Introduction To HL7 Version 3

Gavin Tong, Consultant, HL7 Canada
With special thanks to Helen Stevens

This presentation and the information contained within it is protected by a creative commons deed at http://creativecommons.org/licenses/by-nc-sa/1.0/ Please visit this page for more information on how you may use and redistribute this document.
Methodology Introduced

1. Define a consensus Reference Information Model (RIM)

2. Assemble the terminology/vocabulary and data types necessary to express the attributes of the RIM

3. Design the technology to implement the interactions (XML)

4. Develop supporting structures (Storyboards, Trigger events, application roles) that reflect the business model in healthcare

5. Apply the RIM, Vocabulary and Data Types and supporting information to define interactions

6. Publish, Verify, Localize and Implement
Methodology Key Concepts

- Storyboard
  - Application Role
  - Trigger Event
- Interaction
  - Sender
  - Receiver
  - Triggers
- RIM
  - Instantiate
- D-MIM
  - Restrict
- R-MIM
  - Restrict
- HMD
  - Restrict
- Message
  - Content

References

Example

Sender

Receiver

Triggers

Instantiate

Restrict

Restrict

Restrict

Content
Methodology Key Concepts

Storyboard

Application Role

Sender

Interaction

Receiver

Trigger Event

Messages

Example

Sender

References

Nonnull

Restrict

Example

Restrict

Triggers

Restrict

Instantiation

RIM

D-MIM

Restrict

R-MIM

Restrict

HMD

Restrict

Message

Content
Reference Information Model (RIM)

- Defines all the information from which the data content of HL7 messages are drawn
- Follows object-oriented modeling techniques, where the information is organized into classes that have attributes and that maintain associations with other classes
- Forms a shared view of the information domain used across all HL7 messages independent of message structure
- Provides a means for discovering and reconciling differences in data definition
HL7 RIM 1.12

Entity

Role

Participation

Act

Message control

Structured Documents
Format/Context/Meta-data

Control

RIM

Structured Documents
(message payload format)

(message payload context)

(message payload meta-data)
RIM Core Class Definitions

**Act** - an intentional action in the business domain of HL7. Healthcare (and any profession or business) is constituted of intentional actions. An instance is a record of an act. Acts definitions (master files), orders, plans, and performance records (events) are all represented by an instance of Act.

**Act Relationship** - Ability to relate 2 acts. Examples relationships are compositional, reference and succeeds.

**Entity** - physical thing or organization and grouping of physical things. A physical thing is anything that has extent in space, mass. Excludes information structures, electronic medical records, messages, data structures, etc.

**Role** - “a socially expected behavior pattern usually determined by an individual’s status in a particular society”. For people, role is usually positions, jobs, or ‘hats’ and “a function or part performed especially in a particular operation or process” (ibid) Thus, the roles of places and things are what these places or things are normally used for.

**Role Link** - A relationship between two entity roles. For example linking the Physician’s relationship with an organization and a patient’s relationship with the organization to express the patient/physician relationship.

**Participation** - exists only in the scope of one act. Acts have multiple participants, each of which is an entity in a role. *Role signifies competence while participation signifies performance.*
Notes:

- Only classes that contain attributes will display in the ‘poster-board’ – there are many others
- Valid Classes are defined by the class_cd attribute (structured vocabulary)
- All Attributes have data types associated with them.
- When developing an R-MIM If there are no attributes required from the parent class it can be skipped. For example Person can be linked directly to Entity if Living_subject attributes are not required.
Cardinality & Relationship between classes
RIM Core Classes

4 structural attributes:
- classCode
- typeCode
- moodCode
- determinerCode

Credit: HL7, Woody Beeler
RIM Core Structural Attributes

**Entity Class Code**
- Living Subject
- Person
- Organization
- Material
- Place
- ...

**Role Class Code**
- Patient
- Provider
- Employee
- Specimen
- Practitioner
- ...

**Act Class Code**
- Observation
- Procedure
- Supply
- Medication
- Financial
- ...

**Entity Determiner Code**
- Kind
- Instance
- (Qualified Group)

**Role**
- classCode
- id
- code
- statusCode
- effectiveTime

**Participation**
- typeCode
- time
- 0..*
- ...

**Act**
- classCode
- id
- code
- statusCode
- effectiveTime

Credit: HL7, Woody Beeler
Proposition (PRP)
Why don’t you clean your room today?

Order (ORD)
Clean your room!

Intent (INT)
I promise to clean my room

Event (EVN)
The room is cleaned

Definition (DEF)
“Cleaning your room” means make the bed, put toys away…

Event Criterion (EVN.CRT)
If you want ice cream you must clean your room
A state transition is a change in the state of a class by virtue of a change in its attributes or associations.

Example: state-transition model representing the life-cycle of an activity.
Artifact Naming Conventions
Why a naming convention?

- Artifacts are uniquely identified
  - Avoids conflicts/duplicates between committees or working groups

- Artifact types and responsibilities are clearly defined and understood from the name
  - Increases accuracy and efficiency in ensuring that correct artifacts are published properly

- High volume of artifacts and submissions being received from many committees to be coordinated centrally by publications
Artifact Naming

All artifacts delivered for V3 must be named using the following convention:

```
UUDD_AAnnnnRRvv
```

**UU** = Sub-Section code  
**DD** = Domain code  
**AA** = Artifact or Document code  
**nnnnnn** = Six digit zero-filled number  
**RR** = Realm Code (Currently only UV is supported)  
**vv** = Version Code

Example:

```
PORX_AR000001UV01
```

Operations Sub-Section, Pharmacy Domain, Application Role Artifact number 000001, Universal Realm, Version 01.
# Infrastructure Management

<table>
<thead>
<tr>
<th>Section Identifier</th>
<th>Sub-Section Identifier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM</td>
<td>Section: Infrastructure Management</td>
<td></td>
</tr>
<tr>
<td>MC</td>
<td>Sub-Section: Message Control</td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>Transmission Infrastructure</td>
<td></td>
</tr>
<tr>
<td>AI</td>
<td>Control Act Infrastructure</td>
<td></td>
</tr>
<tr>
<td>MF</td>
<td>Sub-Section: Master File Management</td>
<td></td>
</tr>
<tr>
<td>MI</td>
<td>Master File Infrastructure</td>
<td></td>
</tr>
<tr>
<td>QU</td>
<td>Sub-Section: Query</td>
<td></td>
</tr>
<tr>
<td>QI</td>
<td>Query Infrastructure</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>Sub-Section: Common Message Elements</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>Common Message Elements</td>
<td></td>
</tr>
<tr>
<td>MT</td>
<td>Common Message Content</td>
<td></td>
</tr>
<tr>
<td>HM</td>
<td>Section: Health &amp; Clinical Management</td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>--------------------------------------</td>
<td></td>
</tr>
<tr>
<td>PO</td>
<td>Sub-Section: Operations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LB  Laboratoy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RX  Pharmacy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>II  Imaging Integration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CG  Clinical Genomics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RR  Public Health Reporting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RI  Public Health Reporting Informative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RT  Regulated Studies</td>
<td></td>
</tr>
<tr>
<td>RE</td>
<td>Sub-Section: Reasoning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PC  Patient Care</td>
<td></td>
</tr>
<tr>
<td>RC</td>
<td>Sub-Section: Records</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MR  Medical Records</td>
<td></td>
</tr>
<tr>
<td>AM</td>
<td>Section: Administrative Management</td>
<td></td>
</tr>
<tr>
<td>PR</td>
<td>Sub-Section: Practice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PA  Patient Administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SC  Scheduling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PM  Personnel Management</td>
<td></td>
</tr>
<tr>
<td>FI</td>
<td>Sub-Section: Financial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CR  Claims &amp; Reimbursement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AB  Accounting &amp; Billing</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Artifact</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>AR</td>
<td>Application Role</td>
<td></td>
</tr>
<tr>
<td>DM</td>
<td>D-MIM (Domain Information Model)</td>
<td></td>
</tr>
<tr>
<td>DO</td>
<td>Domain</td>
<td></td>
</tr>
<tr>
<td>EX</td>
<td>Example</td>
<td></td>
</tr>
<tr>
<td>HD</td>
<td>HMD (Hierachial Message Descriptor)</td>
<td></td>
</tr>
<tr>
<td>IN</td>
<td>Interaction</td>
<td></td>
</tr>
<tr>
<td>MT</td>
<td>Message Type</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>Narrative Content</td>
<td></td>
</tr>
<tr>
<td>RM</td>
<td>R-MIM (Refined Information Model)</td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>Storyboard</td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>Storyboard Narrative</td>
<td></td>
</tr>
<tr>
<td>TE</td>
<td>Trigger Event</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB</td>
<td>Backbone</td>
</tr>
<tr>
<td>CF</td>
<td>Conformance</td>
</tr>
<tr>
<td>DT</td>
<td>Data Types</td>
</tr>
<tr>
<td>GL</td>
<td>Glossary</td>
</tr>
<tr>
<td>IT</td>
<td>ITS</td>
</tr>
<tr>
<td>NC</td>
<td>Narrative Content</td>
</tr>
<tr>
<td>PB</td>
<td>Publication/Domain Database</td>
</tr>
<tr>
<td>RI</td>
<td>RIM</td>
</tr>
<tr>
<td>RP</td>
<td>Repository Database</td>
</tr>
<tr>
<td>VG</td>
<td>V3 Guide</td>
</tr>
<tr>
<td>VO</td>
<td>Vocabulary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Realm</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV</td>
<td>Universal</td>
</tr>
</tbody>
</table>
Methodology Key Concepts

Storyboard

Application Role

Sender

Trigger Event

Receiver

Interaction

References

Example

Sender

Receiver

Triggers

RIM

Restrict

D-MIM

Restrict

R-MIM

Restrict

HMD

Restrict

Message

Content

Instantiate
Storyboards

A Storyboard is a real-world example of a sequence of events.

2.1.4 Add New Patient (PRPA_ST201001)

Purpose

These storyboards demonstrate adding a new patient to a patient registry. The first narrative describes this taking place in a setting with separate person and patient registries where the patient information is linked to the person information. The second narrative describes this taking place in a setting where there is only a patient registry that includes both person and patient information.

Interaction List

| Patient Activate Notification                                      | PRPA_SN201001 |
| PatientLivingSubject Activate Notification                        | PRPA_SN201101 |

2.1.4.1 Patient Activate (PRPA_SN201001)

Mr. Adam Everyman's physician, Dr. Patricia Primary, called the Good Health Hospital to schedule an inpatient visit for Mr. Everyman for lung surgery. The clerk located the existing entry for Mr. Everyman in the GHH Person Registry and added him to the GHH Patient Registry along with the mailing address and telephone number to use for communicating patient information to him [Trigger Event Patient Activate Notification] and scheduled the admission for two weeks from that day.

2.1.4.2 PatientLivingSubject Activate (PRPA_SN201101)

Mr. Adam Everyman's physician, Dr. Patricia Primary, called the Good Health Hospital to schedule an inpatient visit for Mr. Everyman for lung surgery. The clerk added Mr. Everyman's name, demographics, address and telephone number to the GHH Patient Registry along with the mailing address and telephone number to use for communicating patient information to him [Trigger Event PatientLivingSubject Activate Notification] and scheduled the admission for two weeks from that day.
Storyboards interaction diagrams support each storyboard.
Application Roles

Abstractions that standardize the roles played by healthcare information system components when they send or receive HL7 messages.

- Foundation for conformance claims
- Used to define interoperable messages
- Tool to analyze the relationship between messages and key classes in the RIM

2.2.5 Person Comprehensive Informer (PRPA_AR101001)

Description

Structured Name: Person Comprehensive Informer
A Person Comprehensive Informer sends all notification messages for person registries.

2.2.6 Person Comprehensive Tracker (PRPA_AR101002)

Description

Structured Name: Person Comprehensive Tracker
A Person Comprehensive Tracker receives all notification messages from person registries.
Diagram

Application Roles

Patient Activate
PRPA_ST201001

Patient Activation Informer
PRPA_AR201003

Patient Activation Tracker
PRPA_AR201004

Patient Living Subject: Activation Informer
PRPA_AR201103

Patient Living Subject: Activation Tracker
PRPA_AR201104

Patient Activate Notification
PRPA_IN201001

Patient Living Subject Activate Notification
PRPA_IN201101
An application role can be both

- Container:
  - Contains other AR
- Contained
  - Is contained by other AR

### 2.2 Message Definition Application Roles

<table>
<thead>
<tr>
<th>Message Definition Application Roles (Sorted by Structured Sort Name)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person Comprehensive Informer PRPA_AR101001</td>
</tr>
<tr>
<td>- Person Revision Informer PRPA_AR101005</td>
</tr>
<tr>
<td>- Person Nullification Informer PRPA_AR101007 [Elemental]</td>
</tr>
<tr>
<td>- Person Activation Informer PRPA_AR101003 [Elemental]</td>
</tr>
<tr>
<td>Person Comprehensive Tracker PRPA_AR101002</td>
</tr>
<tr>
<td>- Person Revision Tracker PRPA_AR101005</td>
</tr>
<tr>
<td>- Person Nullification Tracker PRPA_AR101008 [Elemental]</td>
</tr>
<tr>
<td>- Person Activation Tracker PRPA_AR101004 [Elemental]</td>
</tr>
<tr>
<td>Patient Comprehensive Informer PRPA_AR201001</td>
</tr>
<tr>
<td>PatientLivingSubject Comprehensive Informer PRPA_AR201101</td>
</tr>
<tr>
<td>PatientLivingSubject Comprehensive Tracker PRPA_AR201102</td>
</tr>
</tbody>
</table>
Trigger Event

An occurrence in the health care domain, or within the systems that support this domain, that causes information to be exchanged in the domain or between systems.

There are three types of Trigger Event:

- Interaction based
  - Occurs when a specific interaction is received

- State-transition based
  - Based on the state transition of a particular focal class. Some trigger events may be based on more than one state transition. If a trigger is associated with more than one state transition, it is assumed that both transitions occur at the same time.

- User request
  - Occurs at the request of a human user

2.3.1 Add New Person (PRPA_TE101001)

Description

Structured Name: Person Activate Notification
Type: State-transition based
State Transition: IdentifiedPerson (PRPA_RM101001)

The Add New Person trigger event signals that a new person was added to a person registry.

V2 Reference

The Add New Person trigger event is most closely aligned with the HL7 2.4 ADT^A28 – add person or patient information. However, in v3 person level providers with an ongoing relationship are reported in patient rather than person messages.
State Transition Trigger Events

Act State Diagram (Event Mood) for Patient Administration Messages
RIM to Message Type

HL7 v3 Methodology - Models

Credit: HL7, Woody Beeler
1.3 Domain Message Information Models

Domain Table of Contents

Patient Administration (PRPA_DM000000)

Description

Domain Message Information Model (D-MIM)

The Patient Administration D-MIM is a refined subset of the HL7 Reference Information Model (RIM) that includes the set of class clones, attributes and relationships used to create messages for the Patient Administration domain.

The D-MIM is further refined into a collection of Refined Message Information Models (R-MIM) that define the information content for sets of messages.
The steps from the RIM to the MT introduce:

- Cloning
  - The copying of core classes from the RIM to represent each concept. For example, an Entity for the patient, another for the physician.

- Constraining
  - Restricting the vocabulary, cardinality and relationships. Each step towards the MT constrains further the artifact above.
2.4.6 Attending Practitioner (PRPA_RM301001)

Description

**Parent:** Patient Administration (PRPA_DM000000)

PRPA_RM301001 - Attending Practitioner R-MIM

This R-MIM defines content for state transition notification messages from systems that do not include attending practitioner participation in patient encounter messages.

**EncounterEvent**

The entry point to the Attending Practitioner R-MIM is the focal encounter, *EncounterEvent*. The R-MIM assumes attending practitioner messages would be exchanged between closely coupled systems so only *EncounterEvent.id* and the *subject* association to *R_Patient [identified] CMET* are sent about the encounter.

**attender**

The *attender* class describes the attending practitioner participation of a practitioner who is sent in an *R_AssignedPerson CMET*. The *statusCode* and *time* attributes are mandatory. The *time* attribute requires a starting time for an "active" participation and both starting and ending times for a "completed" participation. For a "nullify" message the *time* would be the time reported in the record that was nullified.
VISIO Diagrams Purpose

- Allows visual representation of data structures that makes content clearer
- Visual representation of R-MIM attribute and association properties (cardinality, mandatory, etc.)
- Simplify the design and development process for R-MIMs and D-MIMs
- Allow checking of the designed model against the RIM
- Allow saving of R-MIMs into the RoseTree repository
- Allow validation of Visio R-MIMs against repository R-MIMs
- Allow creation of HTML output
Hierarchical Message Descriptors

HMD specifies the order and constraints of particular set of attributes and relationships drawn from the RIM classes of interest with each unique pattern of attributes and relationships made explicit as "cloned" classes.

Includes a “common message” that has least strict constraints.

2.5.2 Patient (PRPA_HD201001)

Description

The Patient HMD defines content for state transition notification messages for patient registries that link to separate person registries.

Common Message Element Types Used In This Domain

<table>
<thead>
<tr>
<th>E_OrganizationContact</th>
<th>COCT_MT150003</th>
</tr>
</thead>
<tbody>
<tr>
<td>E_OrganizationIdentified/confirmable</td>
<td>COCT_MT150002</td>
</tr>
<tr>
<td>E_PersonIdentified/confirmable</td>
<td>COCT_MT030202</td>
</tr>
<tr>
<td>E_PlaceUniversal</td>
<td>COCT_MT710000</td>
</tr>
<tr>
<td>R_CoveredPartyUniversal</td>
<td>COCT_MT500000</td>
</tr>
</tbody>
</table>

Base Hierarchical Message Description

<table>
<thead>
<tr>
<th>Message Type List</th>
<th>PRPA_MT201001</th>
<th>PRPA_MT201003</th>
<th>PRPA_MT201002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Activate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Nullify</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Revise</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Each Message Type can specify different patterns of constraints for the same set of attributes as long as the constraints are at least as strict as those prescribed in the common message for the HMD.

Constraints may be stricter (or "tighter") than the common message. This allows a single HMD to satisfy the needs of a number of related interactions.
Methodology Key Concepts

- **Storyboard**
  - Example
  - References

- **Interaction**
  - Sender
  - Receiver
  - Triggers
  - Content

- **Application Role**
  - Trigger Event

- **RIM**
  - Instantiate
  - Restrict

- **D-MIM**
  - Restrict

- **R-MIM**
  - Restrict

- **HMD**
  - Restrict

- **Message**
An interaction is a single, one-way transfer of information.

An association between a specific information transfer, a trigger event that initiates or triggers the interaction, and the roles that send and receive the interaction.

### 2.6.1 New Person Added (PRPA_IN101001)

**Description**

*Structured Name:* Person Activate Notification

The PRPA_IN101001 *Person Activate Notification* occurs when a new person is added to a person registry. The *Person Activation Informer* sends a complete person record to all *Person Activation Trackers*.

<table>
<thead>
<tr>
<th>Sending Role</th>
<th>Person Activation Informer</th>
<th>PRPA_AR101003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving Role</td>
<td>Person Activation Tracker</td>
<td>PRPA_AR101004</td>
</tr>
<tr>
<td>Trigger Event</td>
<td>Person Activate Notification</td>
<td>PRPA_TE101001</td>
</tr>
<tr>
<td>Transmission Wrapper</td>
<td>Send Message Payload</td>
<td>MCC1_MT000100</td>
</tr>
<tr>
<td>Control Act Wrapper</td>
<td>Registry - role target</td>
<td>AFML_MT700701</td>
</tr>
<tr>
<td>Message Type</td>
<td>Person Activate</td>
<td>PRPA_MT101001</td>
</tr>
</tbody>
</table>
Interaction Support Information

Interaction Type
- Query
- Query Response
- Event Notification
- Request for Action
- Request Response – Accept
- Request Response – Refuse
- Un-triggered notification

Wrapper Type Class
- Acknowledgment
- Initial message
- Query
- Query response
Receiver Responsibilities

✓ An interaction may have many receiver responsibilities associated with it.

✓ Receiver responsibility may be:
  ✓ New interaction(s)
  ✓ New trigger event(s)

✓ Each Responsibility is mutually exclusive and is described with a narrative ‘Reason’. 

<table>
<thead>
<tr>
<th>Reason</th>
<th>Trigger Event</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fulfiller confirms the occurrence order using this general confirmation.</td>
<td>POLB TE003131</td>
<td>POLB IN003131</td>
</tr>
<tr>
<td>Fulfiller rejects the occurrence order.</td>
<td>POLB TE002141</td>
<td>POLB IN002143</td>
</tr>
</tbody>
</table>
5.3 Interaction Indexes

5.3.1 Interaction Index by Application Role

Person Revision Informer (PRPA_AR101005)

Interactions in which this application role is the sender:

Person Revise Notification  PRPA_IN101002

5.3.2 Interaction Index by Trigger Event

Person Activate Notification (PRPA_TE101001)

Person Activate Notification  PRPA_IN101001

5.3.3 Interaction Index by Message Type

Person Activate (PRPA_MT101001)

Person Activate Notification  PRPA_IN101001
Methodology Key Concepts

- Storyboard
- Application Role
- Trigger Event
- Interaction
- Sender
- Receiver
- References
- Triggers
- Instantiate
- Restrict
- RIM
- D-MIM
- R-MIM
- HMD
- Message
Localization

❖ Optionality
❖ Barrier to interoperability in V2
❖ Methods for dealing with it in V3
❖ But haven’t done away with the need for it!

❖ Localization
❖ Realms (e.g. Canada) are to approve ‘realm specific’ needs for code sets, vocabularies and other constraints or refinements of HL7 V3 artifacts

❖ Process
❖ Members propose items for localization
❖ HL7 Canada Technical Committees review the proposal and recommend it for approval
❖ HL7 Canada Secretariat holds an open ballot
❖ If approved, it is localized for Canada

❖ Key point:
❖ If an implementer skips this step or doesn’t use the HL7 Canada localized artifact, they are not V3 conformant!
Example XML Message Instance

XML Message Instance for a lab order
Dear Member,

Welcome to the Version 3 Ballot Package Download Page. Here you can download various parts, or even all, of the ballot package web site.

What is in a Download?

The ballot package includes several documents. To facilitate faster downloading, the ballot package has been broken into several smaller downloads. To ensure that most of the hyperlinks work, all download packages include the reference and help documents:

L7 Version 3.0 Known Issues

1. **PDF**: Although the documentation states that the V3.0 ballot will be available in PDF format for printing resource limitations during the development of the publication resulted in this not being achieved. It is still the intent of HL7 to produce the ballot in PDF format; however, this will not be included in this ballot cycle. To alleviate the problem the HTML representation has been split into smaller documents so that each can be individually printed using the browser print functionality. The publishing committee is actively seeking volunteers to assist in the development of a PDF rendition; please contact Karen VanHentenryck if you are available to help.

2. **XML ITS**: The XML ITS Documentation is not complete and includes only the Data Types specification portion. This document is still under development within the Control/Query Technical Committee and XML Special Interest Group. Please contact the co-chairs of these committees for further information on the.

Reporting Issues or Comments

When reporting on an issue that is not listed on the web page, here please email the Publishing Committee Support.

You may also submit any comments or suggestions regarding the 3.0 Ballot to the Publishing Committee List Service. If you are not a member of the Publishing Committee List Service, you may send your comments to the support address above.