DICOS 2A Status

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ADSA15

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DICOS Version 2A Update

- History: DICOS v02 was released 2011 and began being used.
  - TSA put OEMs under contract for CGUI development
  - Development of a DICOS SDK and toolkit by Stratovan
- As expected deficiencies in the standard were discovered.
  - Revision 2A incorporates recommendations and resolves issues raised by the OEMs and third party algorithm implementers.
- DICOS v02A is currently under development and OEM participation is imperative.
  - There is no NEMA membership fee for DICOS v02A participation.
  - Work done by NEMA, interested OEMs and third parties.
  - Forecasting a December 2016 release of v02A.
- Contact me at stephens@gstpa.com or stephen.skrzypkowiak@tsa.dhs.gov if you would like to assist or contribute with this version.

Backup

DICOS SDK Overview

DICOS Toolkit/SDK Architecture and Design Quick Overview

DICOS Toolkit Contents
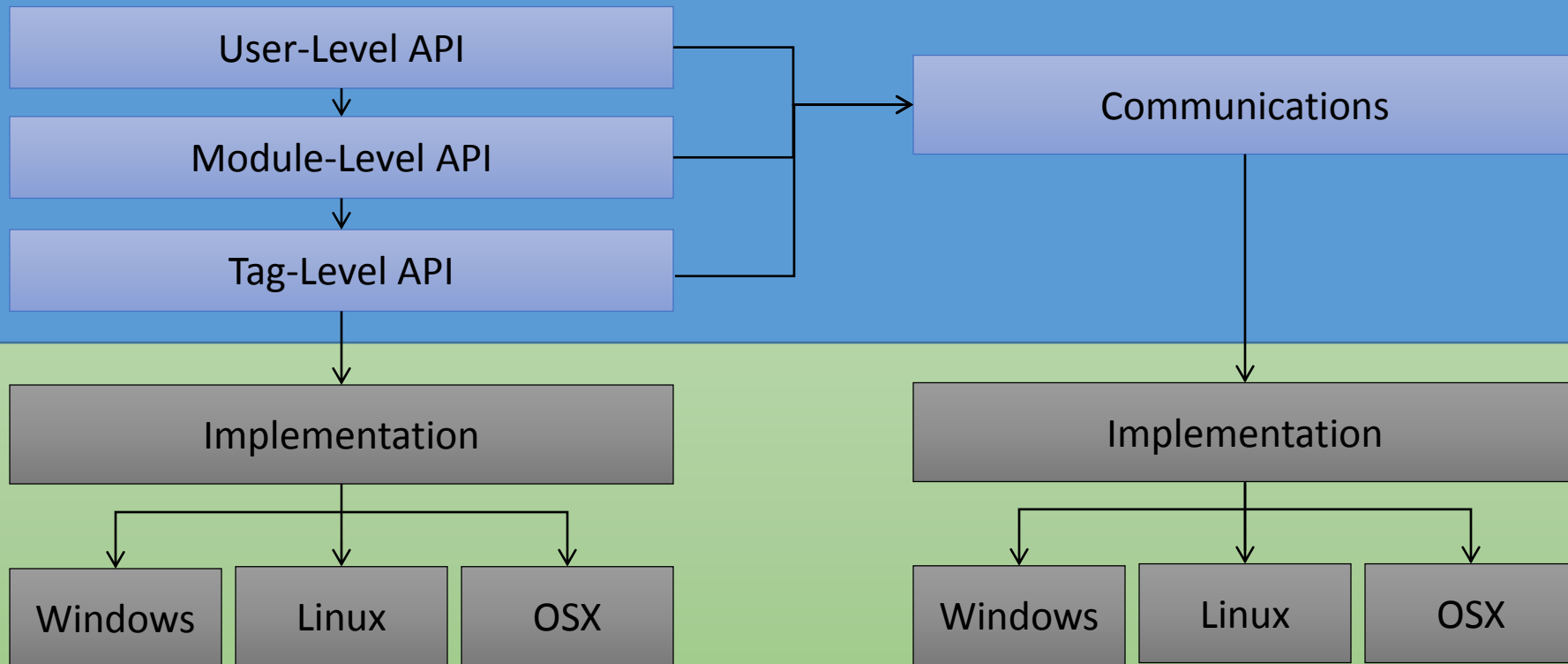
- DICOS Library Toolkit
  - User-Level, Module-Level, and Tag-level API headers (designed to address the various levels of DICOS expertise by the implementers)
  - Static and shared libraries (Windows/Linux)
  - Verification Tools provided – Compliance testing executable and basic DICOS Viewer
  - User guide, API docs, examples, FAQ

Supported Operating Systems

- Microsoft Windows
  - 7, 8, 8.1, Server 2012 r2

- Mac OSX
  - Lion (10.7), Mountain Lion (10.8), Mavericks (10.9)

- Linux
  - Fedora: versions 14 through 20
  - Scientific: versions 6.0 through 6.5

✓Both 32 and 64 bit versions of each OS.

API Library Architecture

Public User Interface

User-Level API

Module-Level API

Tag-Level API

Communications

Implementation

Implementation

Windows | Linux | OSX

Windows | Linux | OSX

Hidden From User

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Three API Design Basis

- API's allow for various levels of detail that toolkit users can choose from depending on the level of the implementer's DICOS expertise
  - **User Level API (most commonly used)**
    - Allows users to interface with the toolkit without needing to know the DICOS specification (i.e. tags, VR, etc.)
    - Provides required and conditional tag validation
  - **Module Level APIs**
    - Allows users to interface with the toolkit without needing to know attribute tags and VR's
    - Requires users to know the DICOS specification's module hierarchy.
    - Provides required and conditional tag validation
  - **Tag Level APIs**
    - Requires users to know the DICOS specification
    - Allows users to interface with the toolkit using tags
    - Allows direct manipulation of tags
    - Does not provide required and conditional tag validation

API Architectural Approach

- **User-Level**
  - Represents simplified device outputs for CT, DX, AIT2D, AIT3D, QR, TDR
    - Excludes several optional attributes
  - Internally uses module-level API for file reading/writing and network transmission

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API Architectural Approach Cont.

- **Module-Level**
  - Represents device output: CT, DX, AIT, QR, TDR
  - Comprised of low-level modules and device specialized modules
    - o Device specialized modules provide restrictions or expansions to low-level modules
    - o Each module provides access to all the low-level modules either through inherited functions or passing low level modules as parameters

API Architectural Approach Cont

- **Tag-Level**
  - Provide direct access to table specific DICOS tags through module function calls
    - o Example: The TIP (Threat Image Projection) Image module only provides access to the tags listed within table 80 of the DICOS specification. TIP only consists of a single tag, TIP Type (4010, 1039), which has 2 defined enumerations. These enumerations are represented as C++ enumerations encapsulated within the TIP Image module C++ class object. The 'set' function only accepts these enumerations as inputs, the one 'get' function returns the C++ enumeration, and a second 'get' function returns the enumeration as a string.
  - Provide access to DICOS tags without using modules
    - o An attribute manager stores all the tags after they are read from file or received across a network. Providing a group number and element number to the appropriate 'FindAttribute' function will retrieve the tag as an attribute object
      - • An attribute object represents a specific VR with functions that extracts the tag data according to the VR. The attribute object consists of the group number, element number, VR, data size, and data
    - o The attribute manager can also be filled out by passing attribute objects as parameters to the 'SetAttribute' functions. The attribute manager can then write the tags to file or send them across a network.

12/19/2016

DICOS Compliance and Certification

DICOS Toolkit

Stratovan DICOS SDK Class Interfaces and Architecture

Main Page   **Related Pages**   **Namespaces**   **Classes**   **Files**

Q▾ Search

v0.1

Introduction

The **Digital Imaging and Communications in Security (DICOS)** standard is an adaptation of the **Digital Imaging and Communications in Medicine (DICOM)** standard for security screening applications.

The Stratovan DICOS Toolkit consists of a software library and tools that implements the NEMA DICOS Standard v02. The Toolkit is support on Windows, Linux and Mac operating systems.

Downloading the Stratovan DICOS Toolkit:

- The Stratovan DICOS Toolkit is available here https://www.stratovan.com/products/dicos-toolkit

Documentation

- **Stratovan DICOS Toolkit User Guide**

Conformance Testing

Conformance Testing is the process of verifying that DICOS files generated by Stratovan DICOS Toolkit users or other DICOS implementations adhere to the DICOS specification and to any additional sets of rules that a 3rd party may with to apply.

The Conformance Testing Suite included in the Stratovan DICOS Toolkit is a set of programs used to display the contents of DICOS files and to determine if DICOS files conform to the NEMA DICOS Specification.

- **DICOS Conformance Testing Suite**

Examples and Sample Code

- **Examples and Sample Code**

DICOS Integration Tutorial

- A detailed tutorial is available through Stratovan

- Stratovan can be reached at:
  - www.stratovan.com
  - (530)-746-7970
    - Contact: David Hinojosa (hinojosa@stratoan.com)

Thank You!