

Online Forms Architecture Technical Specification

HISO 10014.2

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Published in June 2010, by the Ministry of Health
PO Box 5013, Wellington, New Zealand

ISBN 978-0-478-35959-6 (online)

**This document is currently available on the HISO website:
<http://www.hiso.govt.nz>**

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Committee Representation

Committee 10014.2 was responsible for the preparation of this draft document and consisted of the following representatives:

Nominating Organisations

Committee Member	Nominating Organisation
Zane Windle	Accident Compensation Corporation (ACC)
Chris Wiltshire	Enigma Publishing Ltd
Edwin Ng	HealthLink
Stefan Sepanaho	Idiom Ltd
Peter Sergent	MedTech Ltd
Richard Chan	Ministry of Health
Kelsey Grant	Orion Health
Jeremy Coulter	Pegasus Health
Ashwin Patel	RNZCGP
	State Services Commission
Mike Mair	Timaru Eye Clinic/NZHUG
Jim Warren	University of Auckland

The terms 'normative' and 'informative' are used in Standards to define the application of an appendix. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance and does not form part of the mandatory requirements of the Standard.

Related Documents

HISO Standards

10029 Health Information Security Framework
10014.1 Data Concept Repository Processes Standard

NZS Standards

SNZ HB 8169:2002 Health Network Code of Practice

ISO/IEC Standards

ISO/IEC 11179:2004 Information technology -- Metadata registries (MDR) - Part 1: Framework
ISO/IEC 11179:2005, Information technology -- Metadata registries (MDR) - Part 2: Classification
ISO/IEC 11179:2003, Information technology -- Metadata registries (MDR) - Part 3: Registry metamodel and basic attributes
ISO/IEC 11179:2004, Information technology -- Metadata registries (MDR) - Part 4: Formulation of data definitions
ISO/IEC 11179:2005, Information technology -- Metadata registries (MDR) - Part 5: Naming and identification principles
ISO/IEC 11179:2005, Information technology -- Metadata registries (MDR) - Part 6: Registration
ISO 8601: 1988 (E), "Data elements and interchange formats - Information interchange - Representation of dates and times".

Other standards

Health Level Seven Inc., HL7 Standard version 2.4 - An Application Protocol For Electronic Data Exchange in Healthcare Environments.

Other Publications/Websites

W3C: XML Path Language (XPath) 2.0 - http://www.w3.org/TR/#tr_XPath
W3C Forms Working Group - <http://www.w3.org/MarkUp/>
W3C recommendations for XML signatures - http://www.w3.org/TR/#tr_XML_Signature
HL7 - <http://www.hl7.org.nz/>
e-GIF - <http://www.e.govt.nz/standards/e-gif>
National Institute of Standards and Technology (NIST) 800-27: Engineering Principles for Information Technology Security (A Baseline for Achieving Security) found at: <http://csrc.nist.gov/publications/nistpubs/800-27A/SP800-27-RevA.pdf>

New Zealand Legislation

Health Information Privacy Code 1994

1 INTRODUCTION

A considerable amount of information exchanged between health and disability sector organisations is based on paper and electronic forms. These forms are increasingly embedded within the business systems used by these organisations.

Traditionally when an organisation has required the completion of a form electronically by their users from within their software (eg, a Practice Management System (PMS) typically used by primary care, NGO, allied health service providers and General Practitioners (GPs)), they have engaged the systems vendor (s) to incorporate the form within the product. Any changes to the form required the process to be repeated and redeployed in accordance to each vendors release cycle process. The resultant data that was collected was then conveyed to the external agency by any of a range of methods, generally without recourse to standards, and with variable levels of security.

This process has led to the health and disability sector software becoming increasingly complex because of the need to support a multitude of custom forms and associated system interfaces. As a result changes to these systems are risky, time-consuming and costly, as well as expensive to support and maintain.

The purpose of this Online Forms Architecture Technical Specification is to allow healthcare organisations to rapidly develop and safely deploy interactive online form applications to replace current paper-based or customised forms systems, thereby promoting an approach that will significantly reduce the costs and reduce the time taken to deploy such forms. Moreover, this specification provides a mechanism by which forms can be pre-populated with information by the user system and for securely transmitting them which streamlines the form process for the end-user and reduces human error.

1.1 Vision

1.1.1 *Vision for exchange of health information*

Central to the philosophy behind the Online Forms Architecture Technical Specification is the delivery to the health and disability sector of a scalable, open standards-based solution that will be suitable to all involved in the exchange of form-based information.

As an open, standards-based, vendor neutral solution, online forms are intended to allow organisations, such as Ministry of Health (MoH), District Health Boards (DHBs), Accident Compensation Corporation (ACC), Primary Health Organisations (PHOs) and Management Services Organisations (MSOs), to quickly develop and deploy forms for a fraction of what it currently costs.

At the same time, there are also advantages for the vendors of components for the end-user systems that consume these forms (collectively referred to as Subscribing Systems in this document). Subscribing System vendors are under constant pressure to provide capabilities to support information exchange and access to decision support tools. An open standards based solution will reduce development risk and produce products that are easier to support and maintain.

1.1.2 *The challenge*

The aim is to develop a specification or suite of specifications that fosters the health and disability sector to development systems that will interoperate with ease to create, distribute and consume online forms, with the following attributes:

1. The recipient (originator of the form) manages the format and the content of the form to be viewed;
2. Timely transmission (typically embedded in the business process instead of “batch at end of day”);
3. Easy to distribute and maintain currency;
4. Data validity and consistency assured;
5. Reduced compliance and operating costs for all parties;
6. The ability to craft and distribute forms that could be used regardless of what end-user system was being used by the health care provider;

7. Minimise data entry by pre-populating fields from the Subscribing System;
8. Facilitate updating of forms without changes to the Subscribing System;
9. Link business rules to a form to enhance usability and data integrity;
10. Transmit resultant data in a way that conforms to accepted standards;
11. Be able to accept resultant machine readable structured and easily record it back into the end-user system

1.1.3 The Goals

There are a multitude of forms used in the sector to support millions of transactions per annum and these volumes are increasing. The goals of this specification address a number of key problems being experienced by the owners of electronic forms, and the vendors of Subscribing Systems. The key problems include:

1. A lack of standards means that forms are often coded differently into each of the Subscribing Systems. Form owners' specify their solution requirements differently to each other. In some cases an owner of multiple forms may specify different solutions for each of the forms;
2. Hard coding of rules adds complexity and risks different interpretation;
3. There are data quality issues;
4. The cost of change is higher than necessary;
5. The speed of change is slower than desirable.
6. Forms will be developed and distributed independently from the Subscribing Systems

1.2 High Level Architecture Components

The functional requirements for the Online Forms Architecture are met using a distributed component system architecture made up of the several decoupled systems as shown in Figure 1. The functionality of each system is specified by its external interfaces and is realised by one or more system components, which in turn interact with each other through well-defined interfaces.

The main components of the Online Forms Architecture are as follows:

- A Publishing System that publishes definitions of online forms to one or more Forms Distribution Systems which make the forms available to Subscribers;
- Each Subscriber utilises a Subscribing System which contains a number of elements including a User Application (the original application from which forms-related functions have been decoupled);
- The remainder of the Subscribing System, consisting of a Form Manager which manages forms that the local system subscribes to, a Forms Engine that renders and pre-populates the form for completion by the user and a Submission Gateway that securely transmits the form content to the intended recipient.

In a typical deployment of the architecture, multiple instances may exist for each of these systems.

Figure 1 also shows that this specification focuses on the Subscribing System components marked in the diagram as "In Scope". The specification of the Publishing System (responsible for creating form definitions), Distribution System (manages a repository of form definitions) and the definition of a Recipient System (a system that receives completed forms from Subscribing Systems) is outside the scope of this technical specification.

For those organisations that do utilise a Subscribing System, a portal facility accessible via Internet could provide a gateway to an online forms service. In this case the form would have no facility to retrieve or store data other than the process of submitting the form data to the recipient.

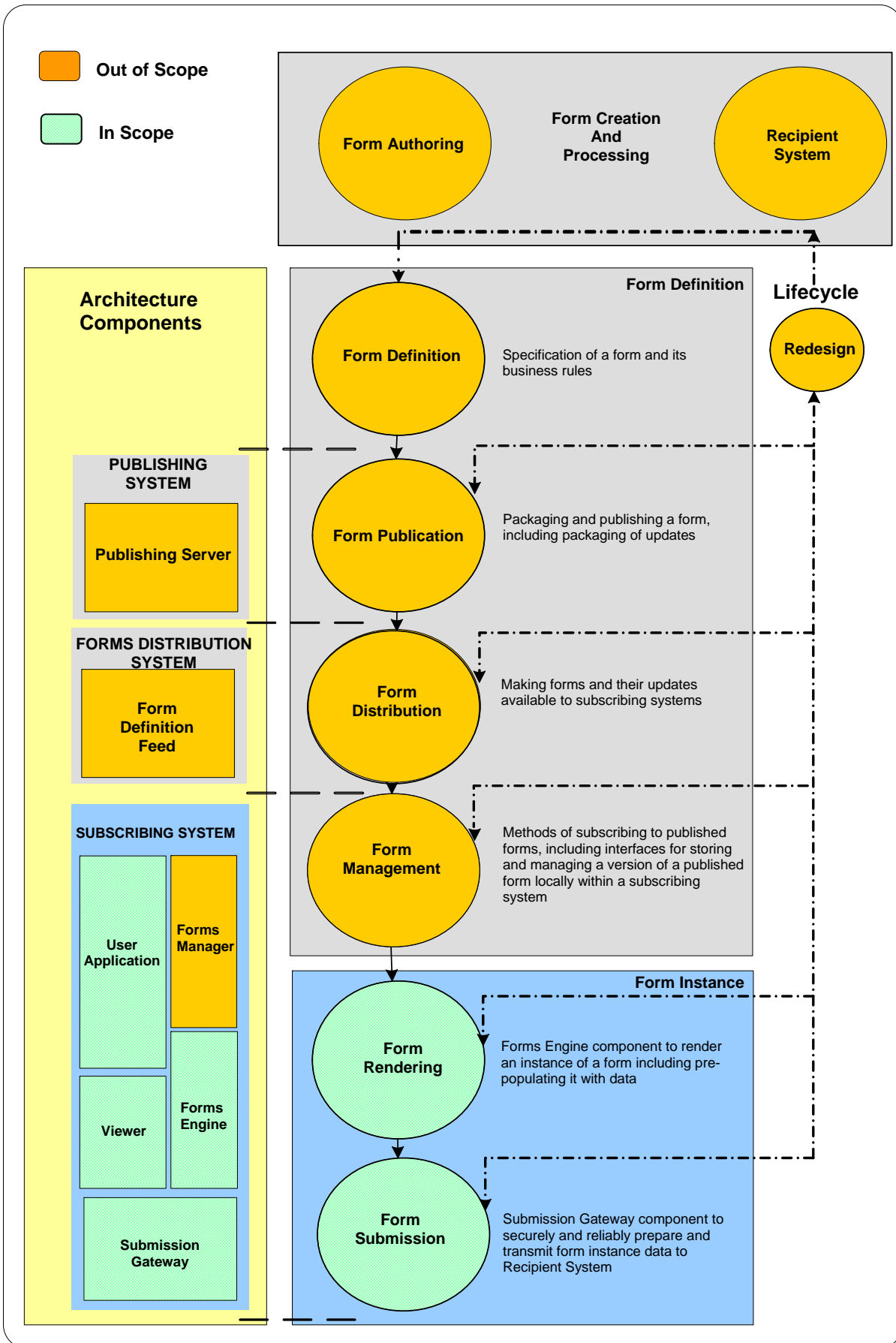


Figure 1: Components Overview

1.2.1 The Publishing System

The Publishing System is responsible for the following:

- Creating form definitions;
- Used by form authors / creators to develop and publish new or updated forms to be used for submitting structured information to a designated Recipient System);
- Uploading new or modified form definitions to the form definition repository hosted by one or more Distribution System using the appropriate interface.

This system is outside the scope of this Technical Specification.

1.2.2 The Distribution System

The Distribution System is responsible for the following:

- Receiving new or updated form definitions from one or more Publishing Systems;
- Advertising a listing of its stored form definitions;
- Acting as a callable service that, upon request from a Subscribing System, provides a listing of all online forms it has available;
- Directing an authorised Subscribing System to the download location (s) of the forms it has selected;
- Serving forms definitions upon request.

This system is outside the scope of this Technical Specification.

Assumptions:

- A Subscribing System may subscribe to multiple forms Distribution Systems.
- Forms are always obtained from an authenticated source.

1.2.3 The Subscribing System

The Subscribing System is the central part of the Online Forms Architecture with the following key responsibilities:

- Retrieve and process form definitions from Distribution Systems it has subscribed to;
- Create, store, process and present forms on the basis of form definitions;
- Interact with user and authorised data sources for populating form fields;
- Securely and reliably submit form data to the Recipient System;
- Receive and process response information from the Recipient System;
- Manage form subscriptions.

The Subscribing System is structured into the following five components:

- User Application.
- Forms Viewer.
- Forms Engine.
- Form Manager.
- Submission Gateway.

The description of published and required interfaces for the Subscribing System components is given in chapter 4.

Assumptions

- All systems of an Online Forms solution, and their components, will have ensured that sufficient privacy and security safeguards are in place when information is transmitted.
- There is an acceptance and trust that personal information will be used consistently with the purposes for which it was obtained, (ensured by the Subscribing System user as per the next three points).
- All data submitted from a form can be inspected by the end user that has initiated the instance of the form.
- The Subscribing System user manually initiates the form submission.
- The Subscribing System user may waive the right to inspect the data on the form – that should be able to be switched on/off for when they are comfortable to suspend this action.
- The latest version of a form (that is current) should always be presented to the user. A user should be informed if he or she tries to access an older version.

1.2.3.1 User Application

The User Application component represents any application that has the ability to integrate with the Online Forms Architecture using the interfaces specified in this document. A typical representative of such a User Application component is a Practice Management System (PMS) that uses Online Forms for providing additional services to its users.

1.2.3.2 Forms Viewer

The Forms Viewer component represents any application that can be used for displaying Online Forms to a user. The user has to be able to perform all operations on displayed Online Forms that are required by this Technical Specification.

1.2.3.3 Forms Engine

This component is responsible for:

- Presenting selected form(s) which may be either blank or pre-populated to the user for completion;
- Processing form pre-population tasks;
- Storing incomplete forms (park functionality) and presenting them at a subsequent time on user request;
- Processing completed forms;
- Passing completed forms to the Submission Gateway component of the Subscribing System.

1.2.3.4 Forms Manager

The Form Manager component provides:

- a means for the User Application, Submission Gateway and Forms Engine components to access required form definitions that the user has subscribed to.
- It interacts with the Distribution System to load and update form definitions.
- It manages subscriptions to form definitions required by the User Application component.

This component deals predominantly with forms distribution and falls outside the scope of this Technical Specification.

A Form Manager component may interact with a number of different Distribution Systems, each hosting different sets of form definitions.

1.2.3.5 Submission Gateway

The Submission Gateway component is responsible for the secure and reliable interaction with the Recipient System. Its services are predominantly requested by the Forms Engine component.

As the Submission Gateway component acts as a gateway between components internal to the Subscribing System and external components in other systems (Recipient Systems), a way of mapping its internally published interfaces to the externally required interfaces must be defined where they differ.

The Submission Gateway is responsible for:

- Receiving completed forms from the Forms Engine;
- Connecting to the Recipient System for secure data transfer;
- Sending completed forms to the Recipient System;
- Processing a response from the Recipient System (as necessary);
- Passing the response to the Forms Engine to present to the user (as necessary).

1.2.4 The Recipient System

Recipient Systems are systems beyond the Submission Gateway. They are responsible for processing the information collected from Online Forms and securely returning the results back to the Subscribing System. This is done by:

- Setting up a secure data channel with the Subscribing System's Submission Gateway;
- Providing a response to the Subscribing System's Submission Gateway (as necessary to the business logic associated with the specific online form).

This system is outside the scope of this Technical Specification.

1.2.5 Forms Lifecycle

As with physical forms, electronic forms need to be authored before they can be used for collecting information. A myriad of different technologies including XForms, XHTML and Java are used today to define forms to allow their usage on a wide variety of user devices. This specification recommends XHTML for forms presentation as this is currently in widespread use. With XHTML, Javascript methods in forms may be used to support the user in completing the form and for this purpose may invoke the web service functions of the other components in the Subscribing System.

A form will typically go through the following phases in its lifecycle as shown in Figure 1:

1. The form is designed and created using authoring tools in the Form Authoring Phase.
2. The output of the authoring phase is a form definition that defines the form, its business rules and data structure. This is known as the Form Definition Phase of the form.
3. The form definition is then packaged for dissemination in the Form Publishing Phase. If it is an update to a pre-existing form, the update packaging is also done within this phase.
4. In the Form Distribution Phase, the form packages and updates are distributed by one or more distribution systems.
5. Next is the Form Management Phase where the form package, for each form that the user has elected to subscribe to, is retrieved and processed for use by the Subscribing System.
6. When a user selects a form to use, an instance of the form is created and rendered for display by the Subscribing System in the Form Rendering Phase.
7. After the user has completed the form, the form instance data is sent to the Recipient System in the Form Submission Phase.
8. The Recipient System Phase is where the submitted form data is processed.
9. Throughout all the above phases, feedback may be sent at any time independently to the forms author to refine the form and address any issues. This is known as the Redesign Phase.

Detailed specification of the forms lifecycle is outside the scope of this Technical Specification.

