

Release Notes

DEVELOPMENT LIBRARIES: LTK 12.0.0, SDK 5.0.0

ABOUT THIS RELEASE

These are the development libraries for Impinj RAIN RFID readers and gateways. These release notes are applicable to the following versions of the Impinj Octane Software Development Kit (SDK) and Impinj LLRP Tool Kit (LTK):

APPLICATION COMPATIBILITY

LIBRARY	VERSION
Impinj Octane .NET SDK	5.0.0
Impinj Octane Java SDK	5.0.0
.NET LTK	12.0.0
Java LTK	12.0.0
C++ LTK for Linux	12.0.0
C LTK for Linux	12.0.0
LLRP Definitions	10.54.0

FIRMWARE COMPATIBILITY

FIRMWARE	VERSION
Impinj R700 Firmware	8.4.0
Impinj Octane Firmware	7.6.1

DOCUMENT COMPATIBILITY

DOCUMENT	VERSION
Impinj R700 Installation and Operations Manual	8.4
Impinj Speedway Installation and Operations Manual	7.6
Impinj xSpan/xArray Installation and Operations Manual	7.6
Impinj Firmware Upgrade Reference Manual	8.4
Impinj RShell Reference Manual	8.4
Impinj Octane SNMP	8.4
Impinj Octane LLRP	8.4
Impinj LLRP Tool Kit (LTK) Programmers Guide	8.4
Impinj Embedded Developers Guide	8.4

NEW FEATURES AND CHANGES

LTK 12.0, SDK 5.0

- Added Enhanced Integra support to the SDK
- .NET libraries migrated to .NET 8
- Java libraries updated to Java 11
- Removal of log4j dependency, all logging will now go through slf4j.
- Added support for Impinj R700 firmware version 8.4

LTK 11.2, SDK 4.1

- Updated .NET libraries to support .NET Standard 2.1
- Added support for configuring tag filter verification LLRP extension
- Added support for Impinj R700 firmware version 8.1

LTK 11.0, SDK 4.0

- Updated Java Libraries to utilize Log4j version 2.16.0
- Updated .NET libraries to support .NET 5
- Added support for Impinj R700 firmware version 8.0
- Added TLS1.3 Support

LTK 10.46.0, SDK 3.7.0

- Added support for Impinj R700 firmware version 7.6
- Added support for Impinj Octane firmware version 7.6
- Added support for configuring tag filter verification

LTK 10.44.0, SDK 3.6

- Added support new Morocco region
- Added support for Impinj R700 Firmware version 7.5
- Added support for Impinj Octane Firmware version 7.5
- Java/.NET SDK – added support for setting a GPI debounce value of zero
- .NET SDK – added ability to set memory block for TagBlockPermalockOp

LTK 10.42.0, SDK 3.5

- Added support for gen2v2 Authenticate command
- Precompiled LTK libraries for the Impinj R700 and Speedway processors are now included in the LTK
- Added support for Impinj R700 Firmware version 7.4
- Added support for Impinj Octane Firmware version 7.4

LTK 10.36.0.2, SDK 3.3

- Added support for Impinj Octane Firmware Version 7.0

LTK 10.36.0, SDK 3.2

- Support for Impinj R700 Reader
- Support Impinj R700 Firmware Version 7.0.0

LTK 10.34.0, SDK 3.0

- Support for Octane 6.0 and Rev. 6 hardware
- Support for the higher band ETSI frequencies and transmit powers
- The Java LTK and SDK is now built with AdoptOpenJDK 8 due to a change in Oracle's licensing terms

LTK 10.32.0, SDK 1.32.0

- Java: Tag decoding performance is now up to 11x faster than previous releases
- Java: The library now supports Java 8
- Java: TagReportListenerImplementation in the samples now reports phase angle
- Java: Fixed an issue where calling "applySettings" twice may result in a lost connection error.
- Other libraries are unchanged for this release.

LTK 10.30.0, SDK 1.30.0/2.30.0

- .NET SDK - QueryStatus() no longer fails with xSpans
- LTK C/C++ - Properly clean up socket after failing to connect to an invalid hostname or ip address
- LTK C/C++ - Fixed memory leak when connecting to a reader using TLS.
- .NET LTK/SDK - Now supports .NET Standard 2.0 – See <https://docs.microsoft.com/en-us/dotnet/standard/net-standard> for more information
- .NET SDK - Zero-length EPCs are now an empty object instead of null.
- .NET SDK - Correctly display an error message when applying an invalid configuration to a spatial reader.
- .NET SDK - Settings class and associated types now support INotifyPropertyChanged interface and Group types additionally implement INotifyCollectionChanged interface.
- .NET SDK - Updated some samples.
- Java/.NET SDK - Reduced Power Frequency List is now available
- Java/.NET SDK - Reader Modes supported by the connected reader are now available from the feature set
- Java/.NET SDK – TagModelDetails now supports detecting Monza R6-A tags.
- Java LTK – Fixed an issue where Mina network handles may leak if you terminate your connection with a reader by sending the CLOSE_CONNECTION message prior to calling LLRPCConnector.disconnect().

LTK 10.28.0, SDK 1.28.0/2.28.0

- Added support for the Speedway R120 Reader
- Added SSH support to RShell in the SDKs
- Added IPv6 support to RShell in the SDKs
- Exposed antenna polarization control in the Java SDK via the "enablePolarizationControl" method under AntennaConfigGroup
- Added Search Mode 6, "Dual Target B to A Select"
- Fixed an issue where the querySettings function in the SDKs would not correctly populate all available data in the returned Settings object, especially in Location scenarios.
- .NET LTK and SDK are now available at <https://www.nuget.org/>
- Java libraries require Java 1.7 or newer.
- Microsoft .NET libraries require .NET Framework 4.6.1 or newer with Visual Studio 2013 or later.
- Other minor bug fixes and performance improvements

FIXED ISSUES

LTK 11.2, SDK 4.1

- Removed all references to log4j 1.X in Java SDK

LTK 10.46.0, SDK 3.7.0

- .NET LTK/SDK - Fixed to handle exception on LLRPCClient.Open in case of invalid port specified
- .NET SDK - Resolved issue with setting MaxTxPower for an antenna
- .NET SDK - Settings object returned by QuerySettings now includes the fixed transmit frequencies
- .NET SDK - Removed constraint of even hexa characters in filter masks

LTK 10.44.0, SDK 3.6

- .NET SDK - Fixed bug where OpSpecId was not getting set properly

LTK 10.34.0, SDK 3.0

- Bug fixes and performance improvements

SDK 1.26.2

- Fixed a Java SDK issue that resulted in a failure when the "PolarizationControlEnabled" parameter was used with Speedway readers. This parameter is only supported on xArray and xSpan gateways.

LTK 10.26.1, SDK 1.26.1/2.26.1

- Bug fixes and performance improvements

LTK 10.26.0, SDK 1.26.0/2.26.0

- Added IPv6 support to all libraries
 - Octane .NET SDK
 - Octane Java SDK
 - .NET LTK
 - Java LTK
 - C++ LTK for Win32
 - C++ LTK for Linux
 - C LTK for Linux
- Moved .NET LTK and .NET SDK to .NET Framework version 4.6.1
- Removed *xArrayLocationWarn* SDK example

LTK 10.24.1, SDK 1.24.1/2.24.1

- New *SingleTargetReset* search mode. Used in combination with *SingleTarget* inventory to speed the completion of an inventory round by setting tags in B state back to A state.
- New *SpatialConfig* class. Used with xSpan and xArray gateways to configure Direction Mode. Used with the xArray gateway to configure Location Mode.
- New *AntennaUtilities* class. Used to provide an easier method of selecting xSpan and xArray antenna beams by rings and sectors.
- New *ImpinjMarginRead* class. Used to check if Monza 6 tag IC memory cells are fully charged, providing an additional measure of confidence in how well the tag has been encoded.
- Removed *xArrayLocationMulti* SDK example

LTK 10.22.0, SDK 1.22.0/2.22.0

- All LTKs and SDKs now support connecting to readers over a secured connection. Please see the library-specific documentation for more information on how to make your application take advantage of this new feature.
- All LTKs and SDKs now support Octane's new "Direction" feature for xArray. Please see the library-specific documentation for more information on how to use this new functionality.

- The Java LTK has upgraded the version of Mina it uses to 2.0.9 (up from 1.1.7)
- For xArray-based applications using the SDK, transmit power can now be set inside of the LocationConfig object.
- Two new reader modes are now exposed in the SDK: AutoSetStaticFast and AutoSetStaticDRM. Please see the appropriate SDK's documentation for more information on what these modes do.
- All C and C++ LTKs now rely on the OpenSSL Libraries for network communication. For the Win32 LTK, a copy of libeay32.dll and ssleay32.dll are provided. For the Linux C/C++ LTKs, libraries are only provided for the Atmel architecture to enable linking for on-reader apps. Libraries for other architectures running Linux are not provided as they should already be available from your Linux distribution.
- For the C, C++ for Linux, and C++ for Windows libraries, we implemented a fix for non-blocking network communication for unencrypted (traditional) connections to the reader. However, if a user is attempting to connect over a TLS-encrypted connection, non-blocking calls to recvMessage are still not supported

KNOWN ISSUES

- Installation of the .NET SDK via the NuGet plugin in Visual Studio 2012 will fail with the following message: "SSH.NET" already has a defined dependency on 'SshNet.Security.Cryptography'" (See <https://github.com/sshneth/SSH.NET/issues/82>)
 - Workaround: Use Visual Studio 2013+ or manually download and reference the assemblies for the OctaneSDK and SSH.NET and SshNet.Security.Cryptography NuGet packages. The .NET LTK does not have a dependency on SSH.NET and thus is not affected by this issue.

LICENSES

OpenSSL is an open source project subject to the following license:

=====

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) 1998-2011 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 adhered 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).

Copyright 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 acknowledgement:

"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 MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The license and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution license [including the GNU Public License.]

NOTICES

Copyright © 2021, Impinj, Inc. All rights reserved.

Impinj gives no representation or warranty, express or implied, for accuracy or reliability of information in this document. Impinj reserves the right to change its products and services and this information at any time without notice.

EXCEPT AS PROVIDED IN IMPINJ'S TERMS AND CONDITIONS OF SALE (OR AS OTHERWISE AGREED IN A VALID WRITTEN INDIVIDUAL AGREEMENT WITH IMPINJ), IMPINJ ASSUMES NO LIABILITY WHATSOEVER AND IMPINJ DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATED TO SALE AND/OR USE OF IMPINJ PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT.



NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY PATENT, COPYRIGHT, MASKWORK RIGHT, OR OTHER INTELLECTUALPROPERTY RIGHT IS GRANTED BY THIS DOCUMENT.

Impinj assumes no liability for applications assistance or customer product design. Customers should provide adequate design and operating safeguards to minimize risks.

Impinj products are not designed, warranted or authorized for use in any product or application where a malfunction may reasonably be expected to cause personal injury or death or property or environmental damage ("hazardous uses") or for use in automotive environments. Customers must indemnify Impinj against any damages arising out of the use of Impinj products in any hazardous or automotive uses.

Impinj, Monza, Speedway, xArray are trademarks or registered trademarks of Impinj, Inc. All other product or service names are trademarks of their respective companies. For a complete list of Impinj Trademarks visit: www.impinj.com/trademarks

The products referenced in this document may be covered by one or more U.S. patents. See www.impinj.com/patents for details.