



Digitizing IG's: Computable Artifacts Supporting Efficient Data Exchange

Christine Miner

Health Scientist (Informatics)

Centers for Disease Control and Prevention

Caroline Rosin

Senior Software Engineer

National Institute for Standards and Technology

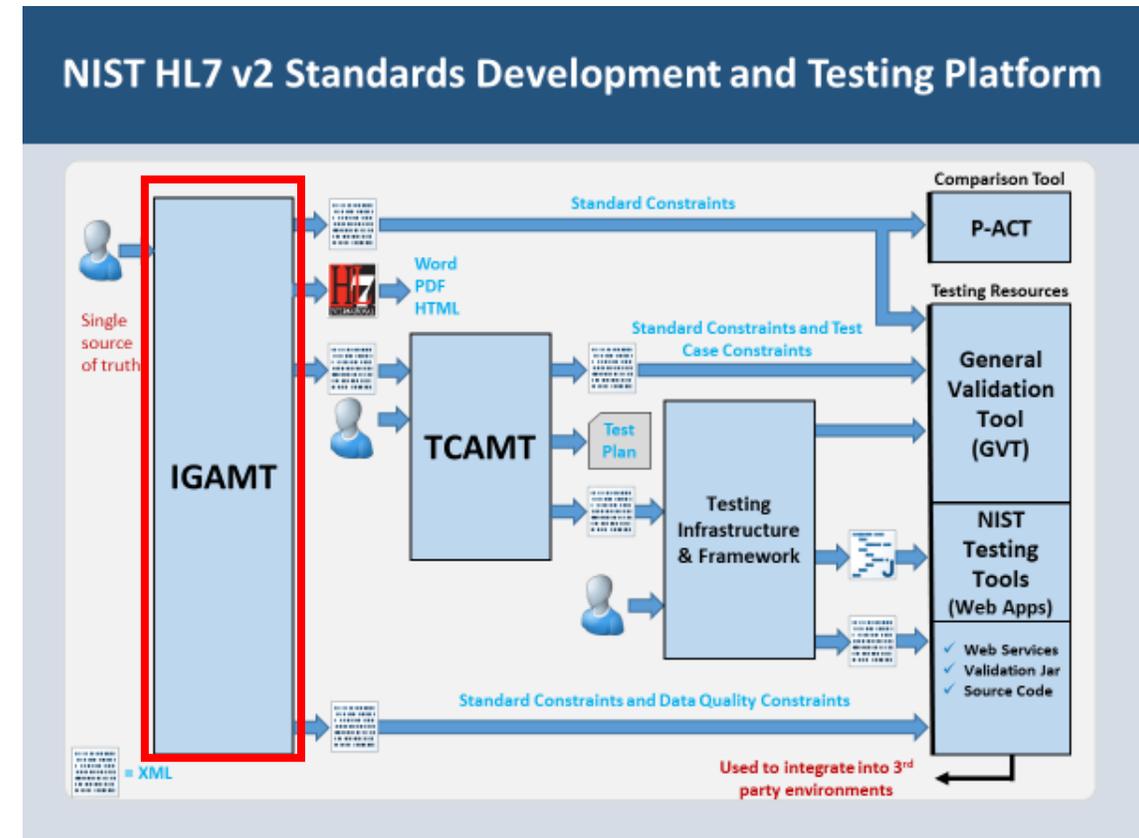
2022 AIRA National Meeting

Introduction

- The Centers for Disease Control and Prevention (CDC), in collaboration with the National Institute for Standards and Technology (NIST) and the American Immunization Registry Association (AIRA), formed a working group to digitize the v2.5.1 *Implementation Guide for Immunization Messaging* (National IG), using NIST's Implementation Guide and Authoring Management Tool (IGAMT)
- The goal is to use NIST tooling to digitize all local Implementation Guides (IGs), or IGs developed by Immunization Information Systems (IIS) to:
 - Increase standardization across local IGs by developing and using the Profile-Aggregate Comparison Tool (P-ACT)
 - Use the General Validation Tool (GVT) to validate test message adherence to local standards when onboarding providers to IIS
- The process involved group discussions, consultation with immunization informatics experts and leveraging several reference documents related to immunization

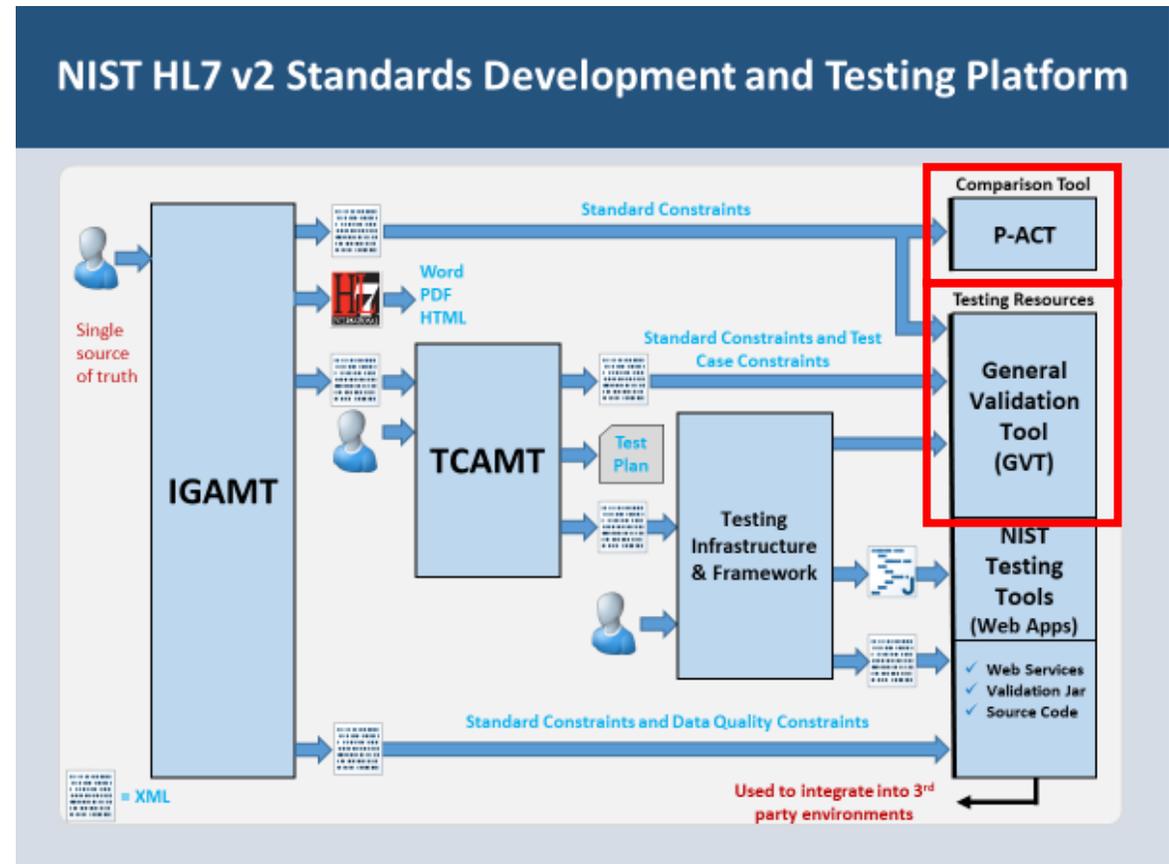
NIST HL7 End-to-end Testing Infrastructure

- IGAMT was developed by NIST and is part of the NIST HL7 v2 Standards Development and Testing Platform
 - <https://hl7v2tools.nist.gov>
- IGAMT is used to create HL7 v2 Implementation Guides with unambiguous and consistent requirement specifications
- It allows users to create both narrative text and HL7 v2 messaging requirements specifications
- The XML format of IGs generated is used as basis for the other tools from the NIST Testing suite
 - NIST General Validation Tool (GVT).
 - NIST Profile-Aggregate Comparison Tool (P-ACT)

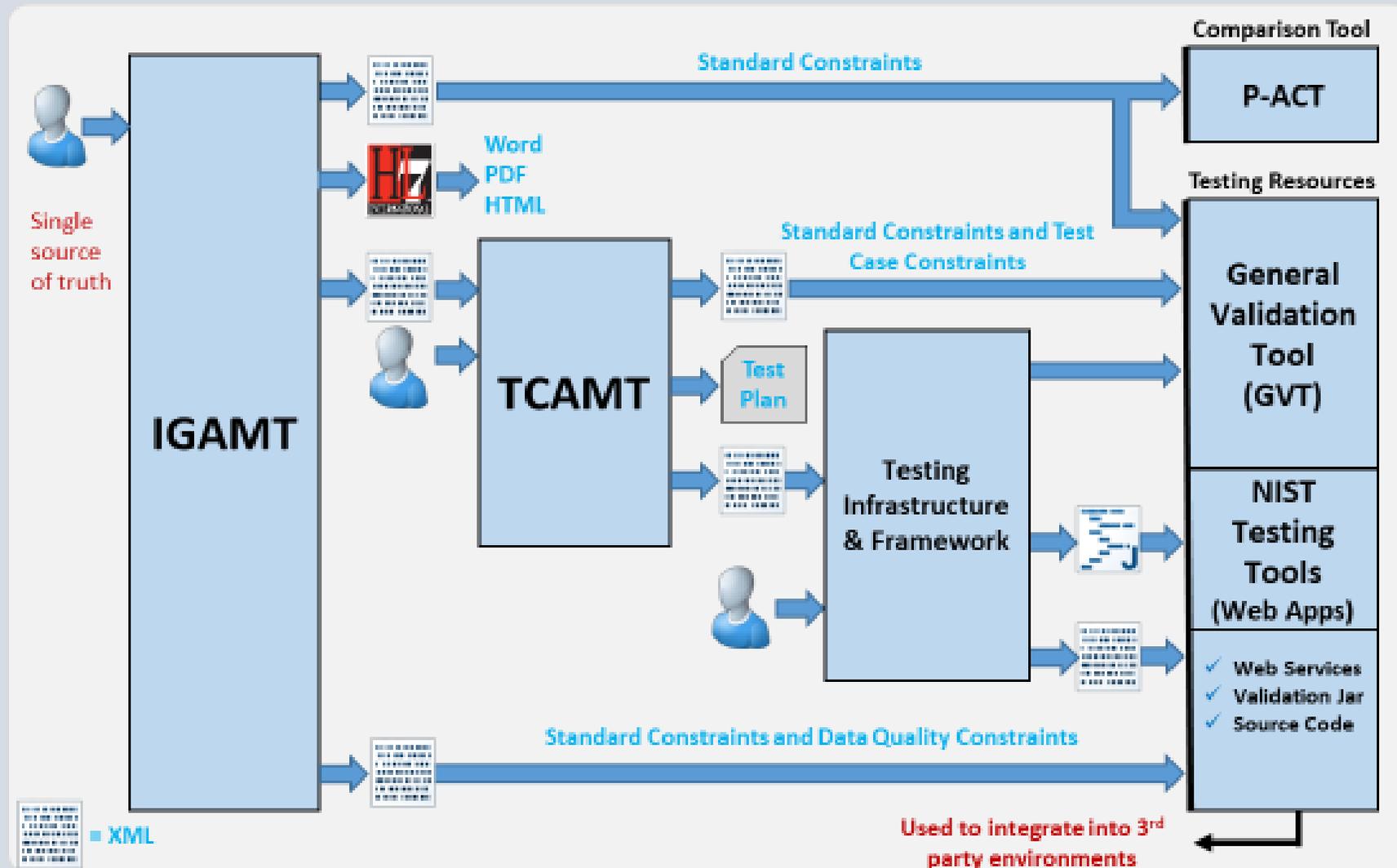


NIST HL7 End-to-end Testing Infrastructure

- P-ACT
 - As IGAMT does not summarize differences between IGs, NIST and CDC are developing P-ACT, which will produce summary reports of IG differences
 - P-ACT uses the XML version of the IGs digitized in IGAMT to perform comparisons
- GVT
 - GVT, also part of the NIST HL7 v2 Standards Development and Testing platform, provides Test Management capability that allows test tool developers to build and manage HL7 v2 testing tools to support context-free and context-based validation
 - Local IGs from IGAMT can be pushed to GVT to create a validation tool (Tool Scope), which can be exposed to the public



NIST HL7 v2 Standards Development and Testing Platform



IGAMT Entry Methodology

- In most cases entering the National IG into IGAMT was straightforward, however, some clarifications to the National IG were needed or additional information was required by IGAMT
- Clarification or additional information was added one of three ways:
 - Referring to the v2.8.2 Implementation Guide: Immunization Messaging
 - Referring to the National IG as it was entered into the ONC Immunization Test Suite
 - Discussion amongst the workgroup consisting of CDC, NIST, and AIRA
- Clarifications or additional information were documented and will be published with the IG in IGAMT
- Once published in IGAMT, the IG can be accessed and local jurisdictional IGs can be derived from it

Entering Local IGs into IGAMT

- To use NIST tooling to its fullest extent, local IGs, or IGs developed by IISs, need to be digitized
 - As mentioned before, most NIST tools use XML versions of IGs as their basis
- Since the local IGs should be based off the National IG, the digitized National IG can serve as the basis for derivation of the local IGs in IGAMT
- Once the National IG is published, CDC and AIRA will work to derive local IGs from the National IG in IGAMT
 - Jurisdictions participating in AIRA's Onboarding Shared Services (OSS) project will be prioritized as part of a pilot test of utilizing IGAMT/GVT for provider pre-onboarding testing.

Future Use: Comparing Local IGs using P-ACT

- CDC will use P-ACT to compare the digitized local IGs with the National IG
- Based on the P-ACT summary reports, differences will either be:
 - Modifiable
 - Non-modifiable due to legal or system reasons
- CDC will reach out to IIS to learn more about these differences and whether "modifiable" differences can be adjusted to increase standardization with the National IG
- Increased standardization, in turn, should increase interoperability and, thus, the ease in which vaccination administration data can be sent and received

Future Use: AIRA's Onboarding Shared Services (OSS)

- AIRA's Onboarding Shared Services team is piloting new ways to support, standardize and improve the efficiency of onboarding providers to IIS by pushing the local IGs to NIST's GVT
- By pushing local IGs from IGAMT to GVT, a validation tool (Tool Scope) will be created that will be exposed to the public
- Each Tool Scope produced will be a way of conducting conformance testing to ensure EHR developers meet local IIS standards prior to onboarding

Conclusion

- The National IG will be published in IGAMT in the coming weeks
- By publishing the National IG in IGAMT, multiple NIST tools may be used to:
 - Digitize local IGs
 - Better understand areas for increased compliance to the National IG
 - Develop testing tools to support testing against local requirements
- In turn, it is hoped that, by increasing standardization and improving testing tools, data exchange and quality will be increased nationwide

To become involved in this work:

- If you are interested in learning more about NIST's HL7 v2 Standards Development and Testing Platform, please reach out to Caroline Rosin (caroline.rosin@nist.gov)
- If you are interested in accessing the National IG when published in IGAMT, please contact Chrissy Miner (jyy8@cdc.gov) or Heather Patrick (htx7@cdc.gov)
- If you are interested in AIRA's Onboarding Shared Services project, please reach out to Sara Sanford (ssanford@immregistries.org)
- If you are interested in having your local IG digitized, please contact Chrissy Miner (jyy8@cdc.gov), Heather Patrick (htx7@cdc.gov)

Many Thanks to:

- CDC

- Heather Patrick
- Stuart Myerburg

- NIST

- Rob Snelick
- Sheryl Taylor

- AIRA

- Ezenwa Dike
- Michelle Hood
- Deepali Rastogi
- Erin Roche
- Sara Sanford

Questions?



For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