1.3 Considerations for the specification

1.3.1 Privacy and security

Privacy and security of health information in the health and disability sector is important for the following reasons:

- Most health information is collected in a situation of confidence and trust, often in the context of a health professional/patient relationship. Maintaining this confidence and trust is critical;
- Health information is sensitive and needs to be protected;
- Health information may be required by the health agency, and by other providers treating the individual, long after it has ceased to be needed for the original episode of care and treatment. Ensuring that health information is available only on a need-to-know basis is therefore important;
- The ability to exchange high-quality health information in a safe and secure manner between partners in health care processes is vital for a health system focused on achieving improved health outcomes.

The nature of this specification is for dissemination and routing of forms that are expected to be populated (both manually and automatically) with patient-identified clinical data. This entails some of the most pointed possible health data privacy and security concerns. In particular, with pre-population of forms from the Subscribing System database, there is a potential for an acute exposure of sensitive patient information through security breaches in any of several parts of the proposed architecture.

The following key security measures must be taken into account in the development of Online Forms solutions:

- Communications between all components of the architecture must be secure (including communications between the User Application and the Forms Engine);
- The forms Distribution System does not contain patient information, but must be located in a secure facility. The Forms Distribution System should only be provided by accredited organisations (eg, ACC, DHB's and MoH). Only valid and legal forms may be downloaded;
- The forms renderer or engine sits local to the LAN (local area network) that the Subscribing System is on, or is connected via a private wide area network;
- A form cannot be sent without interaction from an authorised Subscribing System end user. If the Forms Engine goes to the User Application and retrieves information automatically, there is a security issue;
- The implementation of privacy and security protection measures shall be based on the Health Information Privacy Code 1994 and SNZ HB 8169:2002 Health Network Code of Practice (or any policy that builds on or replaces this) and HISO 10029 Health Information Security Framework;
- The management of each user installation must have absolute control over which forms will be available on their environment and the data that the process will extract.

1.3.2 Threats

The following are potential threats that may put at risk the sensitive data that an organisation may have. Mandatory and recommended security requirements for an Online Forms solution will serve to minimise, or eliminate, the risk posed by these potential threats:

- Data pre-populated to forms may not be visible to the submitting Subscribing System user – allowing illegitimate or contentious acquisition of patient data to 'slip by' providers without notice;
- Spoofing of the Form Distribution System (source of forms) would open the most serious of breaches, allowing a spurious provider of forms to choose arbitrary patient data for pre-population (possibly invisible to the end user) and to specify submission to an unauthorised, malicious, Gateway and recipient. Thus Form Distribution System identification must be centrally authenticated and disseminated to end-users. A situation such as email distribution of Form Distribution System URL is unacceptable since look-alike URLs could be sent to providers in the model of phishing attacks;
- At the point of submission, the submitter's authentication (eg password) could be compromised allowing false submissions;

- Sensitive data may be viewed by person(s) who are not authorised to do so, compromising the privacy of an individual patient.

1.3.3 Relationship to other standards

1.3.3.1 Health Network Code of Practice (SNZ HB 8169)

The following sections are relevant to an Online Forms solution:

- Introduction: 1.1.5 – 1.1.10;
- The Code of Health and Disability Services Patient's Rights 1996: 1.3.1 - 1.3.3
- Key Principles: 2.1.1 - 2.1.5
- Risk Assessment: 3.1.3
- Governance Framework: 4.4.1, 4.5.1
- Security Framework: 5.1.1 - 5.2.3; 5.2.5; 5.2.6
- Environmental Security: 7.1.5 - 7.1.11; 7.2.1 - 7.2.2; 7.3.1 ; 7.3.2

1.3.3.2 Post Submission Gateway

The transmission of the form data post the Submission Gateway is outside the scope of this specification. Such communications are the appropriate domain of other standards, eg using HL7 v2.x, HL7 v3 or CDA.

1.3.3.3 Data Concepts

The data elements that are retrieved from a Subscribing System are described by data concepts which are identified and described in the HISO 10014.1 Data Concept Repository Processes standard, which has not yet been implemented.

1.3.3.4 Form Definition

Similarity of an Online Form to a clinical document in the sense of HL7 Clinical Document Architecture (CDA) has been considered in the formulation of the present technical specification, including the potential relevance of metadata elements found in CDA Level 1. However, the fundamental differences between a clinical document (an instance of patient data) and a form definition (a template for data collection) are sufficient that it was judged that there was little that could be borrowed from CDA. It must be acknowledged that CDA is receiving considerable international attention, particularly with respect to the Continuity of Care Document (CCD) and that the relevance of CDA to aspects of Online Forms should be reviewed periodically to ascertain if any relevant practices emerge.

This specification recommends XHTML for forms presentation with Javascript to specify methods in forms for data validation communications among components of the Subscribing System; however, the present technical specification is fundamentally agnostic with respect to the approach to form definition. The W3C XForms standards had been considered as a basis for form definition, providing a standards-based approach to decoupled but interoperable definition of form presentation and the associated data model. Requiring the use of XForms as a condition for adherence to the Technical Specification was rejected, however, on the basis that it was undesirable (if not impractical) to restrict all Subscribing System implementers to using an XForms implementation at this time. It is acknowledged that there is a broad community of XForms implementers (http://www.w3.org/Markup/Forms/wiki/XForms_Implementations) and that this decision warrants revisiting in the future.

1.3.3.5 Integration Profiles

The scope and adoption of Integrating the Healthcare Enterprise (IHE) has grown considerably during the time in which the Online Forms Architecture Technical Specification has been in formulation and now extends into areas of potential relevance to Online Forms; notably

- a. the IHE Cross-Enterprise Sharing of Medical Summaries (XDS-MS) profile http://www.wiki.ihe.net/index.php?title=Medical_Summaries_Profile encompasses some of the roles intended for Online Forms and

- b. the IHE Query for Existing Data (QED) profile (http://wiki.ihe.net/index.php?title=Query_for_Existing_Data_Profile) describes functionality akin to the Online Form population of data from a User Application.

Due particularly to the needs of vendors with interest in overseas markets to respond to IHE profiles, their relevance to Online Forms should be periodically revisited.

2 SECURITY

The Online Forms Architecture needs to be designed in a way to support all necessary requirements regarding confidentiality, authenticity, security and reliability. At the same time, all security measures have to be proportionate and must not increase the complexity of the system more than necessary.

Security design when implementing Online Forms solutions should consider not only the normal flow of the application, but also the abnormal flows, failure modes, and ways the systems and components can be interrupted. The use of standards based engineering principles is recommended. An example of such a standard is the National Institute of Standards and Technology (NIST) 800-27: Engineering Principles for Information Technology Security (A Baseline for Achieving Security) found at: <http://csrc.nist.gov/publications/nistpubs/800-27A/SP800-27-RevA.pdf>

As technology evolves, the security architecture should also be periodically revisited. This specification assumes that all data stores and intra-system interfaces (ie component interfaces that are not exposed as system interfaces) used by the components of the Online Forms Architecture are secured as per the currently appropriate HISO standard. The actual measures to be taken for each of the components and systems are beyond the scope of this specification.

The measures discussed in this chapter ensure the compliance of the Online Forms Architecture with the Health Network Code of Practice (SNZ HB8169).

2.1 Privacy

While theoretically independent of any special business domain, the Online Forms Architecture is especially aimed at the New Zealand health and disability sector. This implies that the information to be captured in Online Forms will, in general, be related to the health conditions of individuals.

The Online Forms Architecture therefore has to ensure the privacy of all information captured and transmitted using Online Forms. Of primary importance in the implementation of this architecture will be the protection of the information from loss or unintended disclosure, and the unauthorised and unintended use of system components.

2.2 Potential Threats

The information stored and exchanged by the components of the Online Forms Architecture are vulnerable to a multitude of security threats. The following subsections provide an overview of the areas that could potentially be affected by security attacks.

The actual vulnerability of the Online Forms Architecture to each of these threats and their appropriate countermeasures are discussed in chapter 2.3 of this document.

2.2.1 Confidentiality

The confidentiality of the information stored and exchanged by the components of the Online Forms Architecture can be affected by unauthorised eavesdropping during data transmissions as well as by theft of stored data.

2.2.2 Integrity

The integrity of information can be affected by any unauthorised and/or unintended modification that occurs during its transport or storage.

2.2.3 Non-Repudiation

Due to the special emphasis of the Online Forms Architecture on health-related information, it is of vital importance that none of the parties involved can subsequently deny the sending of exchanged documents. Instead, for any information exchanged it must be possible to verify which party had created the information.

2.2.4 Authentication

In order to prevent information from being exposed to unauthorised parties or to prevent parties from fraudulently impersonating the identity of other parties, the systems of the Online Forms Architecture must use reliable authentication schemes for verifying the identity of the parties involved.

2.3 Countermeasures

The Online Forms Architecture has to protect the following types of documents exchanged:

- a. Form Definitions
- b. Form Instance (rendered forms, usually containing form data)
- c. Form Data
- d. Form Response Data

Table 1 lists which of these document types need to be protected against which types of threat.

Document Type	Relevance of Security Threat			
	Confidentiality	Integrity	Non-Repudiation	Authentication
Form Definition	No	Yes	Yes	Yes
Form Instance	Yes	Yes	No	Yes
Form Data	Yes	Yes	Yes	Yes
Form Response Data	Yes	Yes	Yes	Yes

Table 1: Possible Security Threats

The Online Forms Architecture has to employ the countermeasures listed in Table 2 for protecting the exchanged documents in a sophisticated and proportionate manner.

Threat Type	Countermeasures
Confidentiality	The document needs to be protected against the possibility of it being intercepted by anyone other than the intended recipient.
Integrity	Any modification of a transmitted document needs to be recognised by the document's recipient.
Non-Repudiation	The sender's identity has to be verifiable by the document's recipient.
Authentication	The identity of sender and recipient of any document exchange needs to be reliably authenticated before the document can be exchanged.

Table 2: Security Countermeasures

The above countermeasures may be achieved using a combination of encryption and digital signature technologies based on Public Key Infrastructure (PKI). Table 3 below list a set of these technologies currently recommended. Please refer to HISO 10029.3 Technical Specifications Register (currently in development) for the latest list.

Algorithm Type	Supported Algorithm
symmetric cipher	DESede/CBC/PKCS5Padding
asymmetric cipher	RSA/ECB/PKCS1Padding
session key generation	DESede
public/private key pair generation	RSA
channel encryption protocol	TLS 1.0 [RFC2246]

Table 3: Supported Encryption Algorithms

In order to keep the security-induced complexity of the Online Forms Architecture to a level as low as possible (while not compromising the security needs), these security measures only have to be applied to those components whose functionality and interactions are actually exposed to any of the above stated security threats. Refer to the specification of the system and component interfaces for a complete discussion of the security measures necessary for each of the components.

3 FORM DATA

The purpose of this chapter is to describe the data structures and how information is exchanged in an interoperable manner between systems and components within the Online Forms Architecture.

3.1 Data Concepts

When a form requires extraction of data from the Subscribing System, it needs to reference each piece of information using data concepts from an agreed concept repository which defines the prescribed structure of each entry.

The proposed New Zealand health and disability sector repository of concepts conforms to the ISO/IEC 11179 standard and its structure and business processes are described in HISO 10014-1, Data Concept Repository Processes Standard (yet to be implemented). That standard does not prescribe technical details as to how Concepts and Attributes are to be referenced. The purpose of this section is to provide such a specification.

3.1.1 Framework for Concept and Attribute References

This section describes a framework for the usage of these concepts within the Online Forms systems interoperability environment. A definitive list of concepts however is outside the scope of this document.

Each concept can have a set of properties and modifiers in the form of attributes which may be used to alter the nature of the values returned by the user application or determine the expected behaviour of the system returning the concept data values.

3.1.1.1 Concept Properties

The following table describes the properties associated with each concepts. Collectively they define how a concept may be used and the values returned.

Property	Type	Definition
name	string	The concept name.
description	string	A detailed description of the concept including the meaning and units of the returned value.
conceptID	string	This is the identifier allocated to the concept in the concept repository. It is the actual value used as an attribute by the Online Form interfaces to exchange data.
version	decimal	This defines the data dictionary version number of the concept.
type	Concept Value Type as defined in Table 6	A specifically defined return value type of the concept. In the case of 'list', it may be a list of identical concepts with different contexts (eg. dates); or a list of different concepts define the detailed elements that make up a complex concept.

Table 4: Concept Properties

The dictionary of concepts may include references to equivalent codes in other coding systems.

3.1.1.2 conceptID Returned Value

Extensible markup language (XML) is used to define the values in the concepts repository. All concepts return a XML complex element structure including the conceptID attribute and either singularly or in a list consisting of three fields defined in the table below.

Returned Field Name	Type	Description
referenceID	string	A subscribing system identifier identifying the source of the returned value which can be used to facilitate further searches eg internal patient ID or a unique row identifier in a table. This is a conditional field that must be sent if it exists.
dateTaken	dateTime	The date and time that the value was taken from a clinical context eg encounter date or specimen collection date. This is a conditional field that must be sent if it exists.
value	List structure or Concept Value Type as defined in Table 6	The actual value of the concept or a list of values as defined in the concept dictionary.

Table 5: Concept Returned Values

3.1.1.3 Concept Value Types

The applicable unit of each concept value is specified at the time of definition of that concept. Each concept may also have a specific valid value type pre-defined in the format as defined in the table below. With the exception of "list" they are all part of XML primitive datatypes.

Value Type	Valid Value/Format
decimal	Any numeric value represented by decimal numerals.
integer	A numeric whole number
string	A list of human readable text characters
boolean	"True" or "False"
date	yyyy-mm-dd
dateTime	yyyy-mm-ddThh:mm:ss:sss
base64Binary	Represents MIME encoded binary data in Base64 encoding
list	List of concept identifiers

Table 6: Concept Value Types

3.1.1.4 Concept Modifiers

The following table describes general modifier attributes that may be used with concepts. They may not all be applicable to all concepts.

Modifier Name	Value	Description
refresh	boolean	'True' if value is to be refreshed from the user application. 'False' if original stored value is to be returned. Default of 'false' if no value specified'
order	string	Must be one of four values in the following list: (dateAscend; dateDecend; valueAscend; valueDecend) This specifies the order of a list. If no value is specified then it is dateDecend
startPosition	positive integer	This specifies the start point (ordered as above) from which to

Modifier Name	Value	Description
		return rows in the array. The first value is '0' (the default), the next is 1, then 2...
numRows	integer	If not zero (all), maximum number of rows to return in the return array. (Default= 0)
minValue	decimal	If specified, exclude values less than this value
maxValue	decimal	If specified, exclude values greater than this value
minDateTime	dateTime	If specified, exclude items recorded before this date/time
maxDateTime	dateTime	If specified, exclude items recorded after this date/time
searchString	list of acceptable values for the specific concept	If specified, exclude values not in this comma delimited list. Can use '*' for wildcards. Intended to augment the above search criteria by reducing the number of hits returned. Not intended as a way to inject SQL queries to the UserApplication.
referenceID	string	If specified, include only information related to this referenceID Used to get further details on items specified by the referenceIDs returned on previous searches
withinXDays	integer	Returns values that have been recorded within the last X days. If X is '0' then all values are returned. If this is not specified then all values will be returned unless constrained by the implementation of the concept. Deprecated ¹

Table 7: Modifier Attributes

3.1.1.5 Concept Modifiers Examples

Most recent value:

```
<modifierExample conceptID="modifier_example" referenceID="AF015EC19892" />
```

or

```
<modifierExample conceptID="modifier_example" referenceID="AF015EC19892"
refresh="false" order="dateDescend" startPosition="0" numRows="1" />
```

First 2 values:

```
<modifierExample conceptID="modifier_example" referenceID="AF015EC19892"
order="dateAscend" numRows="2" />
```

Second to last value:

```
<modifierExample conceptID="modifier_example" referenceID="AF015EC19892"
startPosition="1" />
```

Highest Value in last 12 months:

```
<modifierExample conceptID="modifier_example" referenceID="AF015EC19892"
minDatetime="2009-04-01T00:00" maxDatetime="2010-03-31T23:59" />
```

All values greater than 8.2 in the last quarter of 2009:

```
<modifierExample conceptID="modifier_example" referenceID="AF015EC19892"
numRows="0" minValue="8.2" minDatetime="2009-09-01T00:00" maxDatetime="2009-12-31T23:59" />
```

¹ This is included for backward compatibility only. withinXDays is deprecated and should not be used for any new implementations. It has been replaced by 'minDateTime' and 'maxDateTime'.

3.1.1.6 Treatment of Concepts by User Application

The data concept repository will classify concepts into groups which are processed differently by the user application. Some examples are:

- Simple concepts that refer to a simple data element in the user application database or a simple lookup based on the element.
- Repeating elements which represent repeating nodes in the XML document, such as medication lists.
- Form instance and version numbers. These are populated by a unique number process within the user application.

3.1.2 Concept ID example

3.1.2.1 Example Concepts

The table below shows an example of a set of concepts relating to Liver Function Tests. Note that this may not reflect the actual 10014.1 HISO Data Concept Repository which has not yet been published.

Name	Description	conceptID	Type	Structure (if list type)/Units
LFT	Liver function tests results	lft_results	list	ggt_results; alt_result; alp_result; alb_result; bilirubin; total_protein
GGT	GGT enzyme result	ggt_result	decimal	IU/L
ALT	ALT enzyme result	alt_result	decimal	IU/L
ALP	ALP enzyme result	alp_result	decimal	IU/L
Albumin	Albumin result	alb_result	decimal	g/L
Bilirubin	Bilirubin result	bilirubin	decimal	umol/L
Total Protein	Total protein result	total_protein	decimal	g/L
LFT List	List of patient liver function tests results	lft_list	list	lft_results
GGT List	List of patient GGT enzyme results	ggt_list	list	ggt_result

Table 8: Concept Dictionary Example

3.1.2.2 Example of a Complex Concept (informative)

```
<?xml version="1.0" encoding="UTF-8" ?>
- <LFTResults conceptID="lft_results" referenceID="AF015BD19892">
  <referenceID>AF015BD19892</referenceID>
  <dateTaken>2009-12-10T15-25-30</dateTaken>
- <Value>
  - <GGT conceptID="ggt_result">
    <referenceID>AF015BD19892</referenceID>
    <dateTaken>2009-12-10T15-25-30</dateTaken>
    <value>25.3</value>
  </GGT>
  - <ALT conceptID="alt_result">
    <referenceID>AF015BD19892</referenceID>
    <dateTaken>2009-12-10T15-25-30</dateTaken>
    <value>20.9</value>
  </ALT>
  - <ALP conceptID="alp_result">
    <referenceID>AF015BD19892</referenceID>
    <dateTaken>2009-12-10T15-25-30</dateTaken>
    <value>251</value>
  </ALP>
  - <ALB conceptID="alb_result">
    <referenceID>AF015BD19892</referenceID>
    <dateTaken>2009-12-10T15-25-30</dateTaken>
    <value>55</value>
```

```

</ALB>
  - <bilirubin conceptID="bilirubin">
    <referenceID>AF015BD19892</referenceID>
    <dateTaken>2009-12-10T15-25-30</dateTaken>
    <value>5</value>
  </bilirubin>
  - <totalProtein conceptID="total_protein">
    <referenceID>AF015BD19892</referenceID>
    <dateTaken>2009-12-10T15-25-30</dateTaken>
    <value>73.5</value>
  </totalProtein>
</Value>
</LFTResults>

```

3.1.2.3 Example of a Simple Concept List (informative)

```

<?xml version="1.0" encoding="UTF-8" ?>
  - <GGT_List conceptID="ggt_list" minDatetime="2009-01-01 00:00" maxDatetime="2009-12-31 23:59">
    <referenceID />
    <dateTaken />
  - <Value>
    - <GGT conceptID="ggt_result">
      <referenceID>AF015EC19892</referenceID>
      <dateTaken>2009-10-25T16:15:50</dateTaken>
      <value>25.5</value>
    </GGT>
    - <GGT conceptID="ggt_result">
      <referenceID>FB015EC19893</referenceID>
      <dateTaken>2009-02-10T11:13:25</dateTaken>
      <value>27</value>
    </GGT>
    - <GGT conceptID="ggt_result">
      <referenceID>CE015BD19894</referenceID>
      <dateTaken>2009-12-09T10:25:30</dateTaken>
      <value>20</value>
    </GGT>
    - <GGT conceptID="ggt_result">
      <referenceID>BF015AA19589</referenceID>
      <dateTaken>2009-02-10T13:25:30</dateTaken>
      <value>31</value>
    </GGT>
    - <GGT conceptID="ggt_result">
      <referenceID>AE015BD79868</referenceID>
      <dateTaken>2009-11-10T15:13:30</dateTaken>
      <value>28.5</value>
    </GGT>
  </Value>
</GGT_List>

```

3.1.2.4 Example of a Complex Concept List (informative)

```

<?xml version="1.0" encoding="UTF-8" ?>
  - <LFT_List conceptID="lft_list" minDatetime="2009-12-01 00:00" maxDatetime="2009-12-14 23:59">
    <referenceID />
    <dateTaken />
  - <Value>
    - <LFTResults xmlns="" conceptID="lft_results">
      <referenceID>AF015BD19892</referenceID>
      <dateTaken>2009-12-10T15:25:30</dateTaken>
    - <Value>
      - <GGT conceptID="ggt_result">
        <referenceID>AF015BD19892</referenceID>
        <dateTaken>2009-12-10T15:25:30</dateTaken>
        <value>25.3</value>
      </GGT>
      - <ALT conceptID="alt_result">
        <referenceID>AF015BD19892</referenceID>
        <dateTaken>2009-12-10T15:25:30</dateTaken>
      </ALT>
    </Value>
  </LFTResults>

```



```

        <value>20.9</value>
    </ALT>
    - <ALP conceptID="alp_result">
        <referenceID>AF015BD19892</referenceID>
        <dateTaken>2009-12-10T15:25:30</dateTaken>
        <value>251</value>
    </ALP>
    - <ALB conceptID="alb_result">
        <referenceID>AF015BD19892</referenceID>
        <dateTaken>2009-12-10T15:25:30</dateTaken>
        <value>55</value>
    </ALB>
    - <bilirubin conceptID="bilirubin">
        <referenceID>AF015BD19892</referenceID>
        <dateTaken>2009-12-10T15:25:30</dateTaken>
        <value>5</value>
    </bilirubin>
    - <totalProtein conceptID="total_protein">
        <referenceID>AF015BD19892</referenceID>
        <dateTaken>2009-12-10T15:25:30</dateTaken>
        <value>73.5</value>
    </totalProtein>
</Value>
</LFTResults>
- <LFTResults xmlns="" conceptID="lft_results">
    <referenceID>CE015BD19894</referenceID>
    <dateTaken>2009-12-01T10:25:30</dateTaken>
    - <Value>
        - <GGT conceptID="ggt_result">
            <referenceID>CE015BD19894</referenceID>
            <dateTaken>2009-12-01T10:25:30</dateTaken>
            <value>27</value>
        </GGT>
        - <ALT conceptID="alt_result">
            <referenceID>CE015BD19894</referenceID>
            <dateTaken>2009-12-01T10:25:30</dateTaken>
            <value>25</value>
        </ALT>
        - <ALP conceptID="alp_result">
            <referenceID>CE015BD19894</referenceID>
            <dateTaken>2009-12-01T10:25:30</dateTaken>
            <value>230</value>
        </ALP>
        - <ALB conceptID="alb_result">
            <referenceID>CE015BD19894</referenceID>
            <dateTaken>2009-12-01T10:25:30</dateTaken>
            <value>51</value>
        </ALB>
        - <bilirubin conceptID="bilirubin">
            <referenceID>CE015BD19894</referenceID>
            <dateTaken>2009-12-01T10:25:30</dateTaken>
            <value>8</value>
        </bilirubin>
        - <totalProtein conceptID="total_protein">
            <referenceID>CE015BD19894</referenceID>
            <dateTaken>2009-12-01T10:25:30</dateTaken>
            <value>69.5</value>
        </totalProtein>
    </Value>
</LFTResults>
</Value>
</LFT_List>

```

3.2 High Level XML Schema Definition (formData)

The section specifies the structure of the data exchanged between the Online Forms systems as well as the submitted data as the result of a form completion. All forms schemas must conform to the following high level structure:

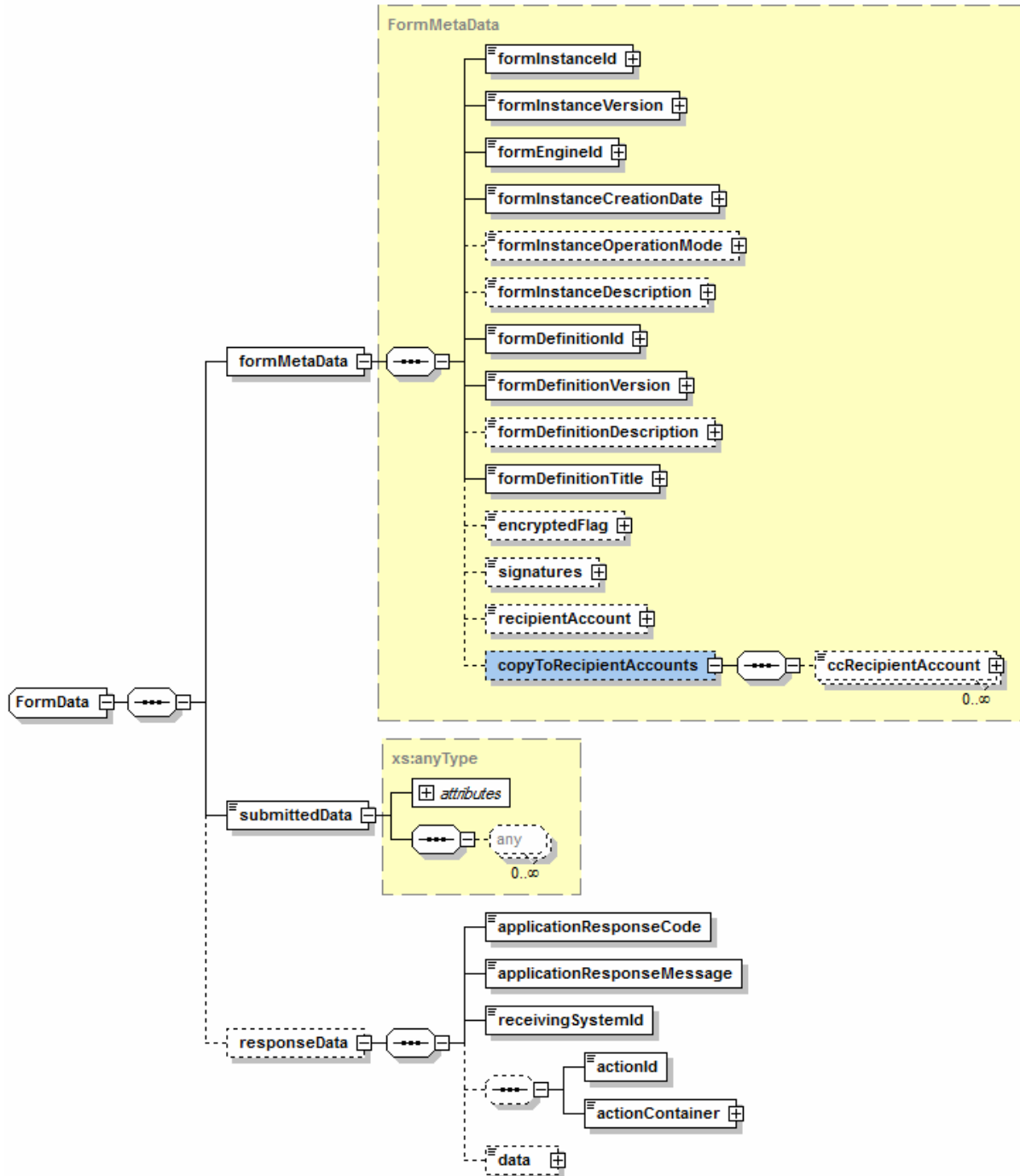


Figure 2: The high level data container for all forms (formData)

Node Name	Description
formInstanceId	The number assigned to this instance of the form. It would normally be issued by the instantiating system and must be unique. The recommended implementation is to prefix a unique number for the site with the HPI Facility Code. This number is usually displayed on the form and replaces the pre printed number on paper forms
formInstanceVersion	If a form that has already been submitted and requires a correction and resubmission then the version number is incremented by 1. The versioning is maintained by the instantiating application
formEngineId	A unique identifier of the form engine for the purpose of tracking and debugging
formInstanceCreationDate	The date that this instance of the form was created
formInstanceOperationMode	<p>Populated from the operation mode which is present as a parameter (hiso_mode) in the original installation call. It indicates the state of the form when it is instantiated and determines the actions are permitted. The values are as follows:</p> <p>N (or <null>) A new form which is to be populated from the data base</p> <p>E An existing submitted form that has been found to be in error and needs correcting. This should only be used if the form supports version control</p> <p>T Using an existing form and its data as a basis of creating a new instance. A new form instance number must be used</p> <p>P A form that has been previously parked and is being resumed with the form data collected so far</p> <p>R An existing form that has been submitted that is being displayed as Read Only and cannot be altered or submitted again</p>
formInstanceDescription	An optional description for the form instance if different from the formDefinitionTitle
formDefinitionId	The identifier of the form definition that was used to create this instance
formDefinitionVersion	The version number of this form definition
formDefinitionDescription	A description of the form definition
formDefinitionTitle	The descriptive title for this form definition
encryptedFlag	Indicates that the data containers have been encrypted. The default is false
signatures	The digital certificate of the entity submitting this form
recipientAccount	Records the destination address that this instance was sent to
copyToRecipientAccounts	Records additional destination addresses that this instance may have been sent to
submittedData	The data container for the information collected on the form that is being submitted to the recipient. A view of form can also be optionally included here in XML format where required
responseData	Conditional structure to hold response
applicationResponseCode	A set of codes that indicate an application specific response from the receiving response
applicationResponseMessage	A human readable message to be displayed to the user
receivingSystemId	A unique number that may be assigned by the receiving application for the purpose of tracking and debugging
actionId	A code that will be used by the method processAction. The available codes and their associated containers will be built up over time and published in a repository

Node Name	Description
actionContainer	The data container that may be required to support the processAction method
data	Any data returned by the receiving application

Table 9: Node Descriptions for formData Schema

4 SUBSCRIBING SYSTEM ARCHITECTURE

This chapter describes the Subscribing System and its published interfaces.

The functionality of the Subscribing System is specified by its external interfaces and is realised by one or more system components. Components, in turn, interact with each other through well-defined interfaces.

The Subscribing System is the central part of the Online Forms Environment with the following key responsibilities:

- Retrieve and analyse form definitions
- Present forms
- Pre-populate form fields with already available information
- Interact with the User for populating form fields
- Securely and reliably submit form data to the Recipient System
- Receive and process response information from the Recipient System
- Store submitted form data and received response information

Within the scope of this specification document, the Subscribing System is structured into four logical components:

- User Application containing the data (eg patient electronic medical record)
- Forms Viewer
- Forms Engine
- Submission Gateway

The interfaces and interactions of these components are shown in the figure below and explained in the following subsections.

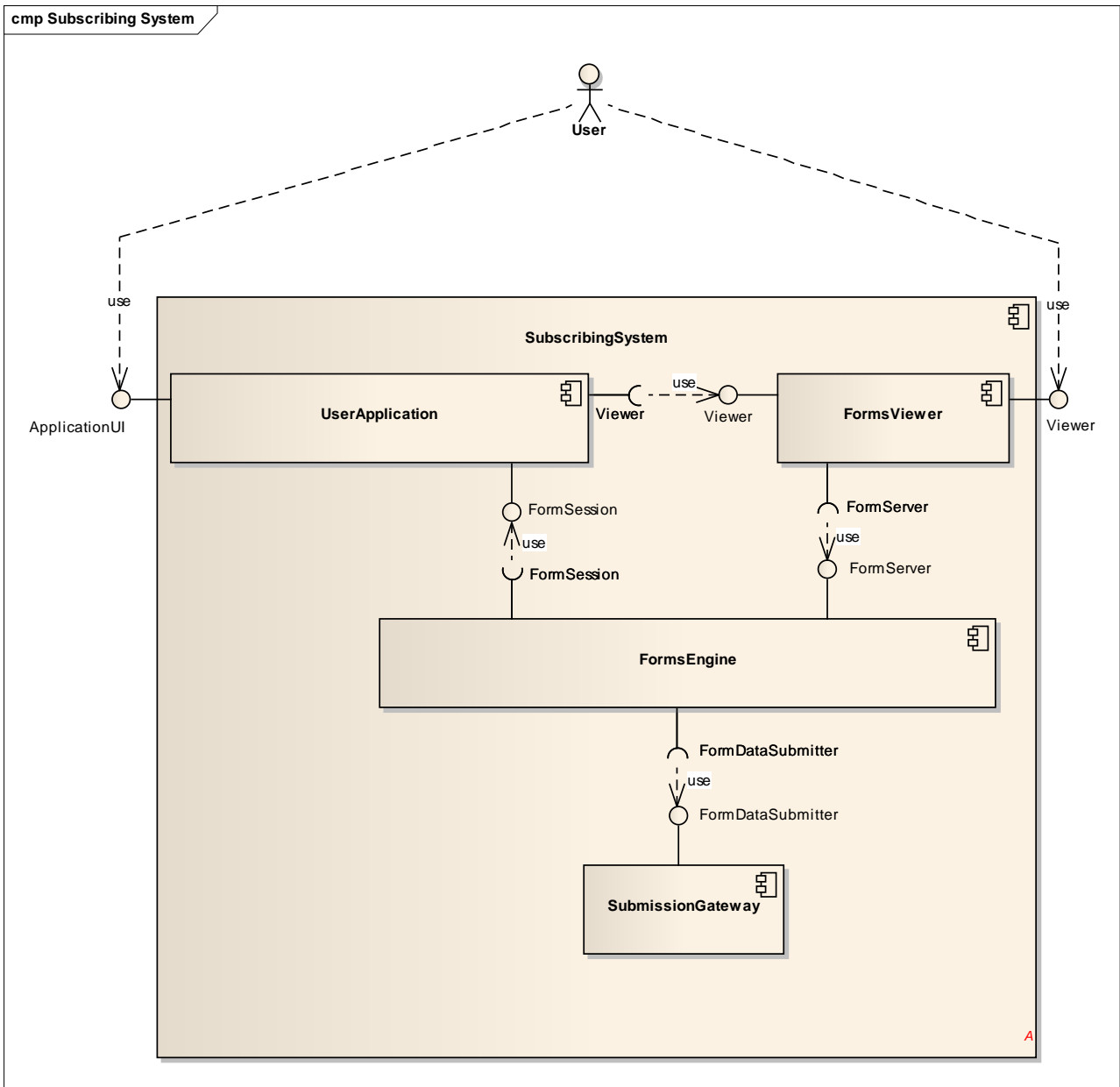


Figure 3: Subscribing System Overview

4.1 Published Interfaces

As seen in Figure 3 the system offers two interfaces to the user. The first is the existing user application while the second is the one used for viewing forms, as depicted in the table below.

Interface Name	Interface Type	Publisher
ApplicationUI	User Interface	UserApplication component
Viewer	HTTP (Browser User Interface)	FormsViewer component

Table 10: Published Interfaces of the Subscribing System

4.2 Security Requirements for Subscribing System

The interfaces of the Subscribing System are used to access and present health-related information of a potentially confidential nature. This information falls into the categories “Form Instance” or “Form Data” and therefore need to be protected against threats against the following security criteria:

- Confidentiality
- Integrity
- Non-Repudiation
- Authentication

As some interfaces published by the Subscribing System are user interfaces, the countermeasures specified in Chapter 2.3 cannot be applied to these interfaces without modification. The actual countermeasures to protect the form instances and form data from the above mentioned security threats are specified in the following subsections.

4.2.1 Confidentiality

The information contained in the form instances and form data needs to be protected against eavesdropping and other means of unauthorised access. The countermeasures specified in Chapter 2.3 cannot be applied to the user interfaces offered by the Subscribing System. Instead, all messages exchanged should be protected by channel encryption. However, this is only necessary and adequate if the messages are exchanged with remote users (ie that are located outside the secure environment that the Subscribing System is installed in). If the user interfaces are accessed only locally, channel encryption is not required.

If the user interfaces are to be accessed remotely, channel encryption as specified in Chapter 2.3 must be provided for the `Viewer` interface. If this type of channel encryption is feasible for the `ApplicationUI`, it must also be provided. Otherwise, other means of channel encryption (eg, VPN) need to be considered.

4.2.2 Integrity

Within the secure environment hosting the Subscribing System, it is assumed that the messages exchanged at the user interfaces cannot be modified by unauthorised parties. Channel encryption can be used for users accessing the Subscribing System's interfaces remotely, refer to the countermeasures specified in Chapter 2.3.

4.2.3 Non-Repudiation

The session-orientated way of user interaction (including user authentication by the `ApplicationUI` interface) combined with the security countermeasures specified in Chapter 2 ensures that all information submitted by the user is actually originated by that user.

4.2.4 Authentication

The `ApplicationUI` interface needs to support the secure authentication of the users of the `UserApplication` component. This authentication is the basis for all user-related security mechanisms of the Subscribing System. The specification of the `UserApplication` component's method of authenticating the users of its `ApplicationUI` interface is outside the scope of this document.

The `Viewer` interface does not require any authentication mechanism as all user authentication will be managed by the `ApplicationUI` and `FormSession` interfaces of the `UserApplication` component. The `Viewer` interface uses the concept of user sessions (identified by unique session identifiers) to facilitate the authentication of the user based on methods of the `ApplicationUI` and `FormSession` interfaces.

4.3 Components

4.3.1 UserApplication Component

The UserApplication component represents any application that has the ability to integrate with the Online Forms Architecture using the interfaces specified in this document. A typical example is a Practice Management System (PMS) of a GP user that utilises Online Forms for providing additional services to its users.

It typically integrates a forms-viewing application (FormsViewer component) for the user to interact with Online Forms and relies on the FormsEngine component to present and process these Online Forms. A typical example of a Viewer is a web browser embedded within a PMS.

The integration with the FormsEngine component requires the UserApplication component to implement an interface itself that is used by the FormsEngine.

This component consists of two published interfaces as listed in Table 11 below.

Interface Name	Interface Type
ApplicationUI	User Interface
FormSession	Web Service

Table 11: Published Interfaces of the UserApplication Component

It requires access an external interface listed in Table 12 below in order to access the forms delivered by the FormsEngine component.

Interface Name	Publisher
Viewer	FormsViewer Component

Table 12: Required Interfaces of the UserApplication Component

4.3.1.1 ApplicationUI Interface

Interface Name	ApplicationUI
Supported Communication Protocol	User Interface (GUI or HTTP)
Security Measures	Implicit caller authentication based on session id
Interface Methods	selectForm ()

Table 13: ApplicationUI Interface Properties

The interface methods listed in this section are indicative only. Furthermore only those specific to the scope of this specification are listed.

The detailed specification of this interface is outside the scope of this document because it is dependent on the implementation technology. The compliance of any particular UserApplication component with the Online Forms Architecture is independent from the actual implementation of this interface.

4.3.1.2 FormSession Interface

Interface Name	FormSession
Supported Communication Protocol	Web service (SOAP over HTTP)
Security Measures	
Interface Methods	getVersion() getDeliveryOptions() getData() saveContainer() getFormView() processAction()

Table 14: FormSession Interface Properties

Refer to Appendix B for informative examples of a FormSession Interface.

The FormSession interface is used for exchanging information between the UserApplication and the form. This effectively facilitates a callback to the UserApplication component as the session was initiated by it using a call to the `displayForm()` method of FormsViewer component's Viewer interface. Data needs to be queried from the UserApplication in order to pre-populate the form fields, and the form and its resultant data needs to be saved by the UserApplication.

The `FormSession` interface is only used within the secure environment of the Subscribing System and therefore does not require any enhanced security specifications.

The UserApplication component should support two different types of storage which would typically be implemented as separate storage areas:

- Form storage
- Electronic Medical Record (EMR) data storage.

The form storage of the UserApplication component contains form-related information such as:

- Forms metadata: Form definitions, usage tracking details, etc.
- Saved draft forms: The draft forms that are being temporarily saved for later submission
- Completed forms: Forms that have been completed and submitted

For the saved and completed forms the information stored includes both form data entered into the fields of a form as well as its view as seen by the user in an electronically rendered format (eg in HTML or PDF format).

The EMR data storage of the UserApplication component contains the operational information of the UserApplication component itself. The FormSession interface enables online forms to retrieve data from the UserApplication component's data storage for pre-populating form fields. Also, the results of the completed and processed online forms can be stored back into the UserApplication component's data storage.

Typically, this interface will be used by the Forms Engine to:

- Retrieve a specific piece of EMR data to populate a form
- Retrieve a specific piece of EMR data from a parked form
- Store the completed form data, or storing a partially completed form's data in a parked state
- Store the response from the form recipient after it has been completed and submitted.

The sessionKey parameter is required for all calls to this interface. This is generated by the UserApplication prior to initiating a form session to provide contextual information including:

- The active patient in the UserApplication
- Identity of the user that initiated the session
- The form type or identifier

The UserApplication may expire a sessionKey after a period of inactivity or when the “completed” parameter is set in the saveContainer() method.

4.3.1.3 *getVersion() Method*

Parameter Name	Data Type	Mandatory	Description
sessionKey	string	Yes	The form session identifier as provided by the UserApplication at the launch of the form session

Table 15: getVersion() - Input Parameters

Parameter Name	Data Type	Mandatory	Description
application	string	Yes	The name of the UserApplication that is providing this interface
applicationVersion	string	Yes	The version of the UserApplication
hisoversion	numeric	Yes	The version number of the HISO forms interface supported
dictionaryVersion	numeric	No	The version number of the HISO data dictionary supported

Table 16: getVersion() - Output Parameters

This method allows the form engine to determine the versions of interface and dictionary supported and sets the basis on which to interact with the UserApplication. Refer to informative examples Appendix B.9 and Appendix B.10.

4.3.1.4 *getDeliveryOptions() Method*

This method retrieves the parameters of the current user session relating to message delivery from the UserApplication component. Refer to informative examples Appendix B.5 and Appendix B.6.

The sender’s credentials returned by this method are typically used for authenticating the session’s user and delivering messages to the SubmissionGateway component.

Parameter Name	Data Type	Mandatory	Description
sessionKey	string	Yes	The form session identifier as provided by the UserApplication at the launch of the form session

Table 17: getDeliveryOptions() - Input Parameters

Parameter Name	Data Type	Mandatory	Description
URL	string	No	Location of Submission Gateway
messageID	string	No	Unique message control ID number or other identifier that uniquely identifies the message. System to automatically generate one if not provided
recipientAccount	string	No	Default recipient account name of the receiving user. May be overridden by user

Parameter Name	Data Type	Mandatory	Description
senderAccount	string	Conditional	Sender account name of the sending user. Mandatory if required by the service provider. Optional otherwise
senderPassword	string	Conditional	Password of the sending user. Mandatory if required by the service provider. Optional otherwise

Table 18: getDeliveryOptions() - Output Parameters

4.3.1.5 *getData()* Method

Parameter Name	Data Type	Mandatory	Description
sessionKey	string	Yes	Form session identifier
dataContainer	formData	Yes	Form data container to be populated

Table 19: getData() – Input Parameters

Parameter Name	Data Type	Mandatory	Description
dataContainer	formData	Yes	Form data container populated with data from the user application. The returned data structure must be identical to that of the dataContainer input parameter

Table 20: getData() – Output Parameters

This method populates the provided formData container as defined in Chapter 3 with data stored in the `UserApplication` component. The session identifier is used by the method to relate the request to the correct data context of the `UserApplication`. This data context can contain information specific to the particular user, a particular patient and/ or a particular episode of care (eg a patient consultation).

The `getData()` method identifies the fields using concept identifiers embedded in the submittedData portion of the formData container. The concept identifiers are encoded as `conceptID` XML attributes of the form data container's XML elements that require data to be filled in by the `getData()` method.

This method may be called multiple times over the duration of a forms session to retrieve various data items defined in the XML within the submittedData portion of the formData container.

The resulting populated form data container is returned by this method.

4.3.1.6 *saveContainer()* Method

Parameter Name	Data Type	Mandatory	Description
sessionKey	string	Yes	Form session identifier
resumePath	string	No	Path information to be used for resuming this parked form
dataContainer	formData	Yes	Form data container
view	string	Conditional	Encoded string containing the content of the form's dataContainer, rendered in a human-readable format eg HTML, PDF. This parameter is required if the completed flag is true.
viewType	string	Conditional	MIME type of view. Required for view value.
viewSignature	string	No	Digital signature of view.

Parameter Name	Data Type	Mandatory	Description
completed	boolean	Yes	Indicates that this is the last form view to be stored for this form session.
continueSession	boolean	No	Indicates if the session is to continue after saving. Default "false".

Table 21: saveContainer() - Input Parameters

Parameter Name	Data Type	Mandatory	Description
response	boolean	Yes	TRUE if OK. Otherwise respond with SOAP fault

Table 22: saveContainer () – Output Parameters

At any point in time, form data containers of an online form can be stored with the UserApplication component using this method. It does not modify the provided form data container in any way, but stores it for further usage by the UserApplication component. Like the `getData()` method, this method may also be invoked multiple times over the course of the session.

This method is typically used for returning the results of forms-based interactions to the UserApplication component that initiated the current user session. There is no limit to the number of form data containers to be stored by subsequent calls of this method. However, if the `completed` flag has been set to `true` in the invocation of the method, the session is closed and no subsequent calls are allowed for the same session identifier.

The `saveContainer()` method saves the form data and optionally analyses the provided form data using the concept identifiers and attributes specified in the `dataContainer` and saves the respective information in its own database. This specification does not specify the way in which the UserApplication component has to store and/or process this information.

EMR data items stored using this method can be retrieved by subsequent calls of the `getData()` method either within the current form session or as part of another one. Similarly, form view data stored using this method can be retrieved by the `getFormView()` method described in Chapter 4.3.1.7.

4.3.1.7 `getFormView()` Method

Parameter Name	Data Type	Mandatory	Description
sessionKey	string	Yes	Form session identifier
formInstanceId	string	Yes	Identifier for the instance of the form to be retrieved

Table 23: getFormView() - Input Parameters

Parameter Name	Data Type	Mandatory	Description
resumePath	string	No	Path information to be used for resuming this parked form
dataContainer	formData	Yes	Form data container exactly as that originally stored; not refreshed with updated data regardless of the <code>conceptId</code> attributes.
View	string	No	Encoded string containing the content of the form's <code>dataContainer</code> , rendered in a human-readable format eg HTML, PDF as was saved for this <code>formInstanceId</code> .
viewType	string	Conditional	MIME type of view. Required for view value.

Table 24: getFormView() - Output Parameters

This method is used during the processing of an online form for retrieving previously stored form views from the form storage of the UserApplication component. The method returns a particular form view identified by the value of the parameters provided. Refer to informative examples at Appendix B.7 and Appendix B.8.

A form view is a “snapshot” of the saved online form at a particular point in time. These snapshots may have been taken during the preliminary stages of the forms data entry, or they could be the completed form that was submitted. A form view is typically a human-readable rendering of an online form including the contents of its form fields. The purpose of a form view is to enable the UserApplication to display snapshots of forms that have been previously saved by the user.

Form views are always accompanied with a data container that contains the form data displayed in the form view in a machine-readable (XML) format.

4.3.1.8 processAction() Method

Parameter Name	Data Type	Mandatory	Description
sessionKey	string	Yes	Form session identifier
actionID	string	Yes	Action identifier of the type of action
actionContainer	any	Yes	Describes the data needed for the action. Structure varies depending on the actionID and is defined together at the same time.

Table 25: processAction() - Input Parameters

Parameter Name	Data Type	Mandatory	Description
processed	boolean	Yes	'true' if the UserApplication has successfully processed the action request
dataContainer	formData	No	For returning data to the form application following the action request

Table 26: processAction() - Output Parameters

This method is used to initiate actions within the UserApplication. For example raising an invoice; scheduling a recall; pop up a secondary form; or chain a subsequent form. Refer to informative example at Appendix B.11.

Concept identifiers will be defined for the actions that are to be performed. If the UserApplication does not recognise or cannot perform the action then this will be returned in the responseCode. If the action was performed then requested data in the dataContainer will be populated (via ConceptID mapping) by the UserApplication (eg Invoice Identifier).

Similar to the repository of concepts described in Chapter 3.1, a list of actionID codes and their associated containers will be developed and published in a shared repository. This is still under development.

4.3.2 FormsViewer Component

The FormsViewer component represents any application that can be used for displaying Online Forms to a user. A common implementation of this is a web browser embedded within the User Application. The user has to be able to perform all operations on the presented Online Forms that are required by the use cases described in Chapter 5 of this document.

The FormsViewer component is controlled via its Viewer interface and interacts with the FormsEngine component to retrieve form presentation instructions and to submit populated forms.

Interface Name	Interface Type
Viewer	User Interface

Table 27: Published Interfaces of the FormsViewer Component

It is envisaged that the `FormsViewer` component will take the form of commonly used applications like a web browser. Under this model any request sent to the `FormsViewer` component will need to take the form of a URL.

The `FormsViewer` Component also requires the use of interfaces of the `FormsEngine` Component listed in Table 28.

Interface Name	Publisher
FormServer	FormsEngine Component

Table 28: Required Interfaces of the FormsViewer Component

4.3.2.1 Viewer Interface

Interface Name	viewer
Supported Communication Protocol	HTTP (HTTPS for secured remote access)
Security Measures	implicit user authentication through session id and UserApplication component's FormSession interface
Interface Methods	displayForm()

Table 29: Viewer Interface Properties

The interface methods listed in this section are indicative only.

A detailed specification of this interface is outside the scope of this document. The compliance of any particular `FormsViewer` component with the Online Forms Architecture is independent from the actual implementation of this interface.

It is mandatory, though, that the interface method realising the functionality of the indicated `displayForm()` method provide at least the listed method parameters of the `FormServer` interface that it utilises.

4.3.3 FormsEngine Component

The `FormsEngine` component is responsible for the creation, layout and processing of Online Forms instances as well as for the submission of their form data to the Recipient System and the processing of the response information returned by the Recipient System. Where necessary during response processing, it may also call the `processAction` function on the User Application to initiate the appropriate actions. All digitally signed communication with the Recipient System is facilitated via the `SubmissionGateway` component.

Table 30 shows the current interface offered by this component. This interface is accessible only locally, ie within the secure boundaries of the Subscribing System. Therefore, it is necessary for the `FormsEngine` component to provide any of the security features discussed in Chapter 2 for its interfaces.

It is worth noting that the `FormsEngine` component serves as the conduit between the `FormsViewer` and `UserApplication` components for facilitating the user authentication: All methods of the `FormServer` interface require a session identifier. This identifier is used by the `FormsEngine` component to retrieve the user authentication information from the `UserApplication` component using its `FormSession` interface.

Interface Name	Interface Type
FormServer	HTTP

Table 30: Published Interfaces of the FormsEngine Component

It is envisaged that the FormsEngine component will take the form of a web application. Any request sent to the FormsEngine component will need to take the form of a URL. This URL is specific for each implementation of the FormsEngine, which path information needs to be used within the URL to trigger the functionality specified for the methods of the interfaces of the FormsEngine component. Method parameters need to be passed to the FormsEngine component using URL-encoded HTTP GET arguments.

Any component using the interfaces of the FormsEngine component will need to be configured according to the URL requirements of the particular FormsEngine implementation.

The FormsEngine Component requires the following interfaces (see Table 31) from the UserApplication and SubmissionGateway components to perform its functions.

Interface Name	Publisher
formSession	UserApplication Component
formDataSubmitter	SubmissionGateway Component

Table 31: Required Interfaces of the FormsEngine Component

4.3.3.1 *FormServer Interface*

Interface Name	formServer
Supported Communication Protocol	HTTP
Security Measures	implicit user authentication through session id and formSession interface of UserApplication component
Interface Methods	getForm()

Table 32: FormServer Interface Properties

4.3.3.1.1 *getForm()* Method

Parameter Name	Data Type	Mandatory	Description
hiso_method	string	Yes	The method on instantiation is always “new” when done by the Subscribing System. This parameter is available for passing control information when a form is instantiated by another process.
hiso_mode	string	Yes	This indicates the state of the form when it is instantiated and determines the actions are permitted. The values are as follows: N (or <null>) a new form which is to be populated from the data base. E an existing submitted form that has been found to be in error and needs correcting. This should only be used if the form supports version control. T using an existing form and its data as a basis of creating a new instance. A new form instance number must be used. P a form that has been previously parked and is being resumed with the form data collected so far. R an existing form that has been submitted that is being displayed as Read Only and cannot be altered or submitted again.
hiso_sessionKey	string	Yes	Form session identifier (URL-encoded HTTP GET argument)
hiso_resumePath	string	No	path information for resuming a parked form (only supported when resuming a parked form) (URL path information; without hostname and port no.)
hiso_formDefinitionId	string	Yes	form definition identifier
hiso_formDefinitionVersion	string	Yes	form definition version
hiso_callbackURL	URL	Yes	URL for the UserApplication component’s FormSession interface (URL-encoded HTTP GET argument)

Table 33: *getForm()* - Input Parameters

The output from this request will be the retrieved XHTML page populated with the saved or retrieved data.

This method invokes the Online Form associated with the provided form identifier and passes all provided parameters to it. If necessary during the processing of the Online Form, interactions with the UserApplication component through its FormSession interface will be performed in order to exchange information.

The *getForm()* method is intended to be used for both, the initial invocation of an Online Form as well as for resuming the processing of a previously parked Online Form.

For an initial invocation, the all mandatory parameters are required. For resuming a parked form an optional resume path (*hiso_resumePath* parameter) can also be specified to provide additional information about the context in which the Online Form processing is to be resumed.

In the case of a new form request the formMetadata identifier fields - formInstanceId and/or formEngineId, will be generated by the forms engine.

Any additional information to be supplied when resuming a previously parked Online Form is typically provided to the UserApplication component when parking the Online Form (see `UserApplication::FormSession::saveContainer()` method called with the complete flag = false).

4.4 SubmissionGateway Component

The SubmissionGateway component is responsible for the secure and reliable interaction with the recipient system. Its services are requested by the FormsEngine component using the published interface listed in Table 34.

Interface Name	Interface Type
FormDataSubmitter	Web Service

Table 34: Published Interfaces of the SubmissionGateway Component

As the Submission Gateway component acts as a gateway between internal components of the Subscribing System and external components in other systems, it may also need to translate its internally published interfaces to its externally required interfaces.

In order to ensure that submitted messages to external systems are received intact and unaltered, these messages need to be authenticated using the sender's digital signature. The SubmissionGateway thus needs access to the sender's private key. The key is stored in the SubmissionGateway and needs to be unlocked by the successful authentication of the user (ie the sender). The `FormDataSubmitter` interface of the SubmissionGateway component requires the provision of the sender's username and password to facilitate this authentication. The FormEngine component using this interface has to retrieve these credentials from the UserApplication component using its `FormSession::getDeliveryOptions` method.

4.4.1 FormDataSubmitter Interface

Interface Name	FormDataSubmitter
Supported Communication Protocol	Web Service (SOAP over HTTP)
Security Measures	Caller authentication based on username and password
Interface Methods	send()

Table 35: FormDataSubmitter Interface Properties

Refer to Appendix C for an example of a FormDataSubmitter Interface

4.4.1.1 *send()* Method

Parameter Name	Data Type	Mandatory	Description
sendingApplication	string	Yes	The system sending the submission
senderAccount	string	Yes	Account of the message sender
senderPassword	string	Yes	Password for unlocking the private signature key of the sender
messageId	string	No	Unique message id. System to provide an automatic one if not filled in.
dataContainer	formData	Yes	Form data container - contains the data to be submitted to the recipient system

Table 36: send() - Input Parameters

Parameter Name	Data Type	Mandatory	Description
dataContainer	formData	Yes	Form data container - contains the response data from the recipient system Recipient system to fill in the Destination Account and Sender's Message id fields.
messageId	string	Conditional	Unique message id of the response when sending a synchronous message
responseToMessageId	string	Conditional	Message id of the request message this message is related to The value of this return parameter must match the value of the messageId request parameter of this method invocation.
responseCode	string	Yes	HTTP status code is used here. Code 200: indicates a successful completion of the request; Code 500: indicates an error condition. More detailed status information may be contained in the form data container returned (responseData component).

Table 37: send() - Output Parameters

The `send()` method prepares a set of form data, contained in a form data container, for submission to the designated recipient system. It is responsible for managing the security features required by the recipient system. This includes the generation of a digital signature for the form data using the sender's private signature key. This private key is stored in a password-secured key store and is unlocked by the `send()` method using the sender's password provided.

4.4.2 *Asynchronous Submission*

Due to the very nature of asynchronous message transmission, the response message that is being sent back to the Submission Gateway's caller cannot contain any information from the recipient of the original message.

The success of an asynchronous submission therefore is defined as the successful delivery of the message to the Submission Gateway's backend messaging infrastructure. The delivery result is indicated in the `<responseCode>` parameter using the HTTP status code. Only the value 200 can be returned in asynchronous transmission mode. In case of errors no response message will be returned. Instead, a SOAP Fault message will be returned.

4.4.3 Synchronous Submission

When submitting a message in synchronous mode, the Submission Gateway sends the message to the remote recipient system and responds with the message returned from the remote recipient system.

The success of a synchronous submission is defined as a successful roundtrip communication, from the Submission Gateway through the backend communication infrastructure to the message recipient and back through the backend communication infrastructure to the Submission Gateway.

In case of a successful roundtrip communication, a `response` message is returned to the caller, within the `dataContainer` parameter. The `responseData` element in this parameter will contain the application responses. The successful execution of the transaction is indicated by the value 200 of the `<responseCode>` parameter. Error conditions are indicated by using the appropriate HTTP status code. The default status code for this is 500.

The `responseData` element is created by the recipient of the caller's original message. This response message is application-specific and can contain additional information in case of an indicated application error condition.

In case of a failure of the roundtrip communication the Submission Gateway will not return a regular response message, but a SOAP Fault message instead.

4.4.4 Error Handling

The Submission Gateway differentiates between errors during the transmission of the messages by the messaging infrastructure (transmission errors) and errors detected by the recipient of the caller's original message (application errors). Transmission errors include the failed validation of the application-specific `dataContainer` of the caller's message by the Submission Gateway. In asynchronous transmission mode only transmission errors can be returned to the caller (refer to Chapter 4.4.2 for details).

Transmission errors, on the other hand, are indicated in a different way. Instead of a regular SOAP message containing the `dataContainer` parameter, the Submission Gateway returns a SOAP Fault message to the caller. The elements of the SOAP Fault message contain the available information about the error occurred. The available elements of this message and their possible values are shown in the table below.

Element Name	Description
<code>faultcode</code>	<p>VersionMismatch: The Submission Gateway encountered a namespace associated with the SOAP envelope that it did not recognise. When this <code>faultcode</code> value is received, the message should not be resent. A SOAP namespace needs to be used that is recognised by the Submission Gateway.</p> <p>Client: The "Client" class of errors indicates that the message was incorrectly formed or did not contain the appropriate information in order to succeed. For example, the message might not validate against a schema or could be addressed to a non-existent recipient. It is generally an indication that the message should not be resent without change. The detail section of the fault should provide further information to indicate the specific cause and therefore determine the course of action for the submitter.</p> <p>Server: The "Server" class of errors indicates that the message could not be processed for reasons due to the processing of the message rather than the content of the message. This includes communications failures or non-responsive recipient systems. The message may succeed at a later point in time. Additional information should be in the details section to explicitly describe what the submitter should do. Usually this would be <code>TEMPORARYFAIL</code> indicating that they should retry later.</p>
<code>faultstring</code>	Provides a human-readable explanation of the reason of the fault occurred.
<code>faultactor</code>	Indicates the URI associated with the actor that caused the fault on the message path. In RPC-style messaging, the actor should be the URI of the invoked web service.

Element Name	Description
detail	<p>Carries more detailed information about the reason of the fault.</p> <p>This would be standard text in the case of a normal SOAP message generated by the endpoints.</p> <p>But in the case the soap fault is generated by the Submission Gateway in response to a problem in processing the request then the detail element must conform to the following format which includes an appErrorCode. The detail element will contain the following two elements which will be defined as a type in WSDL:</p> <p>appErrorCode: (one of: UNEXPECTED, TEMPORARYFAIL, VALIDATIONFAIL)</p> <p>details: may contain more XML elements or plain text. May also contain additional information regarding possible ways to solve the problem that occurred. Usually would include debugging information like a stack trace as appropriate.</p> <p>The appErrorCodes have the following meanings:</p> <p>UNEXPECTED: An unexpected unrecoverable error occurred trying to transmit the message.</p> <p>TEMPORARYFAIL: The message could not be sent, please try again later. This means the submission gateway received the message and all validated OK up to a point however it was unable to actually transmit it.</p> <p>VALIDATIONFAIL: The message did not pass validation or the recipient can not be found. The submitter needs to correct the message and try again. Examples of this are: The message received from the caller could not be successfully validated or the transformation and/or encryption mechanism that is required for submitting the message type is not supported by the Submission Gateway. Validation errors in the structure of the overall message (as specified by the formDataSubmitter's WSDL), the structure of the message payload (as specified by the message type), or the message type that is not supported by the Submission Gateway. The message needs to be reformatted before being resent. Invalid transformation and/or encryption methods for that specific message type that is maintained by the Submission Gateway based on the original forms package data. These settings are usually not changeable by the sender of the message. Though, in effect, it leads to a situation where the message type is effectively not supported by the Submission Gateway.</p>

Table 38: Elements of the SOAP Fault Message

5 USE CASES

It is expected that the services provided by the systems specified in the Online Forms Architecture will be used in a multitude of different situations. This section describes a typical use case for the Subscribing System that utilises the interfaces across the various components.

5.1 Use Case “Complete Form”

This use case describes how a typical user will interact with the Subscribing System upon choosing an appropriate form to fill in. After submitting the form data to the recipient system, the response is processed and shown to the user.

5.1.1 *Precondition*

The user is authenticated and securely logged onto the system.

5.1.2 *Business Trigger*

The user is presented with a circumstance that requires a form to be filled in. For example a doctor during a consultation session decides that the patient needs to be referred to the hospital for treatment using a referral form.

5.1.3 *Basic Flow*

1. The user selects the appropriate form to fill in.
2. The system creates an instance of the form and the form data container.
3. The system automatically pre-populates the form data as much as possible.
4. The system displays the form instance to the user.
5. The user verifies the form contents and starts entering the necessary information.
6. The user submits the form.
7. The system sends the form data to the intended recipient.
8. The system processes and shows the response.
9. The user reviews the response.

5.1.4 *Post-condition*

The form information is saved into the system and may be retrieved and reviewed by the user at any time.

5.1.5 Activity Diagrams

Figure 4 below depicts this use case in a high level activity diagram.

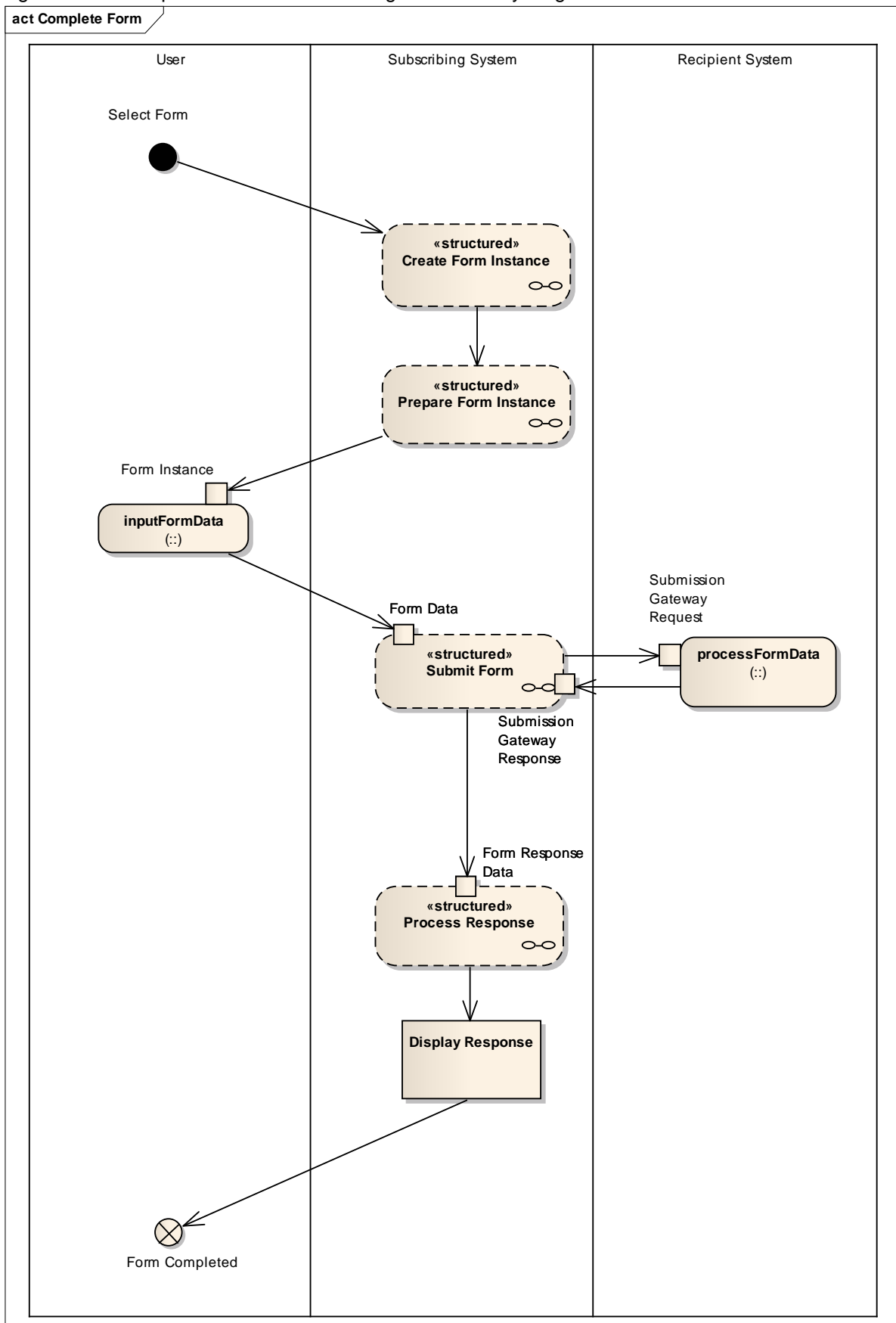


Figure 4: Use Case "Complete Form"

The diagram shows four structured activities within the Subscribing System. The following sections will detail these structured activities and show how the components of the Subscribing System interact.

5.1.5.1 "Create Form Instance" Structured Activity

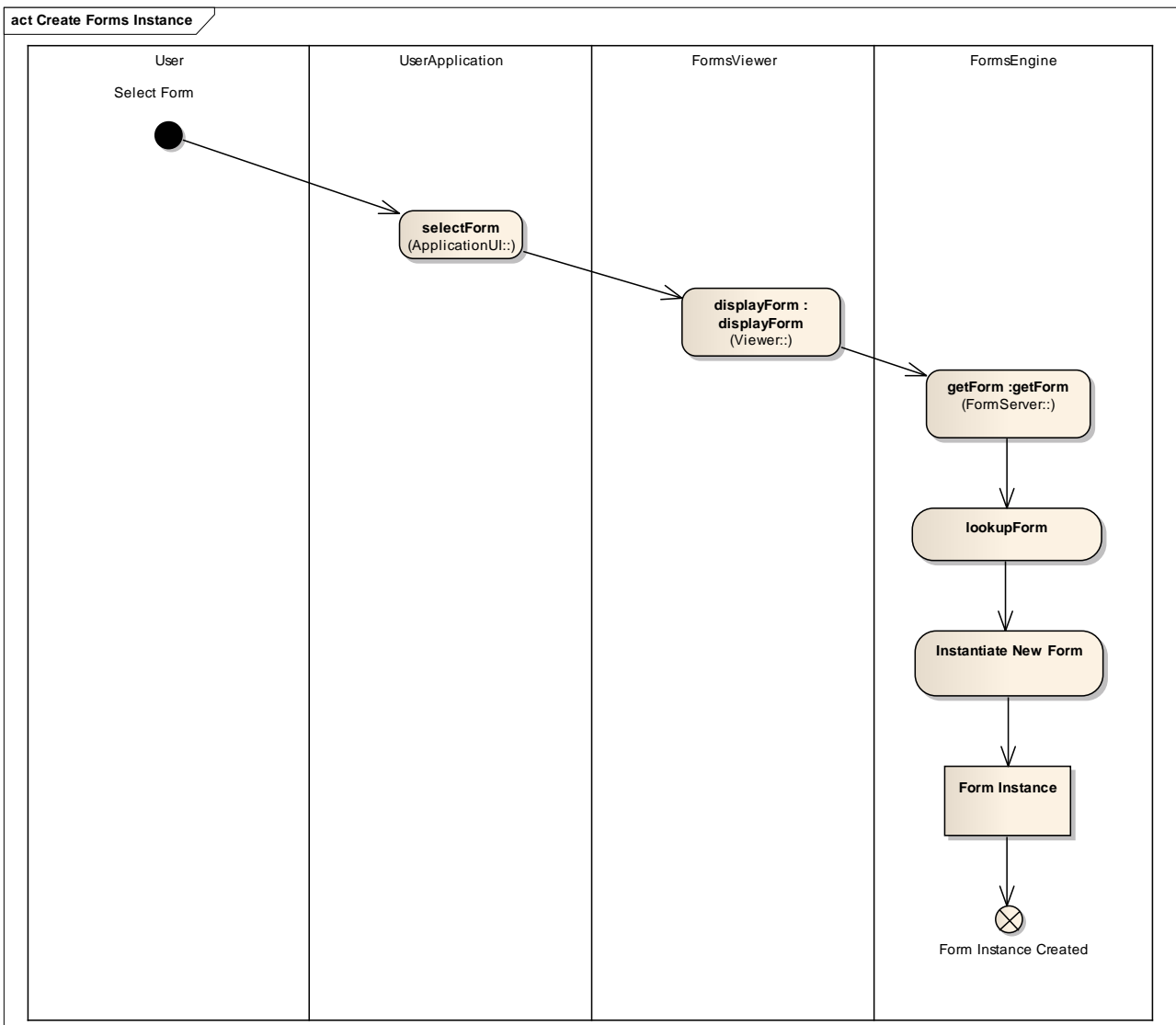


Figure 5: Structured Activity Diagram "Create Form Instance"

1. The user selects a form from the UserApplication.
2. The UserApplication launches a display to render the form in the FormsViewer.
3. The FormsViewer calls the Form Engine getForm function to instantiate the form.

5.1.5.2 "Prepare Form Instance" Structured Activity

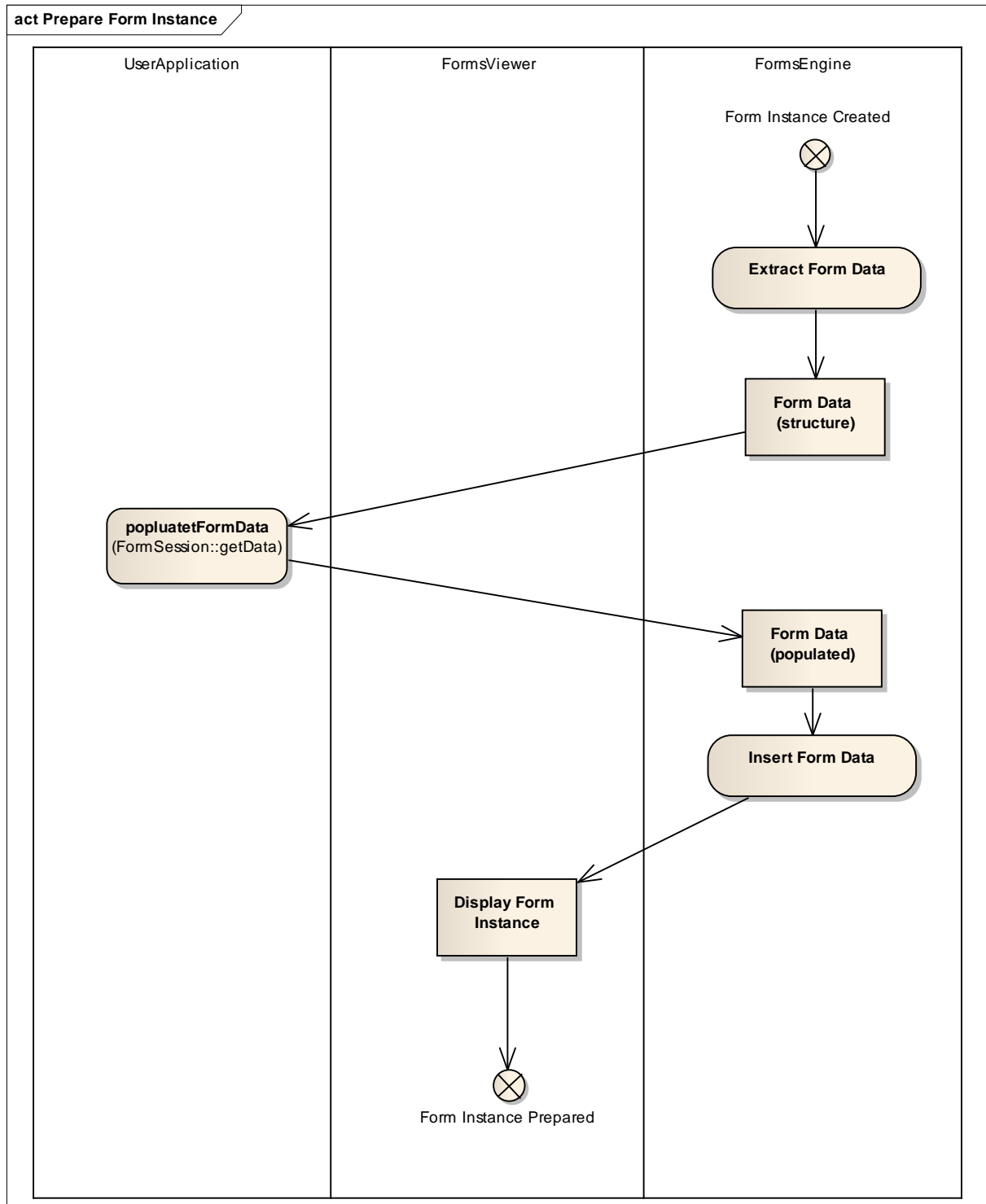


Figure 6: Structured Activity Diagram "Prepare Form Instance"

1. The Form Engine prepares the Form Data to be populated by the UserApplication. Refer to Chapter 3.2 for a description of the formData structure.
2. The Form Engine calls the getData function in the UserApplication to pre-populate data. (Chapter 4.3.1.5)
3. The Form Engine fills in the data into the form instance and calls the FormsViewer to update the user display.

5.1.5.3 "Submit Form" Structured Activity

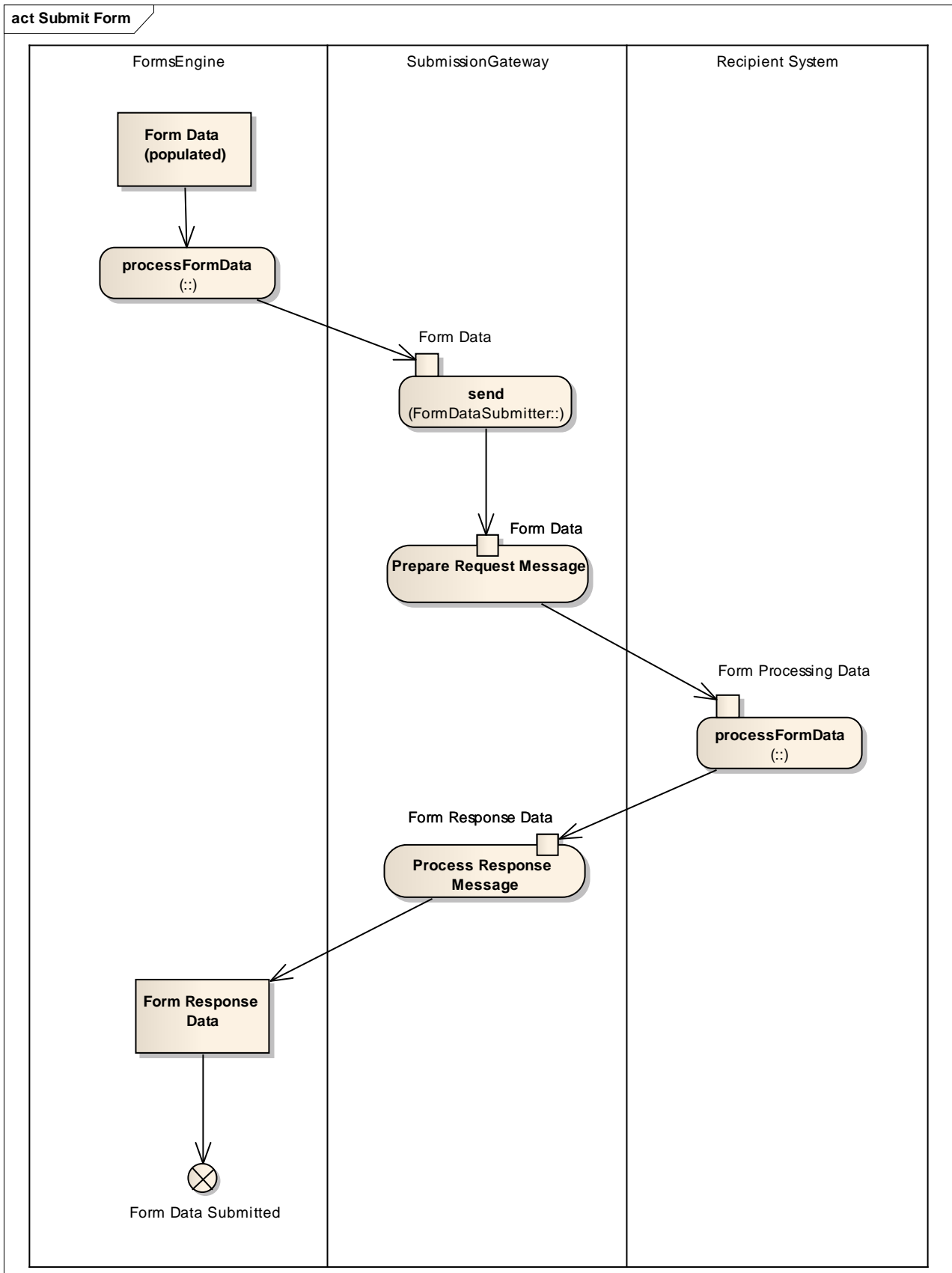


Figure 7: Structured Activity Diagram "Submit Form"

1. The Form Engine prepares the Form Data to be submitted and calls the send function in the Submission Gateway. (Chapter 4.4.1.1)
2. The Submission Gateway transmits it to the appropriate recipient system.
3. The Submission Gateway processes the response from the recipient system and passes it to the Forms Engine.

5.1.5.4 "Process Response" Structured Activity

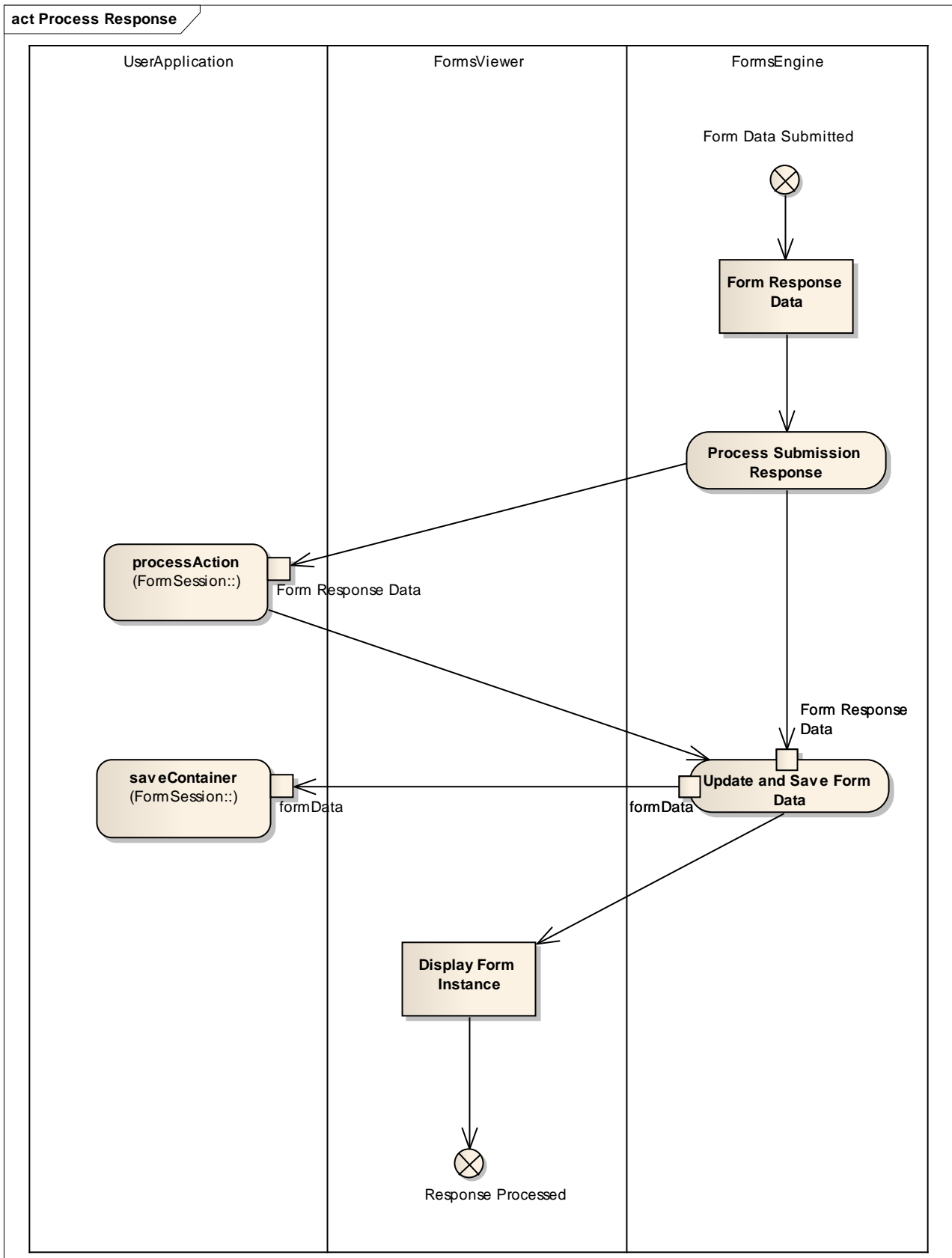


Figure 8: Structured Activity Diagram "Process Response"

1. The Form Engine processes the response data and sends any necessary actions to the UserApplication using the processAction function. (Chapter 4.3.1.8)

2. The Form Engine updates the form instance after processing, saves it to the UserApplication using the saveContainer function. (Chapter 4.3.1.6)
3. The Form Engine then calls the FormsViewer to update the user display.

Appendix A. Glossary

(Informative)

The terms 'normative' and 'informative' are used in Standards to define the application of an appendix. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance and does not form part of the mandatory requirements of the Standard.

Terms	Definition
(HL7) CDA	HL7 Clinical Document Architecture
'call-back' address	IP Address of the calling application or service
http 200	HTTP status code meaning OK
ACC	Accident Compensation Corporation
Attributes	Attributes provide extra information about elements
Backend servers	Servers used to handle supplied data for validation, application of business rules, and store data
Base64	An encoding method that converts binary data into ASCII text and vice versa
CA	Certificate Authorities
CAD	Computer Aided Despatch System
Camel Case	The first letter of the first word is in lower case and all subsequent words have the first letter in upper case
CCD	Community of Care Document
Child elements	Elements who have as its parent a root element
DHB	District Health Board
Elements	Elements are part of the Logical Structure of an XML document that have conforming start and end tags
EMR	Electronic Medical Record. In the context of Online Forms Architecture Technical Specification, an EMR is held at the primary providers system.
FE	The Forms Engine
GP	General Practitioner
HealthPac	Health payments, agreements and compliance
HL7	Health Level 7 – an application protocol for electronic data exchange in healthcare environments.
HTML	HyperText Markup Language
HTTP	Hypertext Transfer Protocol
HTTP GET	Method of submitting data via Hypertext Transfer Protocol with the data encoded and present in the transmitted URL
HTTP POST	Method of submitting data via Hypertext Transfer Protocol with the data present in the message body
HTTPS/SSL	Hypertext Transfer Protocol over SSL or HTTP Secure
ICD-10	A coding system based on the International Classification of Diseases.
IHE	Integrating the Healthcare Enterprise
IPA	Independent Practitioners Association
IPSec	Internet Protocol Security
ISO/IEC	International Standards Organisation
Javascript	A scripting language used to enable programmatic access to objects within other applications
LAN	Local Area Network

Terms	Definition
Literal	Non variable "actual" data
Middle-ware	or "glue," is a layer of software between the network and the applications.
MIME message	Multipurpose Internet Mail Extension
MoH	Ministry of Health
MSO	Management Services Organisations
NGO	Non Government Organisation
NHI	National Health Index
NIR	National Immunisation Register
PDF	Portable Document Format
PHC Subscribing System	Primary Health Care Practice Management System -
PHO	Primary Health Organisation
PMS	Practice Management System
QED	Query for Existing Data
RDF	The Resource Description Framework (RDF) is a general-purpose language for representing information in the Web.
RPC	Remote Procedure Call
RPC style SOAP clients	Remote Procedure Calls that encapsulate SOAP Pack
Screen scraping	A technique in which a computer programme extracts data from the display output of another programme
SNOMED	Systemised Nomenclature of Medicine. A coding system.
SOAP	Simple Object Access Protocol
SSL	Secure Socket Layer
Status code 500	HTTP Status code meaning Internal Error
Subscribing System	Refer Chapter 1.2.3 for definition
Subscribing System LAN	Local Area Network for a Subscribing System
Subscribing System SOAP Service	Simple Object Access Protocol (SOAP) Service for a Subscribing System
TLS	Transport Layer Security
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
VPN Technology	Virtual Private Network
W3C	World Wide Web Consortium (W3C)
WSDL	Web Services Data Language
XDS-MS	Cross Enterprise Sharing of Medical Summaries
XForms	XML format for the specification of user interfaces
XHTML	Extensible HyperText Markup Language
XML	Extensible Markup Language
XPath	Describes how to locate elements and attributes in Extensible Markup Language (XML) documents
XSD	XML Schema Definition
XSLT	Extensible style sheet language transformation. A language for transforming XML documents into other XML documents.

Appendix B. FormSession Interface and Examples

The terms 'normative' and 'informative' are used in Standards to define the application of an appendix. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance and does not form part of the mandatory requirements of the Standard.

Appendix B.1. FormSession WSDL in Document/Literal Style

(Normative)

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:apacheSOAP="http://xml.apache.org/xml-soap"
  xmlns:impl="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"
  xmlns:intf="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:fs="http://www.hiso.govt.nz/10014.2/1.0/formsession" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:ns="urn:nz.org.hiso.form.meta"
  targetNamespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl">
  <wsdl:types>
    <schema targetNamespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"
      xmlns="http://www.w3.org/2001/XMLSchema">
      <import namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession"
        schemaLocation="hiso_formSession.xsd"/>
    </schema>
  </wsdl:types>
  <message name="getVersionRequest">
    <part name="parameters" element="fs:getVersion"/>
  </message>
  <message name="getVersionResponse">
    <part name="parameters" element="fs:getVersionResponse"/>
  </message>
  <message name="getDeliveryOptionsRequest">
    <part name="parameters" element="fs:getDeliveryOptions"/>
  </message>
  <message name="getDeliveryOptionsResponse">
    <part name="parameters" element="fs:getDeliveryOptionsResponse"/>
  </message>
  <message name="getDataRequest">
    <part name="parameters" element="fs:getData"/>
  </message>
  <message name="getDataResponse">
    <part name="parameters" element="fs:getDataResponse"/>
  </message>
  <message name="saveContainerRequest">
    <part name="parameters" element="fs:saveContainer"/>
  </message>
  <message name="saveContainerResponse">
    <part name="parameters" element="fs:saveContainerResponse"/>
  </message>
  <message name="getFormViewRequest">
    <part name="parameters" element="fs:getFormView"/>
  </message>
  <message name="getFormViewResponse">
    <part name="parameters" element="fs:getFormViewResponse"/>
  </message>
  <message name="processActionRequest">
    <part name="parameters" element="fs:processAction"/>
  </message>
  <message name="processActionResponse">
    <part name="parameters" element="fs:processActionResponse"/>
  </message>
</wsdl:definitions>
```

```

</message>
<portType name="FormSessionPortType">
  <operation name="getVersion">
    <input message="impl:getVersionRequest"/>
    <output message="impl:getVersionResponse"/>
  </operation>
  <operation name="getDeliveryOptions">
    <input message="impl:getDeliveryOptionsRequest"/>
    <output message="impl:getDeliveryOptionsResponse"/>
  </operation>
  <operation name="getData">
    <input message="impl:getDataRequest"/>
    <output message="impl:getDataResponse"/>
  </operation>
  <operation name="saveContainer">
    <input message="impl:saveContainerRequest"/>
    <output message="impl:saveContainerResponse"/>
  </operation>
  <wsdl:operation name="getFormView">
    <wsdl:input message="impl:getFormViewRequest"/>
    <wsdl:output message="impl:getFormViewResponse"/>
  </wsdl:operation>
  <wsdl:operation name="processAction">
    <wsdl:input message="impl:processActionRequest"/>
    <wsdl:output message="impl:processActionResponse"/>
  </wsdl:operation>
</portType>
<binding name="FormSessionSoapBinding" type="intf:FormSessionPortType">
  <wsdlsoap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <operation name="getVersion">
    <wsdlsoap:operation soapAction="getVersion"/>
    <input>
      <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
    </input>
    <output>
      <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
    </output>
  </operation>
  <operation name="getDeliveryOptions">
    <wsdlsoap:operation soapAction="getDeliveryOptions"/>
    <input>
      <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
    </input>
    <output>
      <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
    </output>
  </operation>
  <operation name="getData">
    <wsdlsoap:operation soapAction="getData"/>
    <input>
      <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
    </input>
    <output>
      <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
    </output>
  </operation>

```



```

    <operation name="saveContainer">
      <wsdlsoap:operation soapAction="saveContainer"/>
      <input>
        <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
      </input>
      <output>
        <wsdlsoap:body use="literal"
namespace="uhttp://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
      </output>
    </operation>
    <wsdl:operation name="getFormView">
      <wsdlsoap:operation soapAction="getFormView"/>
      <wsdl:input>
        <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
      </wsdl:input>
      <wsdl:output>
        <wsdlsoap:body use="literal"
namespace="uhttp://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
      </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="processAction">
      <wsdlsoap:operation soapAction="processAction"/>
      <wsdl:input>
        <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
      </wsdl:input>
      <wsdl:output>
        <wsdlsoap:body use="literal"
namespace="uhttp://www.hiso.govt.nz/10014.2/1.0/formsession/wsdl"/>
      </wsdl:output>
    </wsdl:operation>
  </binding>
  <service name="FormSessionService">
    <port name="FormSessionPort" binding="intf:FormSessionSoapBinding">
      <wsdlsoap:address location="http://localhost:1024/FormSession"/>
    </port>
  </service>
</wsdl:definitions>

```

Appendix B.2. FormSession Schema

(Informative)

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- edited with XMLSpy v2006 sp2 U (http://www.altova.com) by ignatius (h) -->
<xs:schema xmlns="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:simpleType name="ConceptID">
    <xs:restriction base="xs:normalizedString">
      <xs:pattern value="([0-9]+:[0-9]+)(/[0-9]{1,3}){0,5}"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="FormMetaData">
    <xs:sequence>
      <xs:element name="formInstanceID">
        <xs:complexType>
          <xs:simpleContent>
            <xs:extension base="xs:string">
              <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
          </xs:simpleContent>
        </xs:complexType>
      </xs:element>
      <xs:element name="formInstanceVersion">
        <xs:complexType>
          <xs:simpleContent>
            <xs:extension base="xs:string">
              <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
          </xs:simpleContent>
        </xs:complexType>
      </xs:element>
      <xs:element name="formEngineID">
        <xs:complexType>
          <xs:simpleContent>
            <xs:extension base="xs:string">
              <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
          </xs:simpleContent>
        </xs:complexType>
      </xs:element>
      <xs:element name="formInstanceCreationDate">
        <xs:complexType>
          <xs:simpleContent>
            <xs:extension base="xs:date">
              <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
          </xs:simpleContent>
        </xs:complexType>
      </xs:element>
      <xs:element name="formInstanceOperationMode" minOccurs="0">
        <xs:complexType>
          <xs:simpleContent>
            <xs:extension base="xs:string">
              <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
          </xs:simpleContent>
        </xs:complexType>
      </xs:element>
      <xs:element name="formInstanceDescription" minOccurs="0">
        <xs:complexType>
```

```

        <xs:simpleContent>
            <xs:extension base="xs:string">
                <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<xs:element name="formDefinitionId">
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="xs:string">
                <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<xs:element name="formDefinitionVersion">
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="xs:string">
                <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<xs:element name="formDefinitionDescription" minOccurs="0">
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="xs:string">
                <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<xs:element name="formDefinitionTitle">
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="xs:string">
                <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<xs:element name="encryptedFlag" minOccurs="0">
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="xs:string">
                <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<xs:element name="signatures" minOccurs="0">
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="xs:string">
                <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
            </xs:extension>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<xs:element name="recipientAccount" minOccurs="0">

```

```

        <xs:complexType>
            <xs:simpleContent>
                <xs:extension base="xs:string">
                    <xs:attribute name="conceptID" type="ConceptID"
use="optional"/>
                </xs:extension>
            </xs:simpleContent>
        </xs:complexType>
    </xs:element>
    <xs:element name="copyToRecipientAccounts" minOccurs="0">
        <xs:complexType>
            <xs:sequence>
                <xs:element name="ccRecipientAccount" minOccurs="0"
maxOccurs="unbounded">
                    <xs:complexType>
                        <xs:simpleContent>
                            <xs:extension base="xs:string">
                                <xs:attribute name="conceptID"
type="ConceptID" use="optional"/>
                            </xs:extension>
                        </xs:simpleContent>
                    </xs:complexType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
    </xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="FormData">
    <xs:sequence>
        <xs:element name="formMetaData" type="FormMetaData"/>
        <xs:element name="submittedData" type="xs:anyType"/>
        <xs:element name="responseData" minOccurs="0">
            <xs:complexType>
                <xs:sequence>
                    <xs:element name="applicationResponseCode" type="xs:string"/>
                    <xs:element name="applicationResponseMessage" type="xs:string"/>
                    <xs:element name="receivingSystemId" type="xs:string"/>
                    <xs:sequence minOccurs="0">
                        <xs:element name="actionId" type="xs:string"/>
                        <xs:element name="actionContainer" type="xs:anyType"/>
                    </xs:sequence>
                    <xs:element name="data" type="xs:anyType" minOccurs="0"/>
                </xs:sequence>
            </xs:complexType>
        </xs:element>
    </xs:sequence>
</xs:complexType>
</xs:schema>

```

Appendix B.3. getDataRequest Example:

(Informative)

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:m0="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta">
  - <SOAP-ENV:Body>
    - <m:getData xmlns:m="http://www.hiso.govt.nz/10014.2/1.0/formsession">
      <m:sessionKey>token</m:sessionKey>
      - <m:dataContainer>
        - <m0:formMetaData>
          <m0:formInstanceId conceptID="" />
          <m0:formInstanceVersion conceptID="" />
          <m0:formEngineId conceptID="" />
          <m0:formInstanceCreationDate conceptID="" />

```

```

    <m0:formInstanceOperationMode conceptID="" />
    <m0:formDefinitionId conceptID="" />
    <m0:formDefinitionVersion conceptID="" />
    <m0:formDefinitionDescription conceptID="" />
    <m0:formTitle conceptID="" />
    <m0:encryptedFlag conceptID="" />
    <m0:signatures conceptID="" />
    <m0:recipientAccount conceptID="" />
  - <m0:copyToRecipientAccounts>
    <m0:ccRecipientAccount conceptID="" />
  </m0:copyToRecipientAccounts>
</m0:formMetaData>
- <m0:submittedData>
  - <referral xmlns="urn:net.hiso.dhb.referrals"
  xmlns:commons="urn:net.hiso.dhb.referrals.common"
  xmlns:refinfo.colorectal="urn:net.hiso.dhb.referrals.refinfo.colorectal"
  xmlns:refinfo.general="urn:net.hiso.dhb.referrals.refinfo.general"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    - <administrativeDetails>
      <referralId conceptID="554.11.79.1" />
      <referralDate />
      <referredToService />
      <referredFor />
      <serviceProvider />
    - <accEligibility>
      <isEligible />
      <accidentLocation conceptID="554.11.37.1" />
      <isWorkRelated conceptID="554.11.38.1" />
      <accidentDate conceptID="554.7.25.1" />
      <activityAtAccident conceptID="554.11.39.1" />
      <acc45Number conceptID="554.7.24.1" />
    </accEligibility>
      <senderEdi conceptID="554.11.35.1" />
    </administrativeDetails>
    - <referrer>
      - <name>
        <surname conceptID="554.1.808.1" />
        <firstName conceptID="554.1.806.1" />
      </name>
      <id conceptID="554.1.802.1" />
      - <practice>
        <name conceptID="554.11.21.1" />
        - <address>
          <streetAddress conceptID="554.11.29.1" />
          <suburb conceptID="554.11.30.1" />
          <city conceptID="554.11.31.1" />
          <postCode conceptID="554.11.32.1" />
        </address>
      </practice>
      - <contact>
        <telephone conceptID="554.11.33.1" />
        <fax conceptID="554.11.34.1" />
      </contact>
      - <gpDetails>
        <differentFromReferrer />
        <name />
        - <practice>
          <name conceptID="554.11.21.1" />
        </practice>
        - <contact>
          <telephone conceptID="554.11.33.1" />
        </contact>
      </gpDetails>
    </referrer>
    - <patient>
      <nhi conceptID="554.1.12.1" />
      - <name>
        <firstName conceptID="554.1.14.1" />
        <secondName conceptID="554.1.15.1" />
        <surname conceptID="554.1.13.1" />
        <preferredName conceptID="554.11.23.1" />
        <previousFamilyName conceptID="554.11.22.1" />
      </name>

```

```

- <postal>
  <streetAddress conceptID="554.2.19.1" />
  <suburb conceptID="554.2.20.1" />
  <city conceptID="554.2.21.1" />
  <postCode conceptID="554.2.24.1" />
</postal>
- <residential>
  <sameAsPostal />
  <streetAddress conceptID="554.1.19.1" />
  <suburb conceptID="554.1.20.1" />
  <city conceptID="554.1.21.1" />
  <postCode conceptID="554.11.24.1" />
</residential>
- <contact>
  <telephoneDaytime conceptID="554.11.25.1" />
  <telephoneEvening conceptID="554.11.26.1" />
  <telephoneCell conceptID="554.11.27.1" />
</contact>
  <dateOfBirth conceptID="554.1.25.1" />
  <gender conceptID="554.1.28.1" />
- <ethnicities>
  <code1 conceptID="554.11.80.1" />
  <code2 conceptID="554.11.81.1" />
  <code3 conceptID="554.11.82.1" />
</ethnicities>
- <language>
  <requiresInterpreter />
  <additionalInformation />
</language>
  <isNzResident conceptID="554.1.24.1" />
- <disabilities>
  <disabilitySelected />
  - <communication>
    <hasDifficulties />
    <comments />
  </communication>
  - <vision>
    <impaired />
    <comments />
  </vision>
  - <mobility>
    <status />
    <comments />
  </mobility>
  - <intellectual>
    <hasDisability />
    <comments />
  </intellectual>
</disabilities>
</patient>
- <clinical>
  - <familyHistory>
    - <condition conceptID="554.11.48.1">
      <readCode conceptID="554.11.49.1" />
      <comments conceptID="554.11.83.1" />
    </condition>
  </familyHistory>
  <coMorbidity conceptID="554.11.84.1" />
  <smokingHistory />
  - <currentLongTermMedication conceptID="554.11.54.1">
    <startDate conceptID="554.11.55.1" />
    - <drug>
      <code conceptID="554.11.57.1" />
      <name conceptID="554.11.58.1" />
      <codingSystem conceptID="554.11.56.1" />
    </drug>
    <dose conceptID="554.11.63.1" />
    <unitOfMeasure conceptID="554.11.59.1" />
    <administrationInstructions conceptID="554.11.66.1" />
  </currentLongTermMedication>
  - <medicalWarnings>
    - <warning conceptID="554.11.67.1">
      <date conceptID="554.11.71.1" />

```

```

        <recordingPersonId conceptID="554.11.78.1" />
        <description conceptID="554.11.70.1" />
    </warning>
</medicalWarnings>
- <reports>
    - <report conceptID="554.11.72.1">
        <reportType conceptID="554.11.74.1" />
        <subject conceptID="554.11.73.1" />
        <sendingFacility conceptID="554.11.75.1" />
        <dateReceived conceptID="554.11.76.1" />
        <formattedData conceptID="554.11.77.1" />
        <selected />
    </report>
</reports>
</clinical>
</referral>
</m0:submittedData>
- <m0:responseData>
    <m0:applicationResponseCode>String</m0:applicationResponseCode>
    <m0:applicationResponseMessage>String</m0:applicationResponseMessage>
    <m0:receivingSystemId>String</m0:receivingSystemId>
    <m0:actionId>String</m0:actionId>
    <m0:actionContainer />
    <m0:data />
</m0:responseData>
</m:dataContainer>
</m:getData>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Appendix B.4. getDataResponse Example

(Informative)

```

- <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:for="http://www.hiso.govt.nz/10014.2/1.0/formsession"
  xmlns:for1="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta">
  <soapenv:Header />
  - <soapenv:Body>
    - <for:getDataResponse>
      - <for:return>
        - <for:dataContainer>
          - <for1:formMetaData>
            <for1:formInstanceId conceptID="554:1000001/1">1111</for1:formInstanceId>
            <for1:formInstanceVersion conceptID="554:1000001/2">1.0</for1:formInstanceVersion>
            <for1:formEngineId conceptID="554:1000001/3">3.0</for1:formEngineId>
            <for1:formInstanceCreationDate conceptID="554:1000001/4">2010-02-
            26</for1:formInstanceCreationDate>
          - <!-- Optional: -->
            <for1:formInstanceOperationMode
              conceptID="554:1000001/5">?</for1:formInstanceOperationMode>
            <for1:formDefinitionId conceptID="554:1000001/6">?</for1:formDefinitionId>
            <for1:formDefinitionVersion conceptID="554:1000001/7">?</for1:formDefinitionVersion>
          - <!-- Optional: -->
            <for1:formDefinitionDescription
              conceptID="554:1000001/8">?</for1:formDefinitionDescription>
            <for1:formTitle conceptID="554:1000001/9">?</for1:formTitle>
          - <!-- Optional: -->
            <for1:encryptedFlag conceptID="554:1000001/10">?</for1:encryptedFlag>
          - <!-- Optional: -->
            <for1:signatures conceptID="554:1000001/11">?</for1:signatures>
          - <!-- Optional: -->
            <for1:recipientAccount conceptID="554:1000001/12">?</for1:recipientAccount>
          - <!-- Optional: -->
            - <for1:copyToRecipientAccounts>
              - <!-- Zero or more repetitions: -->
                <for1:ccRecipientAccount conceptID="554:1000001/13">?</for1:ccRecipientAccount>
            </for1:copyToRecipientAccounts>
          </for1:formMetaData>
          - <for1:submittedData>
            - <referral xmlns="urn:net.hiso.dhb.referrals"
              xmlns:commons="urn:net.hiso.dhb.referrals.common">

```

```

xmlns:refinfo.colorectal="urn:net.hiso.dhb.referrals.refinfo.colorectal"
xmlns:refinfo.general="urn:net.hiso.dhb.referrals.refinfo.general"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  - <administrativeDetails>
    <referralId conceptID="554.11.79.1">1839</referralId>
    <referralDate />
    <referredToService />
    <referredFor />
    <serviceProvider />
  - <accEligibility>
    <isEligible />
    <accidentLocation conceptID="554.11.37.1" />
    <isWorkRelated conceptID="554.11.38.1" />
    <accidentDate conceptID="554.7.25.1">1998-05-07</accidentDate>
    <activityAtAccident conceptID="554.11.39.1">T667711</activityAtAccident>
    <acc45Number conceptID="554.7.24.1">T667711</acc45Number>
  </accEligibility>
  <senderEdi conceptID="554.11.35.1">ma65test</senderEdi>
</administrativeDetails>
  - <referrer>
    - <name>
      <surname conceptID="554.1.808.1">Entwistle</surname>
      <firstName conceptID="554.1.806.1">Sam</firstName>
    </name>
    <id conceptID="554.1.802.1">88984</id>
    - <practice>
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    Patient: MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par
    \par \par {\rtf1\ansi\deff0\deflab720{\fonttbl{\f0\swiss MS
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    ;}\deflang5129\pard\tx3744 \plain\fs20 \plain\fs20\b
    Smear Type:\tab \plain\fs20 Other \par \plain\fs20\b
    Site:\tab \plain\fs20 Routine cervical smear \par
    \plain\fs20\b Adequacy:\tab \plain\fs20 The specimen
    includes both squamous and endocervical or metaplastic cells although
    evaluation is limited by the presence of blood \par \plain\fs20\b
    Category:\tab \plain\fs20 The appearances are within normal limits.
    There is no evidence of cellular abnormality \par \plain\fs20\b
    Recommendation:\tab \plain\fs20 Please repeat the smear in twelve
    months \par \plain\fs20\b Slide/s examined:\tab
    \plain\fs20 \par Note: A cervi \par }</formattedData>
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    Mixed growth consistent with normal vaginal flora. No pathogens isolated
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Patient: MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par
\par \par Site::\tab\b0 Cervical swab \par \b Gram Stain:\tab\b0 Moderate
Epithelial Cells. Scanty pus cells. Moderate Mixed organisms \par \b
Trichomonas:\tab\b0 No Trichomonas vaginalis demonstrated \par
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Patient: MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par
\par \par R.P.R:\tab\b0 Non-reactive \par \b T.P.H.A:\tab\b0 Negative \par
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Protein:\tab\b0 Negative \par \b Glucose:\tab\b0 Negative \par \b
Blood:\tab\b0 Negative \par }</formattedData>
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Urine Microbiology \par \par From: CPC \par Received On: 10-Oct-1995 \par
Patient: MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par
\par \par Scanty Epithelial Cells. No casts seen \par \b White Cells:\tab\b0
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Genital Swab \par \par From: CPC \par Received On: 19-Aug-1995 \par
Patient: MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par
\par \par Site::\tab\b0 Vaginal swab \par \b Gram Stain:\tab\b0 Moderate
Epithelial Cells. Heavy pus cells. Gram variable bacilli Clue cells present \par
\b Trichomonas:\tab\b0 No Trichomonas vaginalis demonstrated \par
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MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par \par \par
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Blood:\tab\b0 Negative \par }</formattedData>
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Urine Microbiology \par \par From: CPC \par Received On: 19-Aug-1995 \par
Patient: MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par
\par \par Heavy Epithelial Cells. No casts seen \par \b White Cells:\tab\b0
&gt;1000 x 10^6/l \par \b Red Cells:\tab\b0 10 x 10^6/l \par
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\par From: CPC \par Received On: 19-Aug-1995 \par Patient: MOUSE,
MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par \par \par
Neutrophils:\tab\b0 9.3 x 10^9/L (2.0 - 8.0) \cf1\b H\cf0\b0 \par \b
Lymphocytes:\tab\b0 3.2 (1.2 - 4.0) \par \b Monocytes:\tab\b0 0.5 (0.2 -
1.0) \par \b Eosinophils:\tab\b0 0.3 (0.0 - 0.5) \par \b Basophils:\tab\b0
0.0 (0.0 - 0.2) \par } </formattedData>
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Count \par \par From: CPC \par Received On: 19-Aug-1995 \par Patient:
MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par \par \par
Haemoglobin:\tab\b0 138 g/L (115 - 160) \par \b PCV:\tab\b0 0.389 (0.37
- 0.47) \par \b MCV:\tab\b0 92 fL (80 - 98) \par \b Platelets:\tab\b0 264 x
10^9/L (150 - 450) \par \b W.B.C:\tab\b0 13.3 x 10^9/L (4 - 11) \cf1\b
H\cf0\b0 \par \b E.S.R:\tab\b0 8 mm/Hr (2 - 20) \par \b Blood
Film:\tab\b0 Slight neutrophil leucocytosis. ? Infection or inflammation etc
\par } </formattedData>
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\par \par From: CPC \par Received On: 19-Aug-1995 \par Patient: MOUSE,
MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par \par \par
Urea:\tab\b0 2.8 mmol/L (3.0 - 7.5) \cf1\b L\cf0\b0 \par \b
Creatinine:\tab\b0 0.08 mmol/L (0.05 - 0.11) \par \b Uric Acid:\tab\b0 0.25
mmol/L (0.15 - 0.40) \par } </formattedData>
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Electrolytes \par \par From: CPC \par Received On: 19-Aug-1995 \par
Patient: MOUSE, MICKEY \par NHI: ABC1234 \par DOB: 01-Jan-2000 \par
\par \par Sodium:\tab\b0 139 mmol/L (134 - 146) \par \b
Potassium:\tab\b0 4.1 mmol/L (3.5 - 5.0) \par } </formattedData>

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        <dateReceived repeatingconceptID="554.11.76.1" />
        <formattedData repeatingconceptID="554.11.77.1" />
        <selected />
    </report>
</reports>
</clinical>
</referral>
</for1:submittedData>
</for: dataContainer>
</for: return>
</for: getDataResponse>
</soapenv: Body>
</soapenv: Envelope>

```

Appendix B.5. getDeliveryOptionsRequest Example

(Informative)

```

- <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  - <SOAP-ENV:Body>
    - <m:getDeliveryOptions xmlns:m="http://www.hiso.govt.nz/10014.2/1.0/formsession">
      <m:sessionKey>3245678</m:sessionKey>
    </m:getDeliveryOptions>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Appendix B.6. getDeliveryOptionsResponse Example

(Informative)

```

- <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:for="http://www.hiso.govt.nz/10014.2/1.0/formsession">
  <soapenv:Header />
  - <soapenv:Body>
    - <for:getDeliveryOptionsResponse>
      - <for:return>
        - <!-- Optional: -->
          <for:URL>http://localhost:5099/SubmissionGateway</for:URL>
        - <!-- Optional: -->
          <for:messageID>20100228132009</for:messageID>
        - <!-- Optional: -->
          <for:recipientAccount>dhberef</for:recipientAccount>
          <for:senderAccount>ma65test</for:senderAccount>
          <for:senderPassword>1</for:senderPassword>
        </for:return>
      </for:getDeliveryOptionsResponse>
    </soapenv:Body>
  </soapenv:Envelope>

```

Appendix B.7. getFormViewRequest Example

(Informative)

```

- <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  - <SOAP-ENV:Body>
    - <m:getFormView xmlns:m="http://www.hiso.govt.nz/10014.2/1.0/formsession">
      <m:sessionKey>3214567</m:sessionKey>
      <m:formInstanceId>20418</m:formInstanceId>
    </m:getFormView>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Appendix B.8. getFormViewResponse Example

(Informative)

```
- <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:for="http://www.hiso.govt.nz/10014.2/1.0/formsession"
  xmlns:m0="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta">
  <soapenv:Header />
  - <soapenv:Body>
    - <for:getFormViewResponse>
      - <for:return>
        - <!-- Optional: -->
          <for:resumePath>http://localhost:5088/dhb-
            referral/PrepopulateForm.action</for:resumePath>
        - <for:dataContainer>
          - <m0:formMetaData>
            <m0:formInstanceId conceptID="">20418</m0:formInstanceId>
            <m0:formInstanceVersion conceptID="">1.0</m0:formInstanceVersion>
            <m0:formEngineId conceptID="">NLER</m0:formEngineId>
            <m0:formInstanceCreationDate conceptID="">2010-02-
              26+ 13:00</m0:formInstanceCreationDate>
            <m0:formInstanceOperationMode conceptID="" />
            <m0:formDefinitionId conceptID="">EREFERRAL</m0:formDefinitionId>
            <m0:formDefinitionVersion conceptID="">2.0</m0:formDefinitionVersion>
            <m0:formDefinitionDescription conceptID="" />
            <m0:formTitle conceptID="">eReferral</m0:formTitle>
            <m0:encryptedFlag conceptID="" />
            <m0:signatures conceptID="" />
            <m0:recipientAccount conceptID="">dhberef</m0:recipientAccount>
          - <m0:copyToRecipientAccounts>
            <m0:ccRecipientAccount conceptID="" />
          </m0:copyToRecipientAccounts>
        </m0:formMetaData>
        - <m0:submittedData>
          - <referral xmlns="urn:net.hiso.dhb.referrals"
            xmlns:ns2="urn:net.hiso.dhb.referrals.refinfo.colorectal"
            xmlns:ns3="urn:net.hiso.dhb.referrals.refinfo.breast"
            xmlns:ns4="urn:net.hiso.dhb.referrals.refinfo.breast_v2"
            xmlns:ns5="urn:net.hiso.dhb.referrals.refinfo.diabetes_r"
            xmlns:ns6="urn:net.hiso.dhb.referrals.refinfo.diabetes_p"
            xmlns:ns7="urn:net.hiso.dhb.referrals.refinfo.diabetes_g"
            xmlns:ns8="urn:net.hiso.dhb.referrals.refinfo.lifelink"
            xmlns:ns9="urn:net.hiso.dhb.referrals.refinfo.trg.radiology"
            xmlns:ns10="urn:net.hiso.dhb.referrals.refinfo.general"
            xmlns:ns11="urn:net.hiso.dhb.referrals.refinfo.AOT"
            xmlns:ns12="urn:net.hiso.dhb.referrals.refinfo.ASP"
            xmlns:ns13="urn:net.hiso.dhb.referrals.refinfo.DO1"
            xmlns:ns14="urn:net.hiso.dhb.referrals.common"
            xmlns:ns15="urn:net.hiso.dhb.referrals.refinfo.AAU"
            xmlns:ns16="urn:net.hiso.dhb.referrals.refinfo.M22"
            xmlns:ns17="urn:net.hiso.dhb.referrals.refinfo.ADI"
            xmlns:ns18="urn:net.hiso.dhb.referrals.refinfo.M28"
            xmlns:ns19="urn:net.hiso.dhb.referrals.refinfo.MH-YMC"
            xmlns:ns20="urn:net.hiso.dhb.referrals.refinfo.MH-YMA"
            xmlns:ns21="urn:net.hiso.dhb.referrals.refinfo.M53"
            xmlns:ns22="urn:net.hiso.dhb.referrals.refinfo.APO"
            xmlns:ns23="urn:net.hiso.dhb.referrals.refinfo.M68"
            xmlns:ns24="urn:net.hiso.dhb.referrals.refinfo.M73"
            xmlns:ns25="urn:net.hiso.dhb.referrals.refinfo.ASO"
            xmlns:ns26="urn:net.hiso.dhb.referrals.refinfo.P07"
            xmlns:ns27="urn:net.hiso.dhb.referrals.refinfo.S43"
            xmlns:ns28="urn:net.hiso.dhb.referrals.refinfo.S03"
            xmlns:ns29="urn:net.hiso.dhb.referrals.refinfo.S63">
            - <administrativeDetails>
              <processingId>T</processingId>
              <referralId>NLER-20418</referralId>
              <referralDate>2010-02-26+ 13:00</referralDate>
              <referredToService>310004004</referredToService>
              <referredFor>Outpatient Appointment</referredFor>
              <serviceProvider>DHB</serviceProvider>
            - <accEligibility>
              <isEligible>>false</isEligible>
          </referral>
        </m0:submittedData>
      </for:return>
    </for:getFormViewResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

```

</accEligibility>
  <senderEdi>ma65test</senderEdi>
</administrativeDetails>
- <referrer>
  - <name>
    <surname>Entwistle</surname>
    <firstName>Sam</firstName>
  </name>
  <id type="NZMC">88984</id>
  - <practice>
    <name>Millstone Family Practice</name>
    - <address>
      <streetAddress>17 York Street</streetAddress>
      <suburb>Parnell</suburb>
      <city>Auckland</city>
      <postCode />
    </address>
  </practice>
  - <contact>
    <telephone>093580116</telephone>
    <fax>093580116</fax>
  </contact>
  - <gpDetails>
    <sameAsReferrer>true</sameAsReferrer>
  </gpDetails>
</referrer>
- <patient>
  <nhi>ABC1234</nhi>
  - <name>
    <firstName>MICKEY</firstName>
    <secondName />
    <surname>MOUSE</surname>
    <preferredName />
    <previousFamilyName />
  </name>
  - <postal>
    <streetAddress>1 Main Street</streetAddress>
    <suburb>Anaheim</suburb>
    <city>Santa Ana</city>
    <postCode>90210</postCode>
  </postal>
  - <residential>
    <sameAsPostal>>false</sameAsPostal>
    <streetAddress>12344 Disney Land</streetAddress>
    <suburb>Santa Monica</suburb>
    <city>Los Angeles</city>
    <postCode>1010</postCode>
  </residential>
  - <contact>
    <telephoneDaytime>112233445</telephoneDaytime>
    <telephoneEvening>234234</telephoneEvening>
    <telephoneCell />
  </contact>
  <dateOfBirth>2000-01-01T00:00:00.000+13:00</dateOfBirth>
  <gender>M</gender>
  - <ethnicities>
    <code1>111</code1>
  </ethnicities>
  - <language>
    <requiresInterpreter>>false</requiresInterpreter>
    <additionalInformation />
  </language>
  <isNzResident>>false</isNzResident>
  - <disabilities>
    <disabilitySelected>>false</disabilitySelected>
    - <communication>
      <hasDifficulties>>false</hasDifficulties>
      <comments />
    </communication>
    - <vision>
      <impaired>>false</impaired>
      <comments />
    </vision>
  </disabilities>

```



```

- <mobility>
  <hasDifficulties>false</hasDifficulties>
  <comments />
</mobility>
- <intellectual>
  <hasDisability>false</hasDisability>
  <comments />
</intellectual>
</disabilities>
</patient>
- <clinical>
  <coMorbidityes>Sequelae/malnut+oth nutrit def; Other bacterial pneumonia;
  Unspecified abortion</coMorbidityes>
  <smokingHistory />
- <currentLongTermMedication>
  <startDate>2008-12-01+13:00</startDate>
  <treatmentInstructions>1</treatmentInstructions>
  <administrationInstructions>Take 1 tablet, four times a
  day</administrationInstructions>
</currentLongTermMedication>
- <medicalWarnings>
  - <warning>
    <date>2009-04-22+12:00</date>
    <recordingPersonId>88984</recordingPersonId>
    <description>Cabergoline - fafa</description>
  </warning>
  - <warning>
    <date>2008-12-01+13:00</date>
    <recordingPersonId>88984</recordingPersonId>
    <description>Calcium channel blockers - dihydropyridine type</description>
  </warning>
</medicalWarnings>
- <reports>
  - <report>
    <reportType conceptID="554.11.74.1" />
    <subject conceptID="554.11.73.1">Culture (12/12/1995)</subject>
    <sendingFacility conceptID="554.11.75.1">CPC</sendingFacility>
    <dateReceived conceptID="554.11.76.1">1995-12-12</dateReceived>
    <formattedData
conceptID="554.11.77.1">e1xydGYxXGFuc2lczGVmZjBcZGVmbGFuZzUxMjI7XG
ZvbnR0Ymx7XGYwXGZtb2Rlcm4gQ291cmllcjt9fQpcdmll2tpbmQ0XHVjMVxw
YXJkXHR4Mzc0NFxmMFxmczlwIERpYWdub3NOaWMgUmVwb3J0OiBDdWx0d
XJCIxwYXl gClxwYXl gRnJvbTogQ1BDClxwYXl gUmVjZWl2ZWQgT246IDEyLUR
lYyOxOTk1ClxwYXl gUGF0aWVudDogTU9VU0UsIE1JQ0tFWQpccGFyIE5lSTogS
kRSMTIzNApccGFyIERPQjogMDEtSmFuLTlwMDAKXHBhciAKXHBhciAKXHBhci
BNAhXlZCBncm93dGggY29uc2lzdGVudCB3aXR0I G5vcmlhbCB2YWdpbmFsl GZ
sb3JhLiBObyBwYXR0b2dlbnMgaXNvbGF0ZWQgClxwYXl gfQo=</formattedData
>
    <selected>true</selected>
  </report>
  - <report>
    <reportType conceptID="554.11.74.1" />
    <subject conceptID="554.11.73.1">Genital Swab (12/12/1995)</subject>
    <sendingFacility conceptID="554.11.75.1">CPC</sendingFacility>
    <dateReceived conceptID="554.11.76.1">1995-12-12</dateReceived>
    <formattedData
conceptID="554.11.77.1">e1xydGYxXGFuc2lczGVmZjBcZGVmbGFuZzUxMjI7XG
ZvbnR0Ymx7XGYwXGZtb2Rlcm4gQ291cmllcjt9fQpcdmll2tpbmQ0XHVjMVxw
YXJkXHR4Mzc0NFxiXGYwXGZzZmAgRGhZ25vc3RyYyBSZXBvcnQ6IEdlbmI0YW
wgU3dhYgpccGFyI ApccGFyIEZyb206I ENQQwpcGFyIFJlY2VpdmVkl E9uOiAxM
i1EZWMtMTk5NQpccGFyIFBhdGllbnQ6IE1PVVNFLCBNSUNLRVklKXHBhciBOSEk
6lEpEUjEyMzQKXHBhciBET0l6lDAXLUpbhiOyMDAwClxwYXl gClxwYXl gClