hello World Example</td>
<td>16</td>
</tr>
<tr>
<td>Development from the Command Line</td>
<td>18</td>
</tr>
</tbody>
</table>
Overview

This section describes how to create a simple configuration domain, simple, which is required for running basic demonstrations. This domain deploys a minimal set of Orbix services.

Prerequisites

Before creating a configuration domain, the following prerequisites must be satisfied:

- Orbix is installed.
- Some basic system variables are set up (in particular, the IT_PRODUCT_DIR, IT_LICENSE_FILE, and PATH variables).

For more details, please consult the Installation Guide.

Licensing

The location of the license file, licenses.txt, is specified by the IT_LICENSE_FILE system variable. If this system variable is not already set in your environment, you can set it now.

Steps

To create a configuration domain, simple, perform the following steps:

1. Run itconfigure.
2. Choose the domain type.
3. Specify service startup options.
4. Specify security settings.
5. Specify fault tolerance settings.
6. Select services.
7. Confirm choices.
8. Finish configuration.
Run `itconfigure`

To begin creating a new configuration domain, enter `itconfigure` at a command prompt. An **Orbix Configuration Welcome** dialog box appears, as shown in **Figure 1**.

Select **Create a new domain** and click **OK**.

![Orbix Configuration Welcome Dialog Box](image)

**Figure 1:** *The Orbix Configuration Welcome Dialog Box*
Choose the domain type

A Domain Type window appears, as shown in Figure 2.

In the Configuration Domain Name text field, type simple. Under Configuration Domain Type, click the Select Services radiobutton. Click Next> to continue.

Figure 2: The Domain Type Window
Specify service startup options

A Service Startup window appears, as shown in Figure 3. You can leave the settings in this Window at their defaults. Click Next> to continue.

Figure 3: The Service Startup Window
Specify security settings

A Security window appears, as shown in Figure 4.

You can leave the settings in this Window at their defaults (no security).

Click Next> to continue.

Figure 4: The Security Window
Specify fault tolerance settings

A Fault Tolerance window appears, as shown in Figure 5. You can leave the settings in this Window at their defaults. Click Next> to continue.

Figure 5: The Fault Tolerance Window
Select services

A Select Services window appears, as shown in Figure 6.

In the Select Services window, select the following services and components for inclusion in the configuration domain: Location, Node daemon, Management, CORBA Interface Repository, CORBA Naming, and demos.

Click Next> to continue.
Confirm choices

You now have the opportunity to review the configuration settings in the Confirm Choices window, Figure 7. If necessary, you can use the <Back button to make corrections.

Click Next> to create the configuration domain and progress to the next window.

Figure 7: The Confirm Choices Window
Finish configuration

The `itconfigure` utility now creates and deploys the simple configuration domain, writing files into the `OrbixInstallDir/etc/bin`, `OrbixInstallDir/etc/domain`, `OrbixInstallDir/etc/log`, and `OrbixInstallDir/var` directories.

If the configuration domain is created successfully, you should see a **Summary** window with a message similar to that shown in **Figure 8**.

Click **Finish** to quit the `itconfigure` utility.

![Configuration Summary](image_url)

**Figure 8:** Configuration Summary
Setting the Orbix Environment

Prerequisites

Before proceeding with the demonstration in this chapter you need to ensure:

- The CORBA developer’s kit is installed on your host.
- Orbix is configured to run on your host platform.
- Your Java development kit (JDK) is configured to use the Orbix ORB runtime (see “Setting ORB Properties for the Orbix ORB” on page 12).
- Your configuration domain is set (see “Setting the domain”).

The Administrator’s Guide contains more information on Orbix configuration, and details of Orbix command line utilities.

Setting the domain

The scripts that set the Orbix environment are associated with a particular domain, which is the basic unit of Orbix configuration. See the Installation Guide, and the Administrator’s Guide for further details on configuring your environment.

To set the Orbix environment associated with the domain-name domain, enter:

**Windows**

```
> set JAVA_HOME=YourJdkDir
> config-dir/etc/bin/domain-name_env.bat
```

**UNIX**

```
% JAVA_HOME=YourJdkDir ; export JAVA_HOME
% . config-dir/etc/bin/domain-name_env
```

*YourJdkDir* is the root directory of the Java development kit that you want to use with Orbix. See the Installation Guide for details of supported Java platforms.

*config-dir* is the root directory where the Appliation Server Platform stores its configuration information. You specify this directory while configuring your domain. *domain-name* is the name of a configuration domain.
Setting ORB Properties for the Orbix ORB

SUN’s Java development kit (JDK) comes with a built-in ORB runtime that is used by default. However, you cannot use SUN’s ORB runtime with Orbix applications. You must configure the JDK to use the Orbix ORB runtime instead by setting system properties `org.omg.CORBA.ORBClass` and `org.omg.CORBA.ORBSingletonClass` to the appropriate values. You can set the ORB properties in one of the following ways:

- **Using the iona.properties file**
- **Using Java interpreter arguments**

### Using the iona.properties file

Setting system properties `org.omg.CORBA.ORBClass` and `org.omg.CORBA.ORBSingletonClass` in the `iona.properties` file is the preferred way to configure your JDK to use the Orbix ORB runtime.

**Location of the iona.properties file**

The `iona.properties` file is located in the `JDKHome/jre/lib` directory, where `JDKHome` is the JDK root directory.

**Contents of the iona.properties file**

The `iona.properties` file should contain the following two lines of text:

```properties
org.omg.CORBA.ORBClass=com.iona.corba.art.artimpl.ORBImpl
org.omg.CORBA.ORBSingletonClass=com.iona.corba.art.artimpl.ORBSingleton
```

The first line sets `org.omg.CORBA.ORBClass` to the name of a class that implements `org.omg.CORBA.ORB`. 
The second line sets `org.omg.CORBA.ORBSingletonClass` to the name of a class that implements the static ORB instance returned from `org.omg.CORBA.ORB.init()` (taking no arguments).

**WARNING:** By setting system properties `org.omg.CORBA.ORBClass` and `org.omg.CORBA.ORBSingletonClass` in the `iona.properties` file, as detailed above, you effectively specify the Orbix ORB classes as the ORB runtime for the JDK. This might affect other applications that use the same JDK but want to use different ORB classes—if this is the case, you should consider using one of the alternative mechanisms for setting ORB properties, given in the following sub-sections.

**Using Java interpreter arguments**

You can use the `-Dproperty_name=property_value` option on the Java Interpreter to specify the `org.omg.CORBA.ORBClass` and `org.omg.CORBA.ORBSingletonClass` properties. For example, to set the ORB properties for an `orbix_app` Orbix application:

```
java
-Dorg.omg.CORBA.ORBClass=com.iona.corba.art.artimpl.ORBImpl
-Dorg.omg.CORBA.ORBSingletonClass=com.iona.corba.art.artimpl.ORBSingleton
orbix_app
```
Setting Your Classpath

Overview

Before building any Orbix Java server or client application, you must ensure that your classpath is configured appropriately for the Orbix features that you wish to use.

Basic Orbix classpath settings

The basic Orbix JAR files that must be included on your classpath are as follows:

- `OrbixInstallDir/lib/art/omg/1.3/omg.jar`
- `OrbixInstallDir/lib/art/1.3/art.jar`

Windows

For example, on Windows, the following command adds these JAR files to your classpath:

- `set CLASSPATH=%CLASSPATH%;%IT_PRODUCT_DIR%/lib/art/omg/1.3/omg.jar; %IT_PRODUCT_DIR%/lib/art/1.3/art.jar`

UNIX

For example, on UNIX, the following command adds these JAR files to your classpath:

- `export CLASSPATH=$CLASSPATH:$IT_PRODUCT_DIR/lib/art/omg/1.3/omg.jar: $IT_PRODUCT_DIR/lib/art/1.3/art.jar`

Classpath settings for Orbix features

Other Orbix JAR files might also need to be included on your classpath, depending on which Orbix features your application is using (for example, the naming service or notification service). The following list of JAR files shows typical Orbix features that you may wish to include on your classpath:

- `OrbixInstallDir/lib/platform/java_poa/1.3/poa.jar`
- `OrbixInstallDir/lib/corba/idlgen/5.3/it_genie.jar`
- `OrbixInstallDir/lib/platform/naming_service/1.3/naming.jar`
- `OrbixInstallDir/lib/platform/lease/1.3/lease.jar`
Setting Your Classpath

**Windows**

For example, on Windows, the following command adds the naming service JAR file to your classpath:

```
set CLASSPATH=%CLASSPATH%;%IT_PRODUCT_DIR%/lib/platform/naming_service/1.3/naming.jar;
```

**UNIX**

For example, on UNIX, the following command adds the naming service JAR file to your classpath:

```
export CLASSPATH=$CLASSPATH:$IT_PRODUCT_DIR/lib/platform/naming_service/1.3/naming.jar
```

**Note:** The following Orbix JAR file should not be included in your build classpath: `OrbixInstallDir/asp/6.3/lib/asp-corba.jar`
Hello World Example

This chapter shows how to create, build, and run a complete client/server demonstration with the help of the CORBA code generation toolkit. The architecture of this example system is shown in Figure 9.

Figure 9: Client makes a single operation call on a server

The client and server applications communicate with each other using the Internet Inter-ORB Protocol (IIOP), which sits on top of TCP/IP. When a client invokes a remote operation, a request message is sent from the client to the server. When the operation returns, a reply message containing its return values is sent back to the client. This completes a single remote CORBA invocation.

All interaction between the client and server is mediated via a set of IDL declarations. The IDL for the Hello World! application is:

```idl
interface Hello {
    string getGreeting();
};
```

The IDL declares a single Hello interface, which exposes a single operation `getGreeting()`. This declaration provides a language neutral interface to CORBA objects of type Hello.

The concrete implementation of the Hello CORBA object is written in Java and is provided by the server application. The server could create multiple instances of Hello objects if required. However, the generated code generates only one Hello object.
The client application has to locate the Hello object—it does this by reading a stringified object reference from the file Hello.ref. There is one operation getGreeting() defined on the Hello interface. The client invokes this operation and exits.
Development from the Command Line

Starting point code for CORBA client and server applications can be generated using the idlgen command line utility.

The idlgen utility can be used on Windows and UNIX platforms.

You implement the Hello World! application with the following steps:

1. Define the IDL interface, Hello.
2. Generate starting point code.
3. Complete the server program by implementing the single IDL getGreeting() operation.
4. Complete the client program by inserting a line of code to invoke the getGreeting() operation.
5. Build the demonstration.
6. Run the demonstration.

---

**Define the IDL interface**

Create the IDL file for the Hello World! application. First of all, make a directory to hold the example code:

**Windows**

```bash
> mkdir C:\OCGT\HelloExample
```

**UNIX**

```bash
% mkdir -p OCGT/HelloExample
```

Create an IDL file C:\OCGT\HelloExample\hello.idl (Windows) or OCGT/HelloExample/hello.idl (UNIX) using a text editor.

Enter the following text into the file hello.idl:

```idl
//IDL
interface Hello {
    string getGreeting();
};
```

This interface mediates the interaction between the client and the server halves of the distributed application.
Generate starting point code

Generate files for the server and client application using the CORBA Code Generation Toolkit.

In the directory C:\OCGT\HelloExample (Windows) or OCGT/HelloExample (UNIX) enter the following command:

```
idlgen java_poa_genie.tcl -all -JP HelloExample hello.idl
```

This command logs the following output to the screen while it is generating the files:

```
hello.idl:
 java_poa_genie.tcl: creating idlgen/RandomFuncs.java
 java_poa_genie.tcl: creating idlgen/HelloExample/RandomHello.java
 java_poa_genie.tcl: creating idlgen/HelloExample/HelloExample.java
 java_poa_genie.tcl: creating HelloExample/HelloCaller.java
 java_poa_genie.tcl: creating HelloExample/client.java
 java_poa_genie.tcl: creating HelloExample/HelloImpl.java
 java_poa_genie.tcl: creating HelloExample/server.java
 java_poa_genie.tcl: creating build.xml
```

You can edit the following files to customize client and server applications:

**Client:**

HelloExample/client.java

**Server:**

HelloExample/server.java
HelloExample/HelloImpl.java

Complete the server program

Complete the implementation class, HelloImpl, by providing the definition of the `HelloImpl.getGreeting()` method. This Java method provides the concrete realization of the `Hello::getGreeting()` IDL operation.
Edit the HelloImpl.java file, and delete most of the generated boilerplate code occupying the body of the HelloImpl.getGreeting method. Replace it with the line of code highlighted in bold font below:

```java
//Java
//File ‘HelloImpl.java’
...
public java.lang.String getGreeting()
    throws org.omg.CORBA.SystemException
{
    java.lang.String _result;

    _result = "Hello World!";

    return _result;
}
...```

Complete the client program

Complete the implementation of the client `main()` function in the `client.java` file. You must add a couple of lines of code to make a remote invocation of the `getGreeting()` operation on the Hello object.
Edit the `client.java` file and search for the line where the `HelloExample.HelloCaller.getGreeting()` method is called. Delete this line and replace it with the line of code highlighted in bold font below:

```java
//Java
//File: ‘client.java’
...
try{
...
    // Exercise interface HelloExample.Hello.
    //
    tmp_ref = read_reference("Hello.ref");
    HelloExample.Hello Hello1 = HelloExample.HelloHelper.narrow(tmp_ref);
    System.out.println("Greeting is: " + Hello1.getGreeting());
}
catch(Exception ex){
    System.out.println("Unexpected CORBA exception: " + ex);
}
...
```

The object reference `Hello1` refers to an instance of a `Hello` object in the server application. It is already initialized for you.

A remote invocation is made by invoking `getGreeting()` on the `Hello1` object reference. The ORB automatically establishes a network connection and sends packets across the network to invoke the `HelloImpl.getGreeting()` method in the server application.

---

**Build the demonstration**

The `itant` utility—a Java-based build tool—is used to build the generated Java code. For more details about `itant`, see [http://jakarta.apache.org/ant](http://jakarta.apache.org/ant). The `itant` utility is bundled with Orbix.

The generated file `build.xml` is used to build this demonstration. This file contains the rules for building the Hello World! application in an XML format that is understood by the `itant` utility.

To build the client and server complete the following steps:

1. Open a command line window.
2. Go to the `../OCGT/HelloExample` directory.
3. Enter:

> itant

**Run the demonstration**

Run the application as follows:

1. Run the Orbix services (if required).
   
   If you have configured Orbix to use file-based configuration, no services need to run for this demonstration. Proceed to step 2.
   
   If you have configured Orbix to use configuration repository based configuration, start up the basic Orbix services.
   
   Open a DOS prompt in Windows, or `xterm` in UNIX. Enter:

   ```
   start_domain-name_services
   ```

   Where `domain-name` is the name of the configuration domain.

2. Set the Application Server Platform’s environment.

   ```
   > domain-name_env
   ```

3. Run the server program.

   Open a DOS prompt, or `xterm` window (UNIX). Enter the following command:

   ```
   itant runserver
   ```

   The server outputs the following lines to the screen:

   ```
   Buildfile: build.xml
   runserver:
   [java] Initializing the ORB
   [java] Writing stringified object reference to Hello.ref
   [java] Waiting for requests...
   ```

   The server performs the following steps when it is launched:

   * It instantiates and activates a single `Hello` CORBA object.
   * The stringified object reference for the `Hello` object is written to the local `Hello.ref` file.
The server opens an IP port and begins listening on the port for connection attempts by CORBA clients.

### 4. Run the client program.

Open a new DOS prompt, or `xterm` window (UNIX). Enter the following command:

```bash
itant runclient
```

The client outputs the following lines to the screen:

```
Buildfile: build.xml
runcient:
  [java] Reading stringified object reference from Hello.ref
Greeting is: Hello World!
Total time: 3 seconds
```

The client performs the following steps when it is run:

- It reads the stringified object reference for the `Hello` object from the `Hello.ref` file.
- It converts the stringified object reference into an object reference.
- It calls the remote `Hello::getGreeting()` operation by invoking on the object reference. This causes a connection to be established with the server and the remote invocation to be performed.

### 5. When you are finished, terminate all processes.

Shut down the server by typing `ctrl-C` in the window where it is running.

### 6. Stop the Orbix services (if they are running).

From a DOS prompt in Windows, or `xterm` in UNIX, enter:

```bash
stop_domain-name_services
```

The passing of the object reference from the server to the client in this way is suitable only for simple demonstrations. Realistic server applications use the CORBA naming service to export their object references instead.
Index

A
Application
   running 21

B
build.xml 21
building applications 21

C
classpath 14
Client
   generating 19
   implementing 20
Code generation toolkit
   idlgen utility 19

G
Genie-generated application
   package name 19

H
Hello World! example 16

J
java_poa_genie.tcl 19

O
Object reference
   passing as a string 17
ORBClass 12
org.omg.CORBA.ORBClass 12
org.omg.CORBA.ORBSingletonClass 13

P
Package name 19

S
Server
   generating 19
   implementing 19

Services 22, 23