

HL7/Healthcare Devices WG (San Diego, California)

NIST Tooling Activities

NIST
**National Institute of
Standards and Technology**
U.S. Department of Commerce

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Contacts

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Tools and Project Sites

NIST's IHE-PCD HL7 V2

- **Static ‘Instance Testing’**
Pre-/Connectathon Web site:
<http://xreg2.nist.gov:8080/PCD-HL7WebCon/>
- **Pre-Connectathon Cycle 6 (2011-12)**
‘Isolated Testing’ Coming in October...
(URL coming soon...)

MDC Testing Web site: www.nist.gov/medicaldevices

NIST Supported Test Tools Overview/Status Update

- HL7 V2 Validation (IHE-PCD)
 - Instance-type Environment (at message level)
 - <http://xreg2.nist.gov:8080/PCD-HL7WebCon/>
 - <http://hit-testing.nist.gov:8080/HL7Web/>
- Cycle 6 (2011-12)
 - Isolated-type Environment
 - Scenario based
 - Actor centric
 - One System Under Test (SUT)
- RTMMS – Rosetta Terminology Mapping Management System
 - No version available to public – yet...
- ICSGenerator (ICS = Implementation Conformance Statement)
- Next Steps and What's still needed...
 - Envelope/Message wrappers (WS, SOAP, SAML?) validation
 - Web Services

HL7 / Healthcare Devices WG (San Diego, California)

NIST Tooling: HL7 V2.6 Test Tool For Cycle 6 (2011-12)

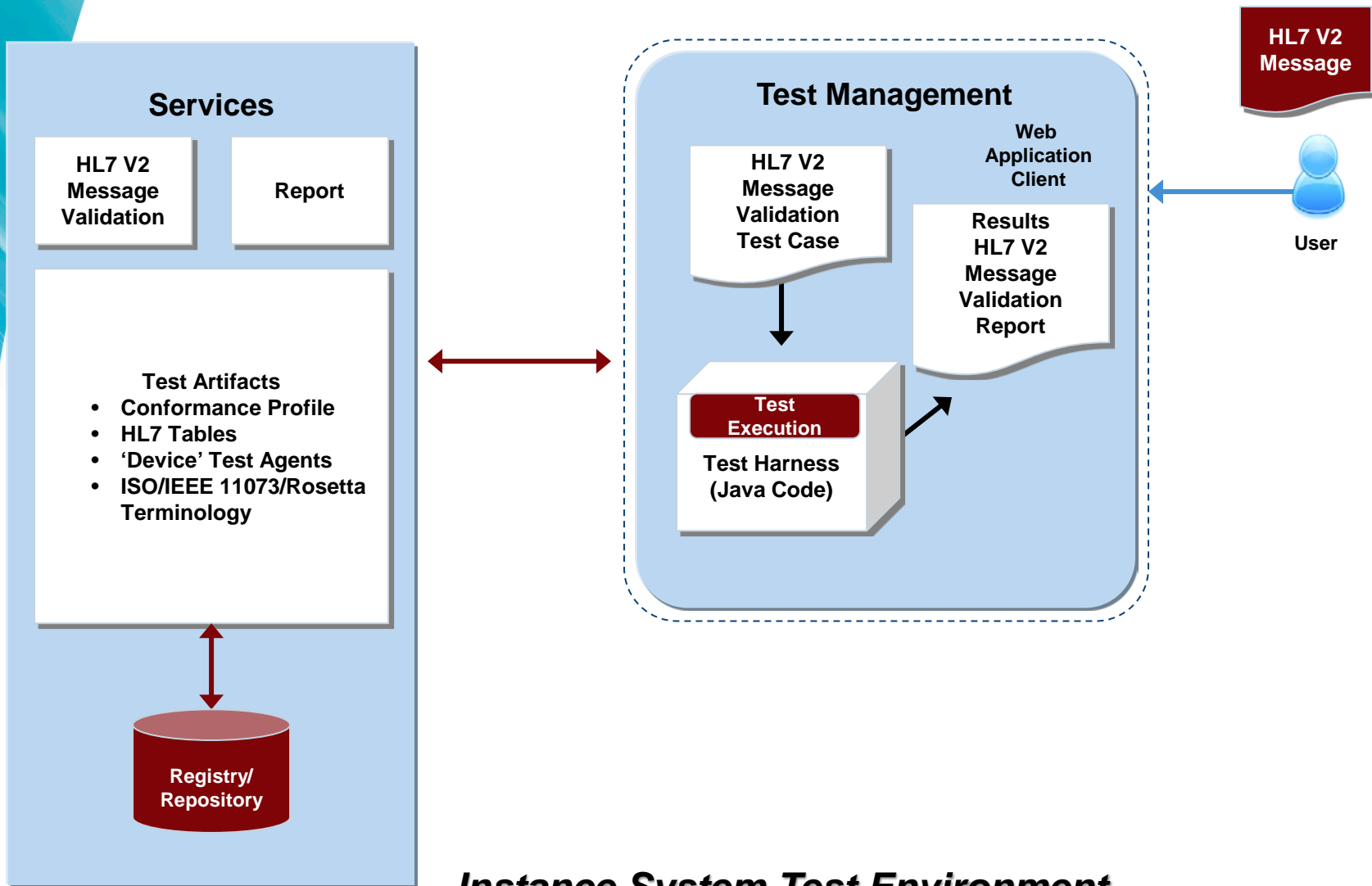
NIST
**National Institute of
Standards and Technology**
U.S. Department of Commerce

13 September, 2011

Test Environments

- Instance Testing
 - Conformance (e.g., against HL7 V2.x or CDA)
 - Implementation conforms to Spec. on which it is based
- Isolated System Testing
 - Includes *Instance Testing* Activities
 - Protocol Conformance
 - Functional Behavior Conformance
 - Features and Operational behavior correspond to Specs.
- Peer-to-Peer System Testing
 - Includes *Isolated System Testing* Activities
 - Interoperability Testing
 - Testing complete application environment
 - May include interacting w/ Database, using Network Communications, or interacting w/ other hardware, apps, or systems if appropriate

Conformance Testing of an HL7 V2 Message



Instance System Test Environment

IHE-PCD Connectathon 2011 Test Tool

NIST HL7 V2 Tools

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Home Test Case Index Message Validation Patient Demographics *Beta*

Validate Report View Errors Parse Message Configure

➤ Select the IHE profile, the actor and the transaction corresponding to the message to validate (required)

IHE Profile	Sending Actor	Transaction
DEC	DOR	PCD-01 (ORU^R01^ORU_R01)
DEC SPD option	DOC	
PIV		
ACM		
IDCO		

➤ Select the test case corresponding to the message to validate (required)

Connectathon Test Case	Step	Test Case Description
DEC_DOR_DOC_One_Patient	1	
NIST_DEC_DOR_Standalone_DOF_D		

Test Case Description

Id: DEC_DOR_DOC_One_Patient
Title: DEC DOR DOC One Patient (60001)
Steps: Step 1: DOR sends data for patient in table 2010927
 Step 2: DOC responds with ACK message (MSA-1 = "AA")

➤ Select the message to validate (required)

Browse for a message:

or Paste a message:

```
MSH|^~\&|NIST-Receiver|NIST-Sender^0012210000000001^EUI-64|DOR|NIST-Receiver|DOC|20061215111821-0600||ORU^R01^ORU_R01|36|P|2.5|||NE|AL||ASCII|EN^English^ISO659||IHE_PCD_ORU-R01|2006^HL7^2.16.840.1.113883.9.n.m^HL7|PID|||BB2009001^^^NIST^PI||Bb^Albert^^^^L||19610101|M||
```

IHE-PCD Connectathon 2011 Test Tool

NIST HL7 V2 Tools

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[Home](#) [Test Case Index](#) [Message Validation](#) [Patient Demographics *Beta*](#)

[Validate](#) [Report](#) [View Errors](#) [Parse Message](#) [Configure](#)

Test Result: **Invalid Message (Errors: 4)**

➤ [Report](#) Display: All Errors Warnings Alerts

Validation Parameters

Date: Wed May 11 23:41:16 EDT 2011

Profile	DEC
Actor	DOR
Transaction	PCD-01(ORU^R01^ORU_R01)
Test Case	DEC_DOR_DOC_One_Patient (Step 1)

IHE Supplement Syntax Validation Report

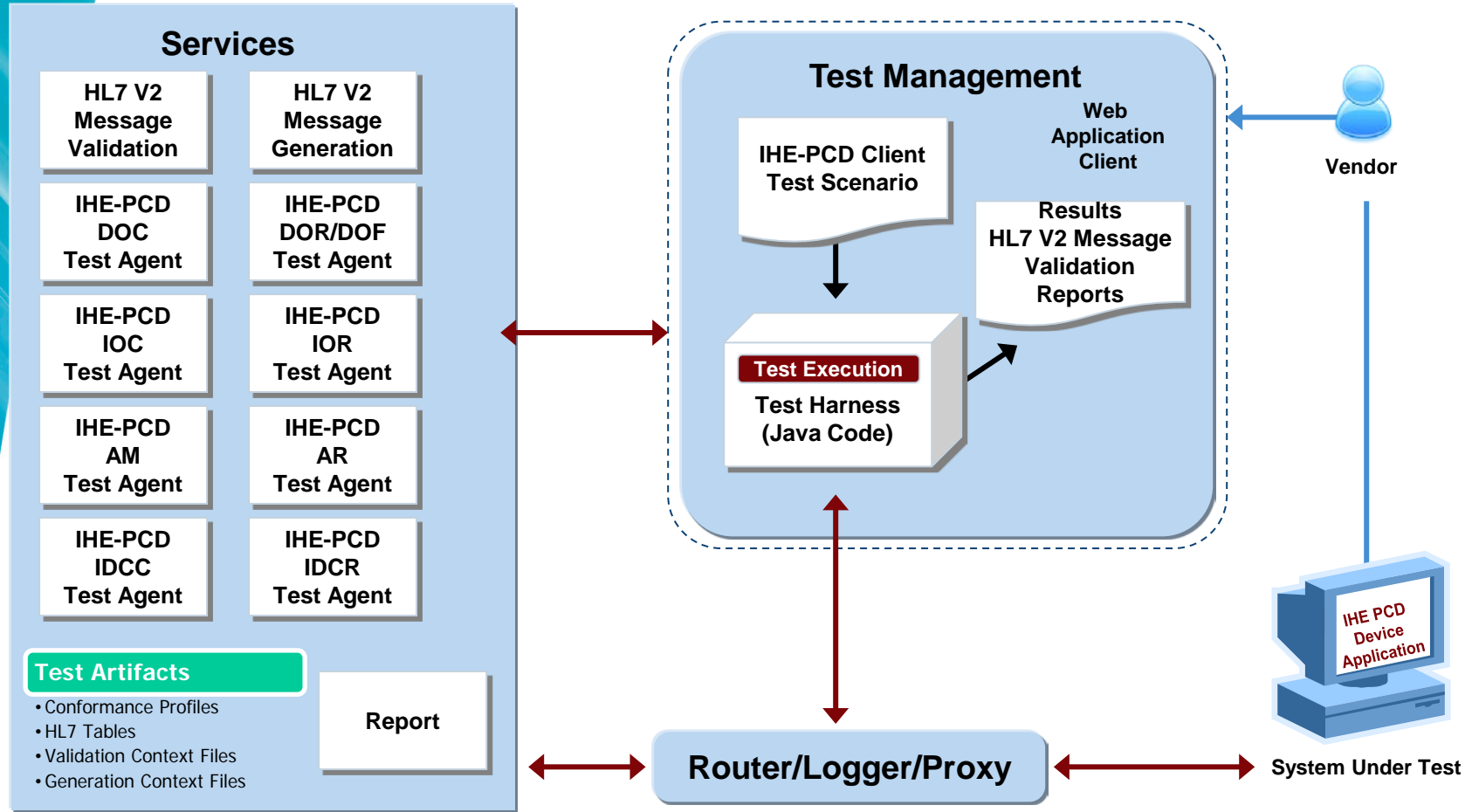
Summary	
Errors	2
Warnings	0
Alerts	0

Validation Errors	
Error Details	
1 Type:	Message Structure
Description:	The line " is not a valid segment This is a severe failure and validation has been terminated.
Location:	Line: 20
	Column: 1
2 Type:	Message Structure
Description:	The line 'Example 2' is not a valid segment This is a severe failure and validation has been terminated.
Location:	Line: 21
	Column: 1

Test Environments

- Instance Testing
 - Conformance (e.g., against HL7 V2.x or CDA)
 - Implementation conforms to Spec. on which it is based
- Isolated System Testing
 - Includes *Instance Testing* Activities
 - Protocol Conformance
 - Functional Behavior Conformance
 - Features and Operational behavior correspond to Specs.
- Peer-to-Peer System Testing
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 - Testing complete application environment
 - May include interacting w/ Database, using Network Communications, or interacting w/ other hardware, apps, or systems if appropriate

IHE-PCD Testing using a Web Application Client



Isolated System Test Environment

Isolated / Scenario Testing

- Demonstration of a 'user' or System Under Test (SUT) [acting as a device observation reporter – DOR] interacting with the NIST Test System [acting as a device observation consumer – DOC] '*Test Agent*'

IHE-PCD HL7 V2 Isolated Test Tool

IHE PCD - Pre-Connectathon Test Tool - Dashboard

Welcome, Admin | [Log out](#)

[Overview](#) | [Tests](#) | [User Account](#) | [Documentation](#) | [About](#) | [Contact us](#)

Welcome to the Integrating the Healthcare Enterprise (IHE) Patient Care Device (PCD) 2011 Cycle Pre-Connectathon Test Tool.

This tool was developed by the National Institute of Standards and Technology (NIST) to support testing of the IHE PCD Pre-Connectathon Test Cases for Health Level 7 (HL7) Version 2 (v2).

User registration is not required; you can use the tool as a "guest" user. However registration is required to save and submit test reports to your Pre-Connectathon project manager. Click on "Register" in the upper-right corner of this page for self-registration.

IHE-PCD HL7 V2 Isolated Test Tool

Select Version and Actor

Welcome, Guest | Register | Log in

IHE PCD - Pre-Connectathon Test Tool - Dashboard

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Run Result

Select an actor to view the list of available Test Cases

HL7 Version v2 Actors

IHE PCD - Pre-Connectathon Test Tool - Dashboard

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Run Result

Select an actor to view the list of available Test Cases

HL7 Version v2 Actors

Test Cases

- DEC_DOR_DOC_One_Patient_(60001)
- NIST_DEC_DOR_Standalone_DOF_DOC_One_to_One_Communication_(60003)

IHE-PCD HL7 V2 Isolated Test Tool

Test Case and Step Descriptions

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Overview | Tests | User Account | Documentation | About | Contact us

Run | Result

Select an actor to view the list of available Test Cases

HL7 Version v2 Actors

Test Cases	
<input checked="" type="radio"/>	DEC_DOR_DOC_One_Patient_(60001)
<input type="radio"/>	NIST_DEC_DOR_Standalone_DOF_DOC_One_to_One_Communication_(60003)

Test Case Information

DEC_DOR_DOC_One_Patient_(60001)	
Pre-condition	None
Description	The purpose of this test is to check that your DEC Reporter can send a valid message (ORU^R01). Information for the patient are taken from table 2010927. Upon reception of the message, the NIST DEC Consumer validates the message and sends an acknowledgment back to your DEC Reporter.
Test Steps Description	Step 1: PCD-01 (ORU^R01^ORU_R01) DOR sends data for patient in table 2010927

Test Steps Information

Order	Actor	Description	Example of Message
1	IHE DEC Reporter	Sends a valid message (ORU^R01) to the NIST DEC Consumer	

Configuration Information
START TEST

IHE-PCD HL7 V2 Isolated Test Tool Configuration

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Run Result

Select an actor to view the list of available Test Cases

HL7 Version v2 Actors

Title	Date of Test	Result
<input checked="" type="radio"/> DEC_DOR_DOC_One_Patient_(60001)	May 12, 2011 9:29:58 AM	Failed
<input type="radio"/> NIST_DEC_DOR_Standalone_DOF_DOC_One_to_One_Communication_(60003)		

Test Case Information

Pre-condition	None
Description	The purpose of this test is to validate the message information for the patient. The test sends a valid message (ORU^R01). The message, the NIST DEC Consumer validates the message.
Test Steps Description	Step 1: PCD-01 (ORU^R01) DOR sends data for patient information.

NIST Responder Configuration Information

Use the following configuration information:

Application Name: NISTManager_ADMIN

Facility Name: NIST

IP Address: 129.6.24.143

Port Number: Er7 Message (Non Secure: 9080)

Test Steps Information

Order	Actor	Description	Example of Message
1	IHE DEC Reporter	Sends a valid message (ORU^R01) to the NIST DEC Consumer	

IHE-PCD HL7 V2 Isolated Test Tool

Waiting for DOR/SUT...

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Dashboard

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[Run](#) [Result](#)

DEC_DOR_DOC_One_Patient_(60001) Test

Transactions and Results

Order	Actor	Description	Result
1	IHE DEC Reporter	Sends a valid message (ORU^R01) to the NIST DEC Consumer	Waiting...

Console Log

```
5/13/11 10:00:39 AM - NISTManager_ADMIN / NIST configuration started
5/13/11 10:00:39 AM - NISTManager_ADMIN / NIST configuration finished
5/13/11 10:00:39 AM - Test: DEC_DOR_DOC_One_Patient_(60001) , Step: 1
5/13/11 10:00:39 AM - Waiting for message...
```

IHE-PCD HL7 V2 Isolated Test Tool

Parse ORU^R01; Send ACK^R01

IHE PCD - Pre-Connectathon Test Tool - Dashboard

Welcome, Admin | Log out

Overview Tests User Account Documentation About Contact us

Run Result

DEC_DOR_DOC_One_Patient_(60001) Test

Transactions and Results

Order	Actor	Description	Result
1	IHE DEC Reporter	Sends a valid message (ORU^R01) to the NIST DEC Consumer	Waiting...

