	Interoperability Toolkit – ITKv1.x to ITKv2.0 Upgrade Guide			
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Interoperability Toolkit
ITK v1.x to ITK v2.0 Upgrade Guide

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Reviewers:

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Related Documents:

These documents will provide additional information.

Ref no	Doc Reference Number	Title	Version
1	NPFIT-1 ELIBR-AREL-DST-0422	ITK 2.0 Specifications Overview	Latest

Glossary of Terms:

Please see the ITK 2.0 Specifications Overview (See Related Document 1) for a consolidated glossary of terms used in the ITK documents.

Other terms, acronyms and abbreviations commonly used within NHS CFH can be found in the Acronyms Guide http://www.connectingforhealth.nhs.uk/about/acronyms

Contents

1 Introduction

1.1 Document Purpose

This document describes the differences between ITKv1.x and ITKv2.0. It is intended both to give an overview of the thinking and drivers behind the upgrade, and also to point out any specific technical changes.

1.2 Audience

This document will be of interest to anyone who is familiar with ITK v1.x who wants to understand “what’s new” in ITK v2.0. It is aimed primarily at a technical audience.

The document is likely to be of particular interest to any who has implemented an ITK v1.x solution and wants to understand the work required (if any) to upgrade to ITK v2.0

1.3 Document Overview

The document starts with an overview of the overall themes for the ITK v2.0 release. It then looks at:

- Changes to the Architecture Specifications
- Changes to the Operating Model
- Changes to the Messaging Specifications

2 ITK v2.0 Overview

The ITK v2.0 release has been based around the following major themes:

- **Modularisation**

  First impressions are that the ITK v2.0 specifications look quite different to their predecessors. This is to some extent misleading however, as much of the actual content is unchanged. The ITK v1.x specifications have been rewritten in a more modular structure to support future growth by:

  - Separation of messaging definitions into domain-based packs
  - Reorganisation of architecture specifications into a set of modular components
  - Cleaner separation of the transport protocols (ie separate Web Services transport module, and addition of a DTS transport option)
  - New website format to provide better presentation and easier navigation of the documents

- **Support for more complex implementation scenarios**

  ITK v1.x provided support for simple interaction patterns (eg basic one-way message transmission) between pre-defined and configured endpoints.

  ITK v2.0 rounds this out with support for more complex scenarios ie:

  - Acknowledgements at both the infrastructure and business level
  - Addressing and Routing services

- **Correspondence**

  A key focus of ITK v2.0 has been to lay the groundwork for clinical document exchange. This has included specifying a set of generic services for document transmission - including the ability to carry attachments. This has been developed into a maturity model to support varying approaches, ranging from a basic human-readable PDF right through to fully coded CDA.

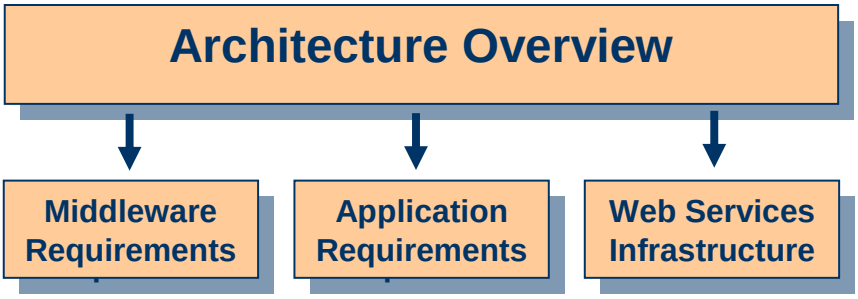
  Some specific document content has been defined for ITK v2.0. It is anticipated further document content definitions may be added in future releases.

