

Merge DICOM Toolkit™

5.16.0

Release Notes

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Symbols Glossary:

Symbol

Title



Manufacturer



Consult Instructions for Use

The full symbols glossary can be viewed at https://www.merative.com/content/dam/merative/documents/brief/Merge_Healthcare_Symbols_Glossary.pdf.

For application support or to report issues with user documentation, contact Customer Support:

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Part	Date	Revision	Description
COM-5276	January 2023	1.0	Updated bi-annually
	January 2023	2.0	Added COM-5403 to Fixed Issues list

The latest version of this document can be found at <https://mergecustomerforce.com/mergeusercommunity/login>.

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Chapter 1. About the Application

The Merge DICOM Toolkit provides a powerful and simplified interface to DICOM. It allows you to focus on the important details of your application and the immediate needs of your end users, rather than the complex details of the DICOM standard.

WARNING: If using the log feature to log information to a file, Personal Health Information (PHI) may be exposed. Client application and system should be aware of this risk and take necessary procedures to prevent and identify unauthorized use or access to PHI.

This release includes the following toolkits:

Merge DICOM Toolkits	Target Development Environment
Merge DICOM Toolkit – C/C++ Toolkit V5.16.0	32-Bit Windows – Visual C++
	64-Bit Windows – Visual C++
	64-Bit Windows (New Edition) – VS 2019
	32-Bit Windows – Borland
	32-Bit – Linux on Intel x86
	64-Bit – Linux on Intel x86_64
	64-Bit – Linux on Intel x86_64 (New Edition) GCC 9.4.0
	64-Bit – Linux on ARMv8
	32-Bit – Solaris 10 on Intel x86 – GCC Compiler
	64-Bit – Solaris 10 on Intel x86_64 – GCC Compiler
	32-Bit – Solaris 8 Sparc – Sun Compiler
	32-Bit – Solaris 8 Sparc – GCC Compiler
	32-Bit – MAC OS on Intel and Power PC
	64-Bit – MAC OS on Intel
	64-Bit – macOS on Intel and M1 (New Edition)
	32-Bit Android on Armv7
	64-Bit Android on Armv8
	64-Bit iOS
Merge DICOM Toolkit – .NET Framework 2.0/C# Toolkit V5.16.0	32-Bit Windows
	64-Bit Windows

Merge DICOM Toolkits	Target Development Environment
Merge DICOM Toolkit – .NET Framework 4.5/C# Toolkit V5.16.0	64–Bit Windows
Merge DICOM Toolkit – .NET Framework 4.8/C# Toolkit V5.16.0	64–Bit Windows
Merge DICOM Toolkit – .NET Core/C# Toolkit V5.16.0	64–Bit Windows
	64–Bit Linux
Merge DICOM Toolkit – .NET 5/C# Toolkit V5.16.0	64–Bit Windows
	64–Bit Linux
Merge DICOM Toolkit – Java Toolkit V5.16.0	Windows, Solaris, Linux, Android, Mac OS X
Merge DICOM Toolkit – Python Toolkit V5.16.0	64–Bit Windows
	64–Bit Linux

This release includes the following:

- [CHAPTER 2. ENHANCEMENTS ON PAGE 6](#)
- [CHAPTER 3. FIXED ISSUES ON PAGE 9](#)
- [CHAPTER 4. KNOWN ISSUES ON PAGE 10](#)

Chapter 2. Enhancements

NOTE: Supplements and change proposals apply to all toolkits.

This release adds support for the following DICOM supplements.

Supplement	Title
223	Repository Query, Inventory IOD, and Related Services
225	Multi-Fragment Video Transfer
227	Ultrasound Shear Wave Elastography Structured Report

This release also contains updates to the DICOM standard. It addresses the following correction proposals (CP):

CP#	Title
2062	Add Device UID to Contributing Equipment Sequence
2064	Code to reference a contributing processing algorithm
2113	Update Specific Character Set defined terms, descriptions and references
2144	Cleanup PS3.17 section AA to refer to IHE REM profile and figures
2148	Clarify audit trail messages
2162	Clarification of waveform filter attributes
2166	Update DICOM to reflect changes in IHTSDO SNOMED CT-DICOM Subset for JUL 2021 INT Release
2168	Abbreviated spelling of "SR Document IE"
2173	KOS Current Requested Procedure Evidence Sequence
2174	Clarify Photometric Interpretation of Legacy Converted images
2175	Correction of invalid module references in Softcopy Presentation State IODs
2176	Add Category of Finding to TID 1500
2177	Add Specimen Module to Microscopy Bulk Simple Annotations
2178	Clarify Microscopy Bulk Simple Annotations Coordinate Units
2180	Add Anatomy to Microscopy Bulk Simple Annotations
2181	Add keywords for Context Groups in PS3.16
2182	Simplification of RT ROI Observations
2183	Add used ROI to Registration
2184	Add Conceptual Volume to Structure Set

CP#	Title
2186	Cleanup of Planning Risk Volume Code
2187	Describe usage of Configuration and Commissioning Keys To Radiation Generation Mode Macro
2188	Restore RESTful WebServices use case examples
2190	Clarify meaning of "supported" Optional Keys in PS3.4 and PS3.18
2191	Correct errors in Audit Message example in Part 17
2192	Add digital certificate to de-identification profile
2193	Add Encapsulated Document to de-identification profile

In addition to updating the toolkit to reflect changes to the DICOM standard, this release also contains the following enhancements:

NOTE: Issue numbers can be used to request additional information from your account representative.

Issue	Description
COM-4849	Add support for the Latin 9 ISO 8859-51 (or ISO IR 203) character set as per CP-2113. <i>This enhancement applies to all Merge DICOM Toolkits.</i>
COM-4995	Introduce new edition of the toolkit for 64-bit macOS, whose distribution includes universal binaries for Apple silicon (M1) and Intel-based (x64) architectures. This edition of the toolkit is compiled with Apple clang version 14.0.0 (clang-1400.0.29.102) and incorporates support for: <ul style="list-style-type: none"> • ICU4C v70.1.0 (for DICOM to/from Unicode conversions) • libxml2 v2.10.2 (for DICOM to/from XML conversions) • jansson 2.14 (DICOM to/from JSON conversions) <i>This enhancement applies to the Merge DICOM C/C++ Toolkit.</i>
COM-5006	Upgrade the DICOM to/from JSON conversion library jansson from v2.7 to v2.14 for the new editions of the toolkit for 64-bit Windows and 64-bit Linux. <i>This enhancement applies to the Merge DICOM C/C++ Toolkit.</i>
COM-5172	Enable SSL samples to use TLS 1.3 protocol by default on platforms where it is supported (e.g., Windows Server 2022, Windows 11) and TLS 1.2 everywhere else. <i>This enhancement applies to the Merge DICOM .NET/.NET Core/.NET 5 Toolkits.</i>
COM-5216	Port the .NET toolkit Web Services implementation to the toolkit edition targeting the .NET 4.8 Framework. <i>This enhancement applies to the Merge DICOM C/C++.NET Toolkit.</i>
COM-5217	Add support for WADO-RS Web Services. Add support for WADO-URI Web Services. Add support for QIDO-RS Web Services. Add support for STOW-RS Web Services. <i>This enhancement applies to the Merge DICOM Python Toolkit.</i>

Issue	Description
COM-5222	Upgrade the DICOM to/from XML conversion library libxml2 from v2.9.10 to v2.10.2 for the new editions of the toolkit for 64-bit Windows and 64-bit Linux. <i>This enhancement applies to the Merge DICOM C/C++ Toolkit.</i>

Chapter 3. Fixed Issues

The following table lists the issues that have been fixed in this release.

NOTE: Issue numbers can be used to request additional information from your account representative.

Issue	Description
COM-5295	Fix issue where the following functions, although documented in the reference manual, were missing from the exports in the Windows toolkits: <ul style="list-style-type: none">● MC_Get_pValue_To_UnicodeString● MC_Get_Next_pValue_To_UnicodeString● MC_Set_pValue_From_UnicodeString● MC_Set_Next_pValue_From_UnicodeString <i>This update applies to the Merge DICOM C/C++ Toolkit.</i>
COM-5340	Fix issue where private attributes of user message template extension were not processed on DICOM message validation. <i>This update applies to all Merge DICOM Toolkits.</i>
COM-5403	Fix issue where the recently introduced General Acquisition Module (CP-2135) was missing from a number of IODs in the message information database. <i>This update applies to all Merge DICOM Toolkits.</i>

Chapter 4. Known Issues

The following table lists the issues that have been identified, but not fixed, in this release.

NOTE: Issue numbers can be used to request additional information from your account representative.

Issue	Description
COM-5292	License validation fails if the expiration date is set beyond 2038 (Permanent licenses with no expiration date are not affected). <i>This update applies to all Merge DICOM Toolkits.</i>