Console Log

```

5/13/11 10:18:24 AM - Test: DEC_DOR_DOC_One_Patient_(60001) , Step: 1

5/13/11 10:18:24 AM - Waiting for message...

5/13/11 10:18:43 AM - message received from TF

5/13/11 10:18:43 AM - Incoming message received from NIST_DEC_Reporter 0012210000000001 EUI-64 / NIST

MSH|^~\&|NIST_DEC_Reporter^0012210000000001^EUI-64|NIST|NISTManager_ADMIN|NIST|20061215111017-
0600||ORU^R01^ORU_R01|19|P|2.6|||NE|AL||ASCII|EN^English^ISO659||IHE PCD ORU-R01
2006^HL7^2.16.840.1.113883.9.n.m^HL7
PID|||CD60002^^^IHE^PI||Darwin^Charles^^^^^L|Emerine^^^^^^L|19620101|M
OBR|1|AB12345^HL7^ACDE48234567ABCD^EUI-64|CD12345^HL7^ACDE48234567ABCD^EUI-
64|ServiceID^ServiceID|||20061215111014-0600
OBX|1||69985^MDC_DEV_PUMP_INFUS_MDS^MDC|||||X|||||N60002||X^^A0001^BBRAUN
OBX|2||69986^MDC_DEV_PUMP_INFUS_VMD^MDC|1000001.1.0.0|||||X
OBX|3||126978^MDC_DEV_PUMP_INFUS_CHAN_DELIVERY^MDC|1000001.1.1.0|||||X
OBX|4||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.2.0|||||X
OBX|5||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.3.0|||||X
OBX|6|ST|184504^MDC_PUMP_MODE^MDC|1000001.1.1.101|pump-mode-nominal|||||R|||20061215111014-
0600|||||20061215111014-0600

5/13/11 10:18:43 AM - Processing validation...

5/13/11 10:18:50 AM - validation file received from TF

5/13/11 10:18:50 AM - Html report creation: started

5/13/11 10:18:52 AM - Html report creation: finished

5/13/11 10:18:52 AM - Waiting for message...

5/13/11 10:18:53 AM - message received from TF

5/13/11 10:18:53 AM - Incoming message received from NISTManager_ADMIN / NIST

MSH|^~\&|NISTManager_ADMIN|NIST|NIST_DEC_Reporter^0012210000000001^EUI-
64|NIST|20110513101851||ACK^R01^ACK|NIST-110513101851238|P|2.6
MSA|AE|19

```


IHE-PCD HL7 V2 Isolated Test Tool Transaction Processing, with result

```
MSH|^~\&|NIST_DEC_Reporter^0012210000000001^EUI-64|NIST|NISTManager_ADMIN|NIST|2006121511014-0600||ORU^R01^ORU_R01|19|P|2.6|||NE|AL||ASCII|EN^English^ISO659||IHE_PCD_ORU-R01
2006^HL7^2.16.840.1.113883.9.n.m^HL7
PID|||CD60002^^^IHE^PI||Darwin^Charles^^^^^L|Emerine^^^^^^L|19620101|M
OBR|1|AB12345^HL7^ACDE48234567ABCD^EUI-64|CD12345^HL7^ACDE48234567ABCD^EUI-64|ServiceID^ServiceID|||2006121511014-0600
OBX|1||69985^MDC_DEV_PUMP_INFUS_MDS^MDC|||||X||||N60002||X^^A0001^BBRAUN
OBX|2||69986^MDC_DEV_PUMP_INFUS_VMD^MDC|1000001.1.0.0|||||X
OBX|3||126978^MDC_DEV_PUMP_INFUS_CHAN_DELIVERY^MDC|1000001.1.1.0|||||X
OBX|4||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.2.0|||||X
OBX|5||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.3.0|||||X
OBX|6|ST|184504^MDC_PUMP_MODE^MDC|1000001.1.1.101|pump-mode-nominal|||||R|||2006121511014-0600|||||2006121511014-0600

5/13/11 10:18:43 AM - Processing validation...

5/13/11 10:18:50 AM - validation file received from TF

5/13/11 10:18:50 AM - Html report creation: started

5/13/11 10:18:52 AM - Html report creation: finished

5/13/11 10:18:52 AM - Waiting for message...

5/13/11 10:18:53 AM - message received from TF

5/13/11 10:18:53 AM - Incoming message received from NISTManager_ADMIN / NIST

MSH|^~\&|NISTManager_ADMIN|NIST|NIST_DEC_Reporter^0012210000000001^EUI-64|NIST|20110513101851||ACK^R01^ACK|NIST-110513101851238|P|2.6
MSA|AE|19
```

[Back](#) [Configuration Information](#)

 Failed with 2 error(s)

[Test summary](#)

IHE-PCD HL7 V2 Isolated Test Tool

Test Result Summary

IHE PCD - Pre-Connectathon Test Tool - Dashboard


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Run Result

Test Result Summary

Report not submitted will not be recorded

Result Summary	
Test Title	DEC_DOR_DOC_One_Patient_(60001)
Actor Tested	IHE DEC Reporter
Version	v2
Date of test	5/13/11 10:18:24 AM
Result of test	 Failed

Transaction 1	
Description:	Sends a valid message (ORU^R01) to the NIST DEC Consumer
Result	 Failed

Message ORU_R01

```
MSH|^~&|NIST_DEC_Reporter^001221000000001^EUI-64|NIST|NISTManager_ADMIN|NIST|20061215111017-0600||ORU^R01^ORU_R01|19|P|2.6|||NE|AL|ASCII|EN^English^ISO659||IHE PCD ORU-R01 2006^HL7^2.16.840.1.113883.9.n.m^HL7 PID|||CD60002^IHE^P|||Darwin^Charles^EMERINE^L|Emerine^L|19620101|M OBR|1|AB12345^HL7^ACDE48234567ABCD^EUI-64|CD12345^HL7^ACDE48234567ABCD^EUI-64|ServiceID^ServiceID|||20061215111014-0600 OBX|1||69985^MDC_DEV_PUMP_INFUS_MDS^MDC| * ||| OBX[1].4[1] is missing |BRAUN OBX|2||69986^MDC_DEV_PUMP_INFUS_VMD^MDC|1000001.1.0.0|||||X OBX|3||126978^MDC_DEV_PUMP_INFUS_CHAN_DELIVERY^MDC|1000001.1.1.0|||||X OBX|4||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.2.0|||||X OBX|5||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.3.0|||||X OBX|6|ST|184504^MDC_PUMP_MODE^MDC|1000001.1.1.101|pump-mode-nominal|||||R|||20061215111014-0600|||||20061215111014-0600
```

Message ACK_R01

```
MSH|^~&|NISTManager_ADMIN|NIST|NIST_DEC_Reporter^001221000000001^EUI-64|NIST|20110513101851||ACK^R01^ACK|NIST-110513101851238|P|2.6|MSA|AE|19
```

Validation Report for message ORU_R01

IHE Supplement Syntax Validation Report

Summary	
Errors	1
Warnings	0

IHE-PCD HL7 V2 Isolated Test Tool Validation Report

IHE Supplement Syntax Validation Report

Summary

Errors	1
Warnings	0
Alerts	0

Validation Errors

Error Details

1	Type:	Usage		
	Description:	OBX[1].4[1] is missing		
	Location:	Line:	4	
		Column:	41	
		Path:	OBX[1].4[1]	
		Segment:	OBX	
	Field:	Observation Sub-ID		

IHE Supplement Semantic Validation Report

Summary

Errors	0
Warnings	0
Alerts	0

hRTM Validation Report

Summary

Errors	0
Warnings	0
Alerts	1

Validation Alert

Alert Details

1	Type:	Message Validation Context		
	Description:	The specified message element match location does not map to a message element. The data value at the specified match location can't be evaluated. Refine the message element match location. The provided path expression is 'OBX[6].5[1].2'.		
	Location:	Path:	OBX[6].5[1].2	
	Assertion	OBX[6].5[1].2 = pump-mode-nominal; pump-mode-drug-dosing; pump-mode-ramp-taper; pump-mode-multi-step; pump-mode-multi-dosing; pump-mode-bolus; pump-mode-loading-dose; pump-mode-multi-channel; pump-mode-pca; pump-mode-continuous; pump-mode-pca-and-continuous; pump-mode-piggyback; pump-mode-concurrent		
	Declaration:			

IHE-PCD HL7 V2 Isolated Test Tool Validation Report, Continued

Alerts	0
--------	---

hRTM Validation Report

Summary	
Errors	0
Warnings	0
Alerts	1

Validation Alert	
Alert Details	
1 Type:	Message Validation Context
Description:	The specified message element match location does not map to a message element. The data value at the specified match location can't be evaluated. Refine the message element match location. The provided path expression is 'OBX[6].5[1].2'.
Location:	Path: OBX[6].5[1].2
Assertion Declaration:	OBX[6].5[1].2 = pump-mode-nominal; pump-mode-drug-dosing; pump-mode-ramp-taper; pump-mode-multi-step; pump-mode-multi-dosing; pump-mode-bolus; pump-mode-loading-dose; pump-mode-multi-channel; pump-mode-pca; pump-mode-continuous; pump-mode-pca-and-continuous; pump-mode-piggyback; pump-mode-concurrent

Test Case Specific Validation Report

Summary	
Errors	1
Warnings	0
Alerts	0

Validation Errors	
Error Details	
1 Type:	Data
Description:	'HO2009001; HO2009002; HO2009003; HO2009004; 2010001; 2010002; 2010003; 2010004; HO2010001; HO2010002; HO2010003; HO2010004; 2011001; 2011001; 2011001; 2011001; HO2011001; HO2011002; HO2011003; HO2011004; 2012001; 2012001; 2012001; 2012001; HO2012001; HO2012002; HO2012003; HO2012004; 2013001; 2013001; 2013001; 2013001' has not been found in the message at the location 'PID[*].3[1].1'

IHE-PCD HL7 V2 Isolated Test Tool Submit Report (to Test Management)

IHE PCD - Pre-Connectathon Test Tool - Dashboard

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Run Result

Test Result Summary

Report not submitted will not be recorded

Result Summary

Test Title	DEC_DOR_DOC_One_Patient_(60001)
Actor Tested	IHE DEC Reporter
Version	v2
Date of test	5/13/11 10:22:46 AM
Result of test	 Failed

Transaction 1

Description: Sends a valid message (ORU^R01) to the NIST DE

 Failed

Confirmation Dialog

Submit your report ?

Message ORU_R01

```
MSH|^~\&NIST_DEC_Reporter^0012210000000001^EUI-64|NIST|NISTManager_ADMIN|NIST|20061215111017-
0600||ORU^R01^ORU_R01|19|P|2.6|||NE|AL|ASCII|EN^English^ISO659||IHE PCD ORU-R01 2006^HL7^2.16.840.1.113883.9.n.m^HL7
PID|||CD60002^A^IHE^P|||Darwin^Charles^*****|Emerine^*****|19620101|M
OBR|1|AB12345^HL7^ACDE48234567ABCD^EUI-64|CD12345^HL7^ACDE48234567ABCD^EUI-64|ServiceID^ServiceID|||20061215111014-0600
OBX|1||69985^MDC_DEV_PUMP_INFUS_MDS^MDC| | |||||X||||N60002|X^A0001^BBRAUN
OBX|2||69986^MDC_DEV_PUMP_INFUS_VMD^MDC|1000001.1.0.0|||||X
OBX|3||126978^MDC_DEV_PUMP_INFUS_CHAN_DELIVERY^MDC|1000001.1.1.0|||||X
OBX|4||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.2.0|||||X
OBX|5||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.3.0|||||X
OBX|6|ST|184504^MDC_PUMP_MODE^MDC|1000001.1.1.101|pump-mode-nominal||||R|||20061215111014-0600||||20061215111014-0600
```

Message ACK_R01

```
MSH|^~\&NISTManager_ADMIN|NIST|NIST_DEC_Reporter^0012210000000001^EUI-64|NIST|20110513102255||ACK^R01^ACK|NIST-110513102255614|P|2.6
MSA|AE|19
```

Validation Report for message ORU_R01

IHE Supplement Syntax Validation Report

Summary	
Errors	1
Warnings	0

IHE-PCD HL7 V2 Isolated Test Tool Test Management – Vendor Summary

IHE PCD - Pre-Connectathon Test Tool - Dashboard

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Account Reports History

Please select a Vendor, an Actor and a HL7 Version (v2 or v3) to view the vendor list of Test Cases

Vendors Summary

	Last name	First name	Organization name	V2 results	V3 results	Last test date
1.	Admin	Admin	NIST	2 (Passed: 1, Failed: 1)	0	Today May 13, 2011 10:23:49 AM

Actors Tested IHE DEC Reporter HL7 Version v2 v3

Tests List

Title	Date of Test	Result
DEC_DOR_DOC_One_Patient_(60001)	May 13, 2011 10:23:49 AM	Failed

XML Result HTML Result

Result Summary	
Test Title	DEC_DOR_DOC_One_Patient_(60001)
Actor Tested	IHE DEC Reporter
Version	v2
Vendor Name	Admin Admin
Vendor Organization Name	NIST
Date of test	May 13, 2011 10:23:49 AM
Result of test	Failed

Transaction 1

Description: Sends a valid message (ORU^R01) to the NIST DEC Consumer

Result: FAILED

Message ORU_R01

```
MSH|^~\&NIST_DEC_Reporter^0012210000000001^EUI-64|NIST|NISTManager_ADMIN|NIST|20061215111017-0600||ORU^R01^ORU_R01|19|P|2.6|||NE|AL||ASC||EN^English^ISO659||IHE PCD ORU-R01 2006^HL7^2.16.840.1.113883.9.n.m^HL7 PID||CD60002^MHE^P||Darwin^Charles^M^L|Emerine^M^L|19620101|M OBR|1|AB12345^HL7^ACDE48234567ABCD^EUI-64|CD12345^HL7^ACDE48234567ABCD^EUI-64|ServiceID^ServiceID||20061215111014-0600 OBX|1||69985^MDC_DEV_PUMP_INFUS_MDS^MDC|||||X||||N60002|X^A0001^BBRAUN OBX|2||69986^MDC_DEV_PUMP_INFUS_VMD^MDC|1000001.1.0.0|||||X OBX|3||126978^MDC_DEV_PUMP_INFUS_CHAN_DELIVERY^MDC|1000001.1.1.0|||||X OBX|4||126977^MDC_DEV_PUMP_INFUS_CHAN_SOURCE^MDC|1000001.1.2.0|||||X
```

IHE-PCD HL7 V2 Isolated Test Tool Test Management – Vendor Dashboard

IHE PCD - Pre-Connectathon Test Tool - Dashboard Welcome, Admin | Log out

Overview Tests **User Account** Documentation About Contact us

Account Reports History

Tool Management

➤ Vendors Management

	id	Username	First name	Last name	Organization name	Email	Role	Status
<input type="radio"/>	65	afrold	AFFO	Harold1	NIST	afrold@nist.gov	User	
<input type="radio"/>	56	bobvendor	Vendor	Bob	Imaginary Systems Inc.	bob.vendor@imaginary.com	User	
<input type="radio"/>	55	caro	Caroline	Rosin	NIST	caro.rosin@gmail.com	User	
<input type="radio"/>	51	crosin	Caroline	Rosin	NIST	caroline.rosin@nist.gov	User	
<input type="radio"/>	62	dummyVendor	DummyCaro	DummyCaro	DummyOrg	rosin@evc.net	User	
<input type="radio"/>	59	GSYD	Syd	Dummy	NIST	sydney.henrard@gmail.com	User	
<input type="radio"/>	63	harold	Harold	AFFO	NIST	affoharold@yahoo.fr	Manager	
<input type="radio"/>	4	nist	NIST	NIST	NIST	rsnelick@nist.gov	User	
<input type="radio"/>	50	NISTRob	Rob	Snelick	NIST	rsnelick@hotmail.com	User	
<input type="radio"/>	53	scerniglia	Cerniglia	Susan	Booz Allen	cerniglia_susan@bah.com	User	
<input type="radio"/>	52	sydney	H	Sydney	NIST	sydney.henrard@nist.gov	User	
<input type="radio"/>	57	test	Linan	Wang	NIST	linan.wang@nist.gov	User	
<input type="radio"/>	67	toto11	toto	toto	toto	toto@yahoo.fr	User	
<input type="radio"/>	68	toto12	toto	toto	toto	affoharold@yahoo.com	User	
<input type="radio"/>	54	Vendor	Vendor	Susan	Booz Allen	susan.cerniglia@gmail.com	User	

+

➤ TestCases Management

Load Test Cases Edit Test From UI Add Test From UI

IHE-PCD HL7 V2 Isolated Test Tool Validation Report

Validation Report for message ORU_R01

IHE Supplement Syntax Validation Report

Summary	
Errors	1
Warnings	0
Alerts	0

Validation Errors	
Error Details	
1 Type:	Usage
Description:	OBX[1].4[1] is missing
Location:	Line: 4
	Column: 41
	Path: OBX[1].4[1]
	Segment: OBX
	Field: Observation Sub-ID

IHE Supplement Semantic Validation Report

Summary	
Errors	0
Warnings	0
Alerts	0

hRTM Validation Report

Summary	
Errors	0
Warnings	0
Alerts	1

Validation Alert	
Alert Details	
1 Type:	Message Validation Context
Description:	The specified message element match location does not map to a message element. The data value at the specified match location can't be evaluated. Refine the message element match location. The provided path expression is "OBX[6].5[1].2".
Location:	Path: OBX[6].5[1].2
Assertion:	OBX[6].5[1].2 = pump-mode-nominal; pump-mode-drug-dosing; pump-mode-ramp-taper; pump-mode-multi-step; pump-mode-multi-dosing; pump-mode-bolus; pump-mode-loading-dose; pump-mode-multi-channel; pump-mode-pca; pump-mode-continuous; pump-mode-pca-and-continuous; pump-mode-piggyback; pump-mode-concurrent
Declaration:	

IHE-PCD HL7 V2 Isolated Test Tool Validation Report, Cont

hRTM Validation Report

Summary	
Errors	0
Warnings	0
Alerts	1

Validation Alert	
Alert Details	
1 Type:	Message Validation Context
Description:	The specified message element match location does not map to a message element. The data value at the specified match location can't be evaluated. Refine the message element match location. The provided path expression is "OBX[6].5[1].2".
Location:	Path: OBX[6].5[1].2
Assertion Declaration:	OBX[6].5[1].2 = pump-mode-nominal; pump-mode-drug-dosing; pump-mode-ramp-taper; pump-mode-multi-step; pump-mode-multi-dosing; pump-mode-bolus; pump-mode-loading-dose; pump-mode-multi-channel; pump-mode-pca; pump-mode-continuous; pump-mode-pca-and-continuous; pump-mode-piggyback; pump-mode-concurrent

Test Case Specific Validation Report

Summary	
Errors	1
Warnings	0
Alerts	0

Validation Errors	
Error Details	
1 Type:	Data
Description:	"HO2009001; HO2009002; HO2009003; HO2009004; 2010001; 2010002; 2010003; 2010004; HO2010001; HO2010002; HO2010003; HO2010004; 2011001; 2011001; 2011001; 2011001; HO2011001; HO2011002; HO2011003; HO2011004; 2012001; 2012001; 2012001; 2012001; HO2012001; HO2012002; HO2012003; HO2012004; 2013001; 2013001; 2013001; 2013001" has not been found in the message at the location "PID[*].3[1].1"

HL7/Healthcare Devices WG (San Diego, California)

"Rosetta Terminology Mapping Management System" (RTMMS) Activities

NIST
**National Institute of
Standards and Technology**
U.S. Department of Commerce

John Garguilo and Sandra Martinez
11-16 September, 2011

NIST Contacts

- John J. Garguilo
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- Sandra Martinez
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sandra.martinez@nist.gov
- Isabelle Barclay (Guest Researcher) – term ends this month
- Nicolas Crouzier (Guest Researcher)

Project Web site:

www.nist.gov/medicaldevices

Semantic Interoperability of Medical Devices

RTMMS Overview

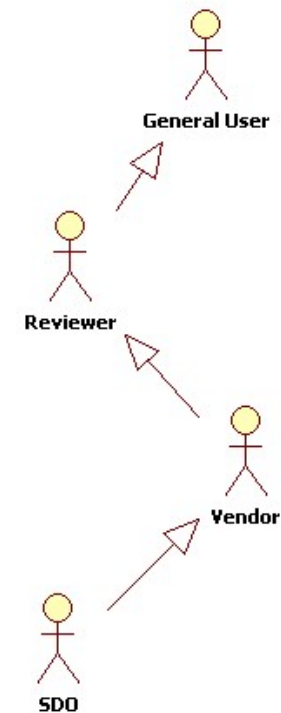
- RTMMS was developed to support the IHE-PCD Rosetta Terminology Mapping (RTM) :
 - A web application that allows vendors and reviewers:
 - access, retrieval, and reporting of Rosetta Tables over the internet in conformance to IHE RTM Profile.
 - saving the data in the xml format as defined by RTM Profile.
 - Aids in The harmonization process by:
 - Identifying missing terms.
 - Automatic generation of the “Harmonized Rosetta Table”
 - Viewing and downloading latest hRTM table.
 - Facilitates the proposal of New Terms to x73 Nomenclature

Database

- Models RTM data and relationships
- Stores RTM data
 - Rosetta table
 - Units and Unit Groups
 - Enumerations and Enumeration Groups
 - hRTM table
- Uses IEEE 11073 Nomenclature database
 - REFIDs
 - Term codes
 - Partition numbers

RTMMS Users

- General user
 - Views Rosetta Tables
- Reviewer
 - Participates in discussions
- Vendor
 - Modifies Vendor Rosetta Table
 - Suggests new or mapped terms
- SDO (Standard Development Organization)
 - Modifies Units and Enumerations Table
 - Register new or mapped terms
- Admin
 - Manages User Accounts
- Potential IEEE-Member User ??



RTMMS Features

- Access to NIST IEEE 11073 Nomenclature database
 - Appendix A terms
 - Appendix B terms
 - IDCO terms
 - PHD terms
- Access to RTM database
- Ability to proposed terms in Rosetta
- Download in XML format hRTM, units and enumerations tables
- User registration
 - Email confirmation, approval...
- Filtering based on regular expressions
- Rosetta validation against hRTM
- Management capabilities for SDO users

RTMMS Updates (since May 2011)

- Database management capabilities implemented.
- Versioning system implemented.
 - Possibility for the SDO to view previous Rosetta versions.
- Logging history capabilities implemented.
 - To identify occurred changes, time they were made, users who made them...
- New menu on top of login screen for the user guide
- Differentiation between mapped terms and new terms
- Access to Vendor, Groups and Rules tables.
- Harmonized Rosetta is now generated in real time from Rosetta table
- Import directly Paul's XML files

Ongoing Work

- RTM database re-structuring to facilitate management.
- Implementing synonym terms
 - Support synonyms in Nomenclature Database
 - Support synonyms in RTM Database
- SNOMED interface.
- Resolved bugs identified in functionality testing exercise.
 - Add unit filtering
 - Improve registration e-mail content
 - Allow to add units or enumeration, not both at the same time.

Next Steps

- Add aECG into X73 Nomenclature Dbase.
- hRTM table updates
 - Support Vendor_VMD, and Vendor Description
- Populate X73 Nomenclature dbase systematic name, common term, acronym and term description tables.
 - Waiting for electronic files, if available.
- SDO ability to set Rosetta versions.

Issues

- IEEE copyright issues
 - Displaying of copyrighted information...
 - Maintenance issues...
 - Hosting/Server issues...
 - Access control issues...
- Integration of LOINC Terms
 - We have no documentation on LOINC.
 - Mapping must be provided.
- Waiting for SNOMED mapped terms.
- Clarification of new/private terms adoption process

RTMMS Scenario and DEMO

All users capabilities:

- View/Download Rosetta Table
- View/Download Units Table
- View/Download Enumerations Table
- View logging history
- Filter Rosetta Table
 - By Vendor ID (Philips)
 - Using Regular Expressions (MDCX_.*)
 - Viewing Discussed Entries

Rosetta Table

RTM Management Service
In partnership with NIST

User Guide | Sign In

Home Rosetta Units Enumerations hRTM Groups Vendors Rules Synonyms

Rosetta Table

XML Download Table

Group	REFID	PART	CODE10	CF_CODE10	Description	DisplayName	Vendor_UOM	UOM_MDC
CVS_ECG_ST	MDC_ECG_AMPL_ST	2	768	131840	ST generic label	ST	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...
CVS_ECG_ST	MDC_ECG_AMPL_ST_I	5	769	328449	ST lead I	ST-I	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...
CVS_ECG_ST	MDC_ECG_AMPL_ST_II	5	770	328450	ST lead II	ST-II	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V1	5	771	328451	ST lead V1	ST-V1	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V2	5	772	328452	ST lead V2	ST-V2	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V3	5	773	328453	ST lead V3	ST-V3	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V4	5	774	328454	ST lead V4	ST-V4	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V5	5	775	328455	ST lead V5	ST-V5	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V6	5	776	328456	ST lead V6	ST-V6	mm	MDC_DIM_MILLI_VOLT MDC_DIM_MIL...

Page 1 of 31 | Displaying topics 1 - 50 of 1534

Group: CVS_ECG_ST
REFID: MDC_ECG_AMPL_ST
PART: 2
CODE10: 768
UCODE10:
CF_UCODE10:
DisplayName: ST
Vendor_UOM: mm
Vendor_Status: S
Vendor_Sort: 10
Description: ST generic label
Vendor_VMD: PHYSIO_SRC_ID_ST
UOM_MDC_REFID **UOM_UCUM**
MDC_DIM_MILLI_VOLTmV

Vendor_Comment

Vendor_Discussion
(2001-01-01 00:00:00.0):

General_Discussion
(2001-01-01 00:00:00.0):

Units Table

Units

Unit Groups

Dimension:

Select dimension...

Download Table

Dimension	Dim	DimC	Unit_of_Measure	Symbol	UOM_UCUM	UOM_MDC	UCODE10	Discussion
Unspecified			Â?UnspecifiedÂ?	?	{unknown}	MDC_DIM_NOS		(2001-0...
Dimension- less	1	1	Â?dimensionlessÂ?	-	1;{unitless}	MDC_DIM_DIMLESS		(2001-0...
Dimension- less	1	1	Â?booleanÂ?	1/0	{bool};1	MDC_DIM_BOOLEAN		(2001-0...
- decibel (existing 11073 de...	[Bel]	[Bel]	Decibel	DB	dB	MDC_DIM_DECIBEL		(2001-0...
- decibel (proposal "dB1")	[Bel]	[Bel]	decibel volt	dB(V)	dB[V]	MDC_DIM_DECIBEL_X_V		(2001-0...
- decibel (proposal "dB1")	[Bel]	[Bel]	decibel millivolt	dB(mV)	dB[mV]	MDC_DIM_DECIBEL_X_MV		(2001-0...
- decibel (proposal "dB1")	[Bel]	[Bel]	decibel microvolt	dB(uV)	dB[uV]	MDC_DIM_DECIBEL_X_UV		(2001-0...
- decibel (proposal "dB1")	[Bel]	[Bel]	decibel nanovolt	dB(nV)	dB[nV]	MDC_DIM_DECIBEL_X_NV		(2001-0...
- decibel (proposal "dB1")	[Bel]	[Bel]	decibel 10 nanovolt	dB(10nV)	dB[10.nV]	MDC_DIM_DECIBEL_DECA_NV		(2001-0...
- decibel (proposal "dB2")	[Bel]	[Bel]	bel millivolt	B(mV)	B[mV]	MDC_DIM_X_BEL_MV		(2001-0...
- Bel and deciBel (proposal ...	[Bel]	[Bel]	B	B	B	MDC_DIM_X_BEL		(2001-0...
- Bel and deciBel (proposal ...	[Bel]	[Bel]	Decibel	dB	dB	MDC_DIM_DECI_BEL		(2001-0...
- Bel and deciBel (proposal ...	1	1	10-2 (percent)	%	%	MDC_DIM_PERCENT		(2001-0...
- Bel and deciBel (proposal ...	1	1	10-3 (part(s) per thou...	Ppht	[ppth]	MDC_DIM_PARTS_PER_10_TO_...		(2001-0...
- Bel and deciBel (proposal ...	1	1	10-6 (part(s) per million)	Ppm	[ppm]	MDC_DIM_PARTS_PER_10_TO_...		(2001-0...
- Bel and deciBel (proposal ...	1	1	10-9 (part(s) per milliard)		10*-9;10^-9	MDC_DIM_PARTS_PER_10_TO_...		(2001-0...
- Bel and deciBel (proposal ...	1	1	10-12 (part(s) per billio...	Ppb	10^-12;10*-12	MDC_DIM_PARTS_PER_10_TO_...		(2001-0...
- Bel and deciBel (proposal ...	1	1	10-18 (part(s) per trilli...	Ppt	10^-15;10*-15	MDC_DIM_PARTS_PER_10_TO_...		(2001-0...
- angles	[rad]	[rad]	angle degree	Degree	deg	MDC_DIM_ANG_DEG		(2001-0...
- angles	[rad]	[rad]	angle radian	Rad	rad	MDC_DIM_ANG_RAD		(2001-0...
- mass fraction	MM-1	1	Â?magnitudeÂ? gram(...	g g-1	g/g	MDC_DIM_X_G_PER_G		(2001-0...

Enumeration Table

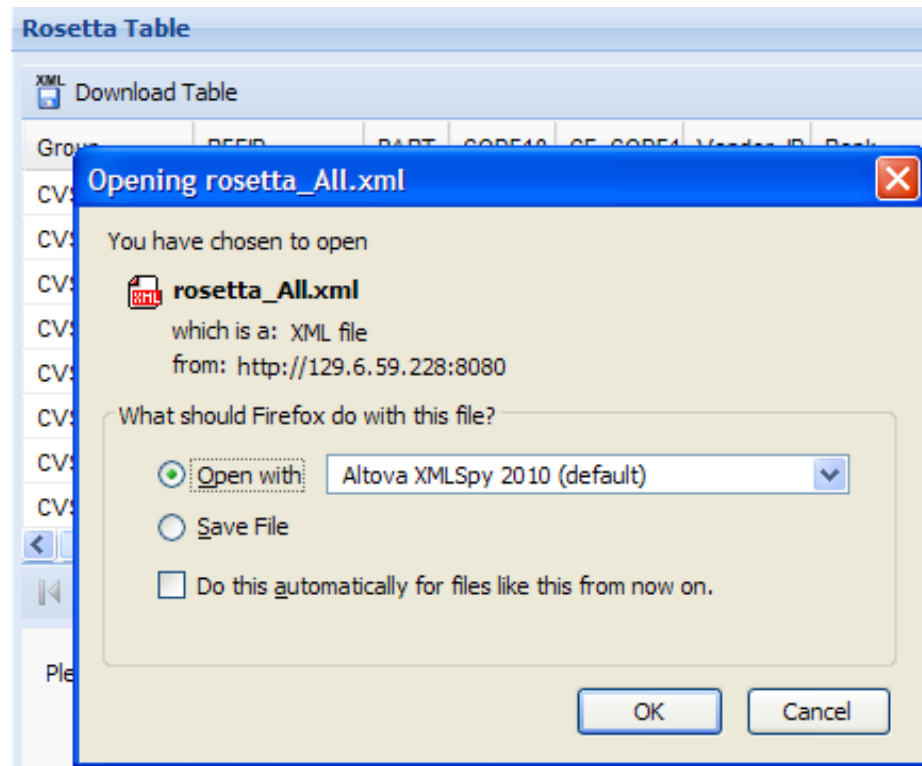
Enumerations

Enumeration Groups

XML Download Table

GroupDescription	TOKEN	REFID	EPART	ECODE10	CF_ECODE10	ApplicationDescription	Discussion
Boolean	TRUE						(2001-01-01...
Boolean	FALSE						(2001-01-01...
Alarm Condition		MDC_EVT_STANDBY_WARN	129	61440		Pump on Hold	(2001-01-01...
Alarm Condition		MDC_EVT_EMPTY	3	26		Bag Empty	(2001-01-01...
Alarm Condition		MDC_EVT_FLUID_LINE_OCCL	3	332		Occlusion	(2001-01-01...
Alarm Condition		MDC_EVT_FLUID_LINE_AIR	3	592		Air in Line	(2001-01-01...
Alarm Condition		MDC_EVT_DOOR_POSN_ERR	3	476		Door Open	(2001-01-01...
Alarm Condition		MDC_EVT_ADVIS_SETTINGS_CHK	3	6668		Programming Error	(2001-01-01...
Alarm Condition		MDC_EVT_MALF	3	70		Device Malfunction	(2001-01-01...
Alarm Condition		MDC_EVT_POSN_PROB	3	160		Set Loading Error	(2001-01-01...
Alarm Condition		MDC_EVT_BATT_LO	3	194		Low Battery	(2001-01-01...
Alarm Condition		MDC_EVT_FLOW_LO	3	342		Low Flow	(2001-01-01...
Alarm Condition		MDC_EVT_IDLE	129	0		Pump Idle	(2001-01-01...
Alarm Condition		MDC_EVT_CALLBACK	129	0		Callback	(2001-01-01...
Alarm Condition		MDC_EVT_VOL_INFUS_COMP	129	0		VTBI Complete	(2001-01-01...
Alarm Condition		MDC_EVT_VOL_INFUS_NEAR_COMP	129	0		VTBI Near Completion	(2001-01-01...
Alarm Condition		MDC_EVT_BATT_DEPL	129	0		Depleted Battery	(2001-01-01...
Alarm Condition		MDC_EVT_BATT_SERV	129	0		Service Battery	(2001-01-01...
Alarm Condition		MDC_EVT_EMER_STOP	129	0		Emergency Stop	(2001-01-01...
Alarm Condition		MDC_EVT_PWR_LOSS	129	0		Power Loss	(2001-01-01...
Alarm Condition		MDC_EVT_FLOW_STOP_OPEN	129	0			(2001-01-01...
Alarm Condition		MDC_EVT_CHECK_IV_SET	129	0			(2001-01-01...

Download Table in XML



Logging history

User Account		System Logs
		Filter by date <input type="text" value="All Time"/> Filter by user <input type="text" value="All users"/>
Date	User	Message
09/07/2011 10:46:37	sdo	User sdo logged in.
09/07/2011 10:37:48	ieee	User ieee logged in.
09/07/2011 10:31:51	ieee	User ieee logged out.
09/07/2011 10:29:35	ieee	Updated Rosetta : REFID = MDC_ATTR_AL_OP_CAPAB, CF_CODE10 = 67845
09/07/2011 10:29:12	ieee	User ieee logged in.
09/06/2011 18:44:41	sdo	User sdo logged out.
09/06/2011 18:40:45	sdo	User sdo logged in.
09/06/2011 18:40:42	ieee	User ieee logged out.
09/06/2011 18:40:07	ieee	User ieee logged in.
09/06/2011 18:40:05	ieee	User ieee logged in.
09/06/2011 15:15:08	admin	User admin logged out.
09/06/2011 15:08:42	admin	User admin logged in.
09/06/2011 15:08:38	sdo	User sdo logged out.
09/06/2011 15:05:22	sdo	User sdo logged in.
09/06/2011 15:05:19	reviewer	User reviewer logged out.
09/06/2011 15:04:20	reviewer	User reviewer logged in.
09/06/2011 15:04:04	ieee	User ieee logged out.
09/06/2011 15:01:58	ieee	User ieee logged in.
09/06/2011 15:01:46	ieee	User ieee logged out.
09/06/2011 14:34:36	ieee	User ieee logged in.
09/06/2011 12:51:50	admin	User admin logged in.

Filter Rosetta table

Filter Vendor_ID

Vendor_ID	Vendor_Status	Vendor_Sort	Enum_Values	Vendor_Comment	Vendor_VMD
Philips					PHYSIO_SRC_ID_ST
Philips					PHYSIO_SRC_ID_ST
Philips					PHYSIO_SRC_ID_ST
Philips					PHYSIO_SRC_ID_ST
Philips					PHYSIO_SRC_ID_ST
Philips	S	60			PHYSIO_SRC_ID_ST
Philips	S	70			PHYSIO_SRC_ID_ST
Philips	S	80			PHYSIO_SRC_ID_ST
Philips	S	90			PHYSIO_SRC_ID_ST

Sort Ascending
 Sort Descending
 Columns
 Filters

Philips

Filter Rosetta table

Filter Vendor_Discussion

UOM_UCUM	Enum_Values	Vendor_VMD	Vendor_Discussion	General_Discussion
	SC		●	
	GDN		●	
	GDN		●	
	GDN		●	
{breaths-squar	S		●	
{unitless};1			●	●
		MDC_DEV_PUM	●	●

A ↓ Sort Ascending

Z ↓ Sort Descending

Columns ▶

Filters ▶

(empty)

●

Displaying topics 1 - 9 of 9

Vendor_Discussion
Sandra (2011-04-13 13:43:52.0):
Testing the vendor discussion

General_Discussion

RTMMS Scenario and DEMO

All users capabilities:

- Account management
- User Guide

Account Management

User Account System Logs

Update Your Email

Current Email:

Email:

Retype Email:

Update Your Password

Password:

Retype Password:

RTMMS User Guide

RTMMS USER GUIDE

Rosetta Terminology Mapping Management System

Developed by National Institute of Standards and Technology

Version : 1.5
Version Rosetta : 3q

1. Overview
2. Getting started
3. Technologies employed
4. Using RTMMS
 - 4.1 View tables
 - 4.2 Identification
 - 4.3 All users
 - 4.4 Vendor
 - 4.5 SDO
 - 4.6 Admin
5. Credits

1. Overview

RTMMS was developed to support the IHE-PCD Rosetta Terminology Mapping (RTM), it :

- Is a web application that allows vendors and reviewers to access and report on Rosetta Tables over the internet in conformance to IHE RTM Profiles.
- Aids in the harmonization process by identifying missing terms, generate automatically "Harmonized Rosetta Table", view and download latest hRTM table.
- Facilitates the proposal of new terms to x73 Nomenclature.

2. Getting started

RTMMS is available on Begonia server : <http://129.6.59.228:8280/rtm-rtmms/index.htm>
It have been tested under Firefox 3, Google Chrome 12 and Internet Explorer 7.

3. Technologies employed

- Java 6 / J2EE

RTMMS Scenario

'Reviewer' Type User Capabilities

- Contribute to Discussions
 - Adding Comments

Comment Dialog

All Rosetta Table

Vendor Discussion | General Discussion | Download Table

Group	REFID	PART	CODE10	CF_CODE1	Vendor_ID	Description	DisplayName	Vendor_UOM	UOM_MDC	UOM_IEEE	Enum_Values	Venc	Venc	Gene
INFUS	MDC_VOL_FLL	2												
CNS_EEG	MDC_EMG_ELE	2										F		
CNS_EEG	MDCX_											F		
CVS_HEMO_IBI	MDC_PRESS_B	2										F		
CVS_HEMO_IBI	MDC_PRESS_B	2										F		
CVS_HEMO_IBI	MDC_PRESS_B	2										F		
CVS_HEMO_IBI	MDC_PRESS_B	2										F		
CVS_HEMO_CC	MDC_OUTPUT_											F		
CVS_HEMO_CC	MDCX_											F		
CVS_HEMO_CC	MDCX_											F		

Page 1 of 5

Group: CNS_EEG
REFID: MDCX_
PART:
CODE10:
DisplayName: AMP
Vendor_UOM: dB
Vendor_Status: F
Vendor_Sort:
Description: Amp
Enum_Values:

Add New Comment Dialog

Discussion

2009-03-06:
Aspect dB relative to 0.0001 (μV)²

John, 2009-4-21:
Comment

New Comment

Name:
John

New Comment:

add comment

Save Cancel

Displaying topics 1 - 25 of 114

RTMMS Scenario

'Vendor' Type User Capabilities

- Add a new Rosetta entry
 - REFIDs lookup from x73 Nomenclature
 - Group lookup from RTM tables
 - Units/Unit Groups and Enumerations/Enumeration Groups lookup from RTM tables
 - Term codes completion from x73 Nomenclature
 - Suggesting new terms to the standard
 - Validating Required fields
- Edit a Rosetta entry
- Deprecate a Rosetta entry

Rosetta : Philips vendor

Philips Rosetta Table

Edit
 Deprecate
 General Discussion
 Download Table

Group	REFID	PART	CODE10	CF_CODE10	Description	DisplayName	Vendor_UOM	UOM_MDC
CVS_ECG_ST	MDC_ECG_AMPL_ST	2	768	131840	ST generic label	ST	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...
CVS_ECG_ST	MDC_ECG_AMPL_ST_I	5	769	328449	ST lead I	ST-I	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...
CVS_ECG_ST	MDC_ECG_AMPL_ST_II	5	770	328450	ST lead II	ST-II	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V1	5	771	328451	ST lead V1	ST-V1	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V2	5	772	328452	ST lead V2	ST-V2	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V3	5	773	328453	ST lead V3	ST-V3	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V4	5	774	328454	ST lead V4	ST-V4	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V5	5	775	328455	ST lead V5	ST-V5	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...
CVS_ECG_ST	MDC_ECG_AMPL_ST_V6	5	776	328456	ST lead V6	ST-V6	mm	MDC_DIM_MILLI_M MDC_DIM_MILLI_...

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Please select a row to see additional details

Edit Entry

Entry Information

Group information
 Group:

Term information
 REFID: ... x
 is uncertain REFID
 PART:
 CODE10:
 CF_CODE10:

Vendor parameter information
 Description:
 DisplayName:
 Vendor_UOM:
 Vendor_Status: v x
 Vendor_Sort:
 Vendor_VMD:
 Vendor_Comment:

Units / Unit Groups

+ Add x Remove

UOM_MDC_REFID	UOM_UCUM
MDC_DIM_MILLI_M	mm
MDC_DIM_MILLI_VOLT	mV

Enumerations / Enumeration Groups

+ Add x Remove

Enum_Value

RTMMS Scenario

'SDO' Type User Capabilities

- Register a Proposed Term
 - Assigning term code
 - Automatically updating Vendor tables

Register new terms

Mapped terms **New terms**

Proposed Terms Table

Register SDO Discussion

Group	REFID	Vendor_ID	Description	DisplayName	Vendor...	Vendor_...	General_...
CNS_EVAL_PAIN	MDCX_	WelchAllyn	Pain Level	Pain Level	SC	●	●
CNS_EEG_BIS	MDCX_	Draeger	BiSpectral Index	BIS	SC	●	●
BLD_GAS_O2_DIFF	MDCX_	Draeger	Arterial-Venous O2 Difference	C(a-v)O2	SC	●	●
GASDLV	MDCX_	Draeger	Dynamic Compliance over last 20% breath	C20/C*	SC	●	●
	MDCX_	Draeger	Cardiac Function Index	CFI	SC	●	●
CNS_NMT	MDCX_	Draeger	NMT CURRENT	CURRENT	SC	●	●
BLD_GAS_SpO2	MDCX_	Draeger	Delta with second SpO2 source	Delta	SC	●	●
CVS_HEMO_CALC_CO_...	MDCX_	Draeger	Delta Temperature	delta-T	SC	●	●
GASMON_O2	MDCX_	Draeger	O2 delivery	DO2	SC	●	●

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Group:
REFID: MDCX_
DisplayName: CFI
Vendor_Status: SC
Description: Cardiac Function Index

Vendor_Comment

Vendor_Discussion
(2001-01-01 00:00:00.0):

General_Discussion
(2001-01-01 00:00:00.0):

Register Proposed Term Dialog

New REFID:

Block:

PART:

CODE10:

Save Cancel

RTMMS Scenario

'Admin' Type User Capabilities

- Save/Load/Delete selected database
- User management
- Import XML files provided by Paul Schluter

Database Management



Database management

Save current database | Load database | Delete selected database


Database Name	Date
databasebackup_09-07-2011_17-44-00.sql	09/07/2011 17:44:00
databasebackup_09-01-2011_10-32-16.sql	09/01/2011 10:32:16

User Management

User Management

 Edit  Remove

User Name	Email	Type	Vendor	Enabled
admin	isabelle.barclay@nist.gov	Admin		true
ieee	isabelle.barclay@nist.gov	Vendor	IEEE	true
nico	nicolas.crouzier@nist.gov	Reviewer		true
reviewer	isabelle.barclay@nist.gov	Reviewer		true
sandra	s@nist.gov	Vendor	IEEE	true
sdo	sdo@nist.com	SDO		true

Edit User 

User Name:

Email:

Type:

Vendor:

Enable User:

Import Rosetta XML files

Import data from Paul xml file. This operation will delete all current Rosetta terms/Units/Enumerations terms and fill the database from the selected XML file.
Make sure to make a backup before using this feature: [Create backup](#)

Rosetta XML file: RosettaTable.3q.2011-05-07T10.xml

Import Steps	Status
Upload file	●
Check XML format	●
Delete current database	●
Parse ucum units	●
Parse vendors	●
Parse groups	●
Parse enumerations	●
Parse units	●
Parse rosetta	●

HL7/Healthcare Devices WG (San Diego, California)

"ICSGenerator" Tool Activities

NIST
**National Institute of
Standards and Technology**
U.S. Department of Commerce

John Garguilo and Sandra Martinez
11-16 September, 2011

NIST Contacts

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- Jing Gao (Guest Researcher)

Project Web site:

www.nist.gov/medicaldevices

ICSGenerator Overview

ICSGenerator was developed to:

- Support IEEE 11073 Conformance Testing.
 - Generate Implementation Conformance Statements (ICSs)
 - Build Device Profile (XML)
 - Provide validation against DIM Schema
 - Provide high level semantic interoperability
 - Ensures correct containment relationship and terminology at the object class and related attribute, notification, and behavior level
 - Provides access to Rosetta Dbase and X73 dbase

ICSGenerator Enhancements

- Access to latest hRTM version (3q 2011-05-07T10)
- Access to the latest X73 Nomenclature dbase version (containing IDC, PHD and Appendix B.)
- Private Terms support
 - Capability to enter private objects using a “blank” object template.
 - Capability to import private terms using a Rosetta-based xml file.
 - “File” menu → “import private terms”
 - Capability to access **MDC-*<vid>*** private terms from hRTM, if available.
 - Capability to enter private attributes to a private object or to already defined objects.

(This is based on the x73 DIM allowance of extension (section 6.1.4) to the model that states: “In other cases, it may be necessary to define completely new objects **or to add new attributes, new methods, or new events to already defined objects.** These extensions are considered private or manufacturer-specific extensions”.)

Capability to enter private objects using a “blank” object template

The screenshot displays the ICS Generator application window titled "ICS Generator - PCD Agent - Baxter-Colleague". The interface includes a menu bar (File, Device Specialization, Help) and a toolbar (Builder, Database, Conformance Statements). A tree view on the left shows a hierarchy of objects under "DIM", including "Infusion Pump [Hydra_MDS]" and "Primary Source [Channel]". A context menu is open over the "Primary Source" node, listing options such as "Add", "Remove", "Blank Object", "PM-Store", "Real_Time_Sample_Array", "Numeric", "Time_Sample_Array", "Distribution_Sample_Array", "Alert", "Enumeration", "Complex_Metric", and "Complex_Metric". The main configuration panel on the right is titled "ISO/IEEE 11073:10201 DIM" and contains the following fields:

- Dim Object Name: Channel
- Dim Reference id: MDC_MOC_VMO_CHAN
- Dim Object Code: 3
- Dim Clause: clause 7.3.3

Below these fields are sections for "Information" and "Support". The "Information" section includes fields for Reference ID, Term Code, Display name (Primary Source), and Description. The "Support" section includes a Restrictions field, checkboxes for CREATE Service Support and DELETE Service Support, and a Comments field containing the text: "The primary source channel object provides configuration and status information for the primary fluid source for the associated delivery channel".

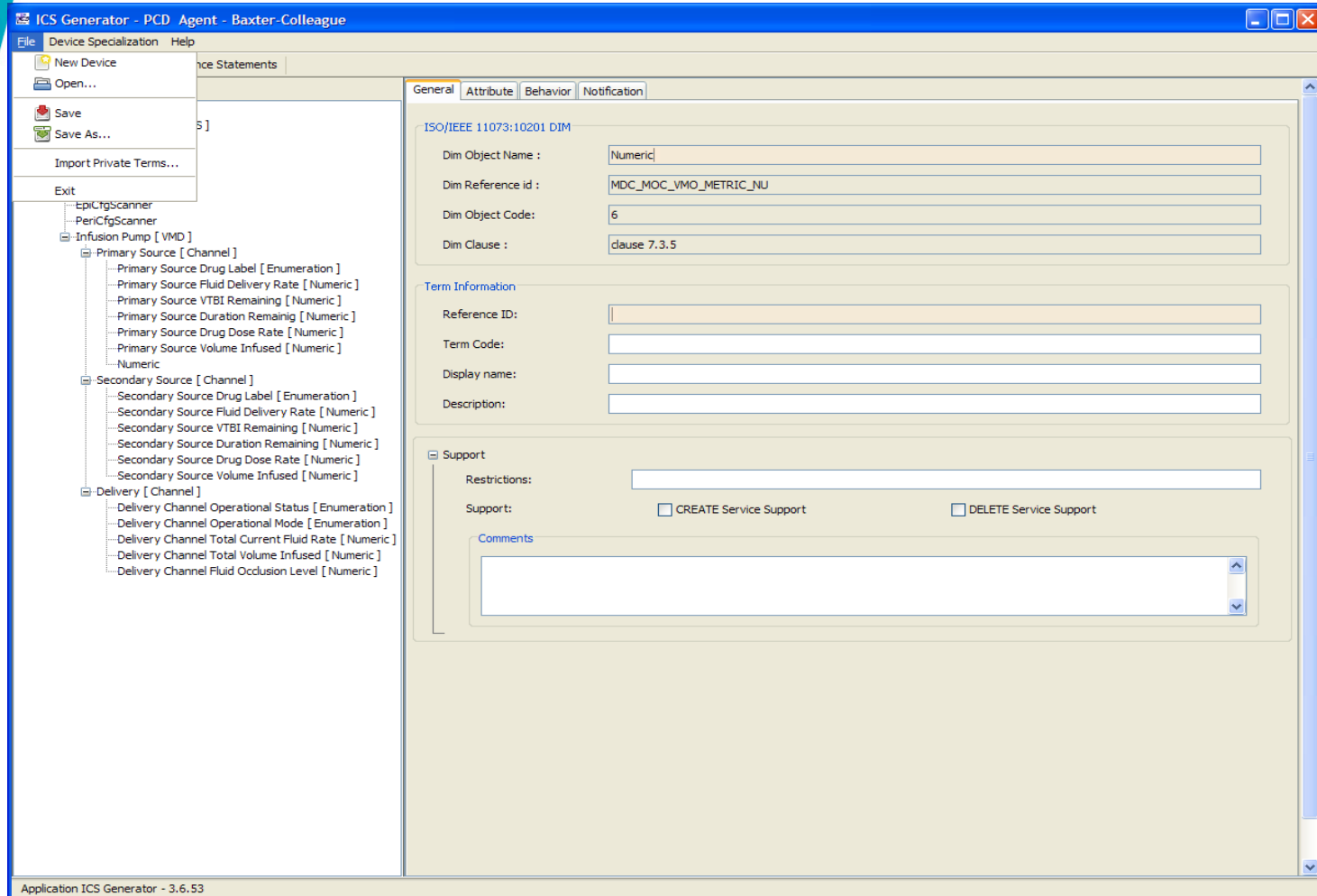
Capability to enter private objects using a “blank” object template

The screenshot shows the ICS Generator application window with a 'Dim Object Table' dialog box open. The dialog box contains a table with the following data:

name	reference id	term code	clause
PM-Store	MDC_MOC_VMO_PMSTORE	61	clause 7.3.12
Real_Time_Sample_Array	MDC_MOC_VMO_METRIC_SA_RT	9	clause 7.3.7
Numeric	MDC_MOC_VMO_METRIC_NU	6	clause 7.3.5
Time_Sample_Array	MDC_MOC_VMO_METRIC_SA_T	10	clause 7.3.8
Distribution_Sample_Array	MDC_MOC_VMO_METRIC_SA_D	8	clause 7.3.9
Alert	MDC_MOC_VMO_AL	52	clause 7.4.1
Enumeration	MDC_MOC_VMO_METRIC_ENUM	5	clause 7.3.10
Complex_Metric	MDC_MOC_VMO_METRIC_CMLX	79	clause 7.3.11

Below the table is a 'name search' input field.

Capability to import private terms using a Rosetta-based xml file



Capability to access private terms from hRTM.

The screenshot shows the ICS Generator interface. The left pane displays a tree view of DIM objects under 'Infusion Pump [VMD]', including 'Primary Source [Channel]' and its sub-items like 'Primary Source Drug Label [Enumeration]'. The right pane shows the configuration for 'ISO/IEEC 11073:10201 DIM' with fields for 'Dim Object Name', 'Dim Reference id', 'Dim Object Code', and 'Dim Clause'. Below this is the 'Term Information' section with a 'Reference ID' field.

The 'Term Tables' window is open, showing a table of terms from the 'HRosetta.3q.2011-05-07T10' source. The table has columns for Group, REFID, CF_CODE10, DIM, UOM_MDC, UOM_UCUM, CF_UCODE10, Enum_..., and Vendor_Descriptions.

Group	REFID	CF_CODE10	DIM	UOM_MDC	UOM_UCUM	CF_UCODE10	Enum_...	Vendor_Descriptions
[BLD_CHM]	MDC_BASE_EXCESS_FLUI...	0	NL-3	MDC_DIM_MILLI_MOLE...	mmol/L	266866	☐	[Base Excess of Extracellular Fluid (GE_Aware)]
[BLD_CHM]	MDC_PRESS_BAROMETRIC	0	LMT-2L-2	MDC_DIM_MMHG	mm[Hg]	266016	☐	[Barometric Pressure (GE_Aware)]
[BLD_CHM_ART]	MDC_BASE_EXCESS_BLD_...	0	NL-3	MDC_DIM_MILLI_MOLE...	mmol/L	266866	☐	[Base Excess of Blood (Philips)]
[BLD_CHM_ART]	MDC_BASE_EXCESS_BLD_...	0	NL-3	MDC_DIM_MILLI_EQUI...	meq/L	266994	☐	[Base Excess of Blood (Philips)]
[BLD_CHM_ART]	MDC_CONC_CA_ART	159792	NL-3	MDC_DIM_MILLI_MOLE...	mmol/L	266866	☐	[Ionized Calcium (GE_Aware)]
[BLD_CHM_ART]	MDC_CONC_CA_PH_NOR...	0	NL-3	MDC_DIM_MILLI_MOLE...	mmol/L	266866	☐	[Ionized Calcium, Normalized to pH 7.4 (GE_Aware)]
[BLD_CHM_GLU]	MDC_CONC_GLU_GEN	160020	NL-3	MDC_DIM_MILLI_MOLE...	mmol/L	266866	☐	[Glucose (Philips), Glucose (WelchAllyn), Glucose Strip (GE_Aware)]
[BLD_CHM_GLU]	MDC_CONC_GLU_GEN	160020	ML-3	MDC_DIM_MILLI_G_PE...	mg/dL	264274	☐	[Glucose (Philips), Glucose (WelchAllyn), Glucose Strip (GE_Aware)]
[BLD_CHM_GLU]	MDC_CONC_GLU_GEN	160020	ML-3	MDC_DIM_G_PER_L	g/L	264192	☐	[Glucose (Philips), Glucose (WelchAllyn), Glucose Strip (GE_Aware)]
[BLD_CHM_HB_ART]	MDC_CONC_HB_ART	159764	ML-3	MDC_DIM_G_PER_DL	g/dL	264256	☐	[Hemoglobin in arterial Blood (Philips), Hemoglobin (Draeger), Total Hemoglobin (...)]
[BLD_CHM_HB_ART]	MDC_CONC_HB_ART	159764	ML-3	MDC_DIM_G_PER_L	g/L	264192	☐	[Hemoglobin in arterial Blood (Philips), Hemoglobin (Draeger), Total Hemoglobin (...)]
[BLD_CHM_HB_ART]	MDC_CONC_HB_ART	159764	NL-3	MDC_DIM_MILLI_G_PE...	mg/dL	266866	☐	[Hemoglobin in arterial Blood (Philips), Hemoglobin (Draeger), Total Hemoglobin (...)]
[BLD_CHM_HCT_A...	MDC_CONC_HCT_ART	160068	1	MDC_DIM_PERCENT	%	262688	☐	[Hematocrit (Draeger), Hematocrit (GE_Aware)]
[BLD_CHM_HCT_G...	MDC_CONC_HCT_GEN	160132	1	MDC_DIM_PCT_PCV	%[pcv]	263392	☐	[Haematocrit (Philips)]

Capability to enter private attributes to a private object or to already defined objects.

The screenshot displays the ICS Generator application interface. On the left, a tree view shows a hierarchy of device components under 'DIM', including 'Infusion Pump [Hydra_MDS]' and 'Infusion Pump [VMD]'. The main window is titled 'ICSGenerator - PCD Agent - Baxter-Colleague' and has tabs for 'General', 'Attribute', 'Behavior', and 'Notification'. The 'Attribute' tab is active, showing a table with columns: 'Attribute name', 'Attribute ID', 'term code', 'qualifier', and 'reference'. A dialog box titled 'Add Private Attribute' is open, allowing users to define new attributes. The dialog includes the following fields:

- Attribute Name: [Text Field]
- Reference ID: [Text Field]
- Term Code: [Text Field]
- Attribute Clause: [Text Field]
- Qualifier: [Text Field]
- Attribute Type: [Text Field]
- Remark: [Text Field]
- Valid Values: [Text Field]
- Value Range: [Text Field]
- Min: [Text Field]
- Max: [Text Field]
- Restrictions: [Text Field]
- Comments: [Text Area]

At the bottom of the dialog are 'OK' and 'Cancel' buttons. In the background, the 'Attribute' tab table contains the following data:

Attribute name	Attribute ID	term code	qualifier	reference
				clause 7.3.1.1
				clause 7.5.1.1
				clause 7.3.4.1

ICSGenerator Enhancements (Cont.)

User Interface improvements:

- "Profile Overview" display
 - By clicking "DIM" on tree root, profile information is displayed on the right side panel.
- Dim Object changeable
 - By clicking on the DIM Object Name an object can be changed to a different object.

ICSGenerator Future Enhancements

- Support PHD standards
 - Update specializations with published versions
- Access to MCD-`<vid>` private terms via hRTM, when available.

Thank You!

- Questions
- Discussion