- **Spine Mini Services**

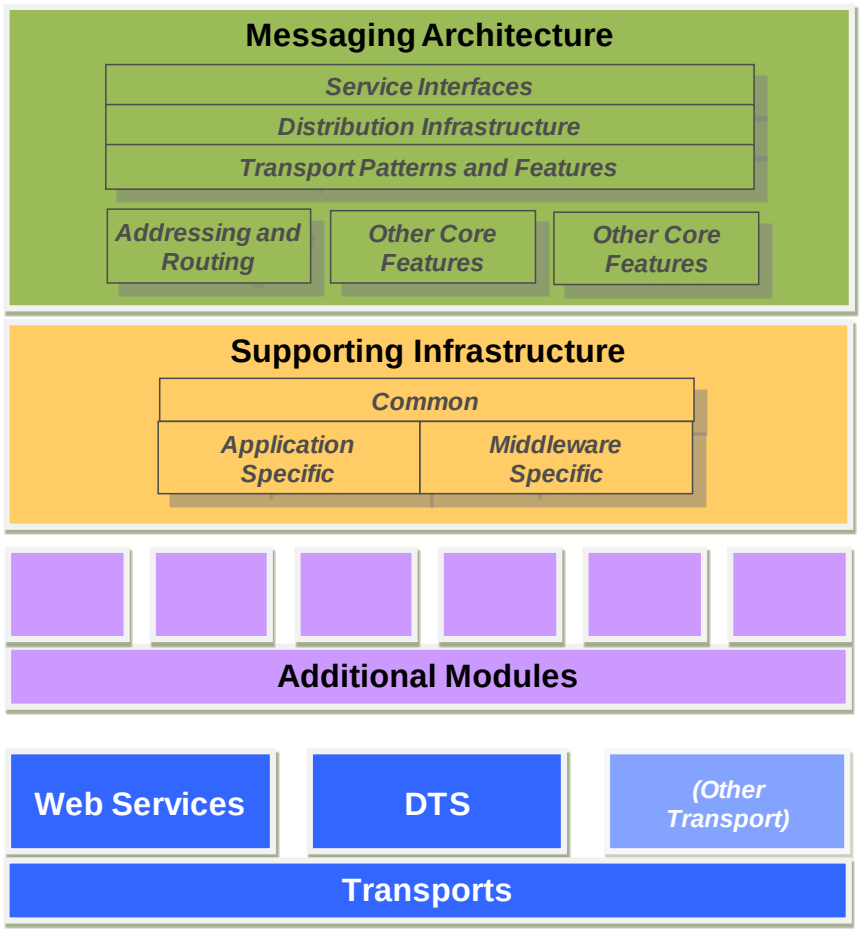
  The final focus of ITK v2.0 has been the use of ITK Web Services to simplify access to Spine Services. The implementation consists of new message bundles which define a simplified set of PDS services, as well as architecture requirements for a Spine Mini Service Provider component which acts as an intermediary to protect Spine. New accreditation approaches to support this model have also been piloted.

3 Changes to Architecture Specifications

The architecture specifications appear, at first glance, to have changed substantially between ITK 1.x and ITK 2.0. The diagram below summarises the document structure for ITK 1.x:



By contrast ITK 2.0 has the following document structure, within which are defined a number of modules:



Specification Module
Core Messaging
Addressing and Routing – Routing Requestor
Addressing and Routing – Routing Receiver
Addressing and Routing – ITK Router
Supporting Infrastructure - Common
Supporting Infrastructure – Middleware Specific
Supporting Infrastructure – Application Specific
Additional Modules - Queue Collection Host
Additional Modules - Flexible Validation
Additional Modules - Sequencing - Application
Additional Modules - Sequencing - Middleware
Additional Modules - Translation and Mediation
Additional Modules - Orchestration
Additional Modules - Throttling
Additional Modules - Discovery Provider
Additional Modules - Monitoring and Management
Additional Modules – IG - Middleware
Additional Modules – IG – Application
Additional Modules – Spine Mini Services Provider
Additional Modules – Spine Mini Services Client
Additional Modules – Urgent Care Dashboard Sender
Web Services Transport
DTS Transport

These apparent differences are however somewhat misleading. They represent a restructuring of the documentation to support a more modular approach. The actual content is, intentionally, equivalent. The attached spreadsheet provides more detail on this, showing item-by-item mappings from the ITK 1.x to ITK 2.0 requirement statements[1].

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In summary, the requirements for accreditation as "ITK Application" or "ITK Middleware" are equivalent between ITK 1.x and ITK 2.0.

Implementations that have already gained ITK 1.x accreditation for "ITK Application" or "ITK Middleware" will be accredited as meeting the ITK 2.0 versions of these specifications without retesting.

All future accreditations of these modules will be issued as ITK 2.0

[1] Note that there are a number of small changes, however these are not intended to be material but rather to clarify ambiguities or to correct wording. The practical implementation intent remains unchanged.

This is not to say that there is no new content in the ITK 2.0 architecture specifications. However this is in the form of additional modules which can be accredited separately. Going forwards then the accreditation certificate will also enumerate which optional additional modules have been achieved – with this being important information to consider when selecting a solution.

Attention is drawn to the following new modules which suppliers are strongly encouraged to consider:

- **Addressing and Routing**

  This describes an approach to addressing and routing ITK messages across a more complex multi-hop topology (ITK 1.x supported only simple single hops). Different requirements apply depending on whether the implementation is a requestor, receiver, or router of ITK messages.

  The specifications also define an approach to end-to-end acknowledgments to enable reliability across a multi-hop topology.

- **Spine Mini Services**

  This describes how an ITK implementation may act as a proxy for Spine services, specifically simple PDS lookups. This greatly simplifies both the technical implementation and accreditation requirements for downstream ITK Applications.

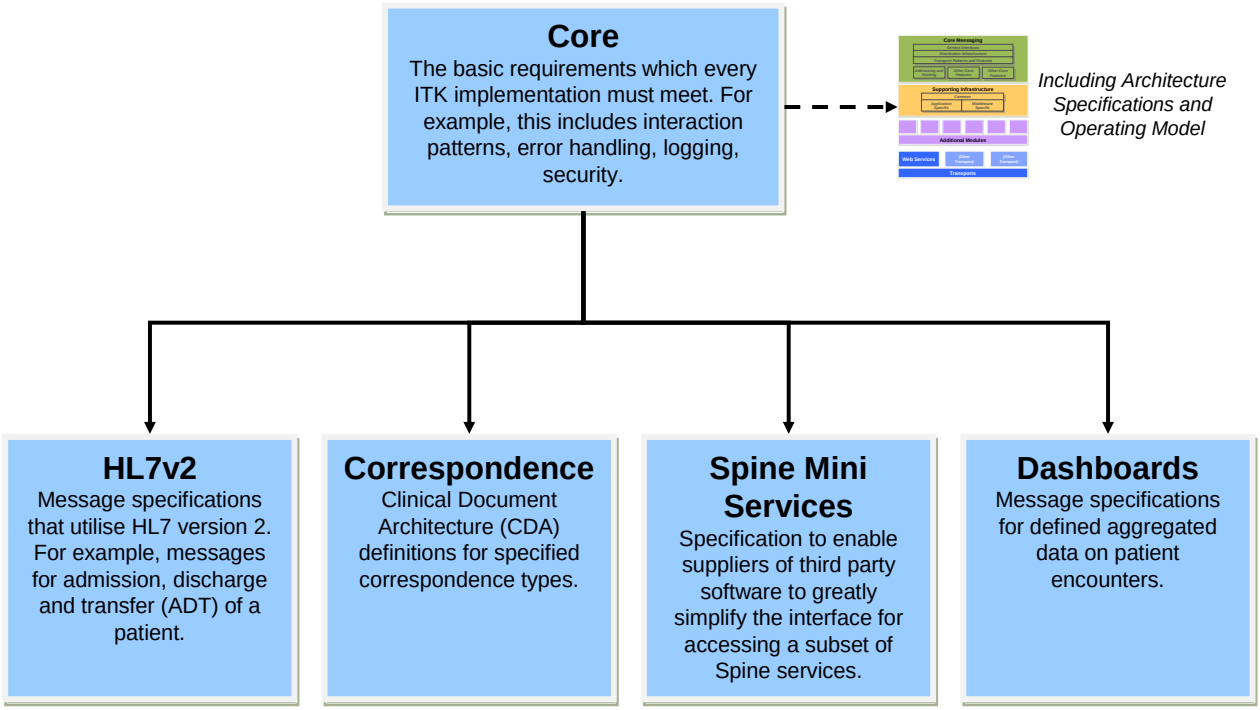
4 Changes to Operating Model

There are no changes to existing content of the ITK 1.x Trust Operating Model in ITK 2.0.

However new material has been added, to provide additional detail for the specific case of an ITK Mini Services implementation. This further constrains what is acceptable in order to make use of Spine data via Mini Services.

5 Changes to Messaging Specifications

The messaging specifications have undergone a significant presentational uplift in ITK 2.0 – moving from a set of files to an interactive website presentation. The formality of the specifications has also been greatly improved, in terms of more consistent interaction identification and formal profile definitions to manage configuration. The diagram below shows the structure of the new Messaging packs.



This pack structure provides a framework for considering the actual changes to messaging content in ITK 2.0:

5.1 Core

5.1.1 Distribution Envelope

Two new optional fields have been added to the Distribution Envelope (“Handling Specifications” and “Sender Address”). These allow for additional new scenarios and have no direct impact on existing ITK 1.x messages.

However it becomes mandatory to make use of some of the optional tags in the Distribution Envelope schema when sending Discharge Summaries. (These points are covered in detail in section 5.3.1 below).

5.1.2 Metadata and Attachments

New facilities have been defined to support carrying of attachments as part of a CDA document. In addition a set of accompanying metadata to accompany a CDA document has been defined. These optional new features provide additional flexibility and / or support the new maturity-based approach to CDA. They have no impact on existing ITK 1.x messages

5.2 HL7v2

The HL7v2 (ADT) messages are unchanged between ITK 1.x and ITK 2.0[2].

However on a technical level, the type of the distribution envelope's "payload" element has been corrected in ITK 2.0 to align with the intention that a payload is either an XML element (plus children), or text (for example, a base 64 encoded pipe-and-hat message body). This change fixes an erroneous schema validation failure from ITK 1.x pipe-and-hat ADT messages. Existing accreditations are unaffected.

Also on a technical level, the schema definition for the distribution envelope has been upgraded to the latest version which adds support for a number of new optional fields. However these new optional fields are not used when sending HL7v2 messages. Therefore there is no practical change to the messages sent, nor therefore any change to the service name. Existing accreditations are, again, unaffected.

Implementations that have already gained ITK 1.x accreditation for HL7v2 message bundles will be accredited as meeting the ITK 2.0 version without further testing

All future accreditations of these modules will be issues as ITK 2.0 versions

5.3 Correspondence

5.3.1 Discharge Summary

The Discharge Summary is the key area of change between ITK 1.x and ITK 2.0.

A number of modifications have been made to the CDA message specifications. These are intended to increase flexibility and to make it easier to add additional CDA document types in future:

- The web service used has been renamed from “Send Discharge Summary” to “Send CDA Document”.

[2] Note that, strictly speaking, the HL7v2 pack may actually be issued a short time after the rest of the ITK 2.0 documentation. However it is considered here for completeness.

- The CDA document definition has been re-factored using HL7 “templates”. The practical impact of this is that a number of template ids will need to be inserted into the message content, as well as ensuring that the content of the CDA document abides by the constraints of the templates as well.
- In addition, in ITK 2.0 the CDA document schema definition has been tightened up. While this does not represent a change of intent, it does mean that new errors may be revealed in existing implementations.

More substantially, the new Addressing and Routing requirement module(s) are mandatory for ITK 2.0 Discharge Summary implementations. (By implication this means that the sender and receiver address elements of the Distribution Envelope must now be used). These new addressing and routing requirements have been added in order to open up distribution of CDA documents over more complex topologies, and to provide confirmation of receipt via an acknowledgements framework.

Suppliers who have previously implemented ITK 1.x Discharge Summary will need to implement the above enhancements and resubmit logs to gain ITK 2.0 accreditation.

5.3.2 Other new Correspondence messages

In addition to the Discharge Summary (discussed above), the following new correspondence domains have been added:

- Out of Hours
- Ambulance
- Outpatients
- Emergency Department

Furthermore, a “non-coded” CDA document has been introduced as a generic wrapper for carrying any other type of clinical document content. This includes a simplified “Green CDA” specification.

The availability of these additional new messaging bundles has no impact on any accreditation already gained for other bundles under ITK 1.x

5.4 Spine Mini Services

This pack provides new message definitions for Spine Mini Services (ie simplified connection to PDS).

The availability of these additional new messaging bundles has no impact on any accreditation already gained for other bundles under ITK 1.x.

Note that a previous service named “Get Consent” has been deprecated. This was part of an early exploration of the Mini Services concept, but never had an accreditation process defined and was never, as far as we are aware, implemented or adopted. The option remains open to revisit this service, based on demand, in future releases.

5.5 Dashboards

This pack provides new Message definitions for dataset exchange to support clinical dashboards.

The availability of these additional new messaging bundles has no impact on any accreditation already gained for other bundles under ITK 1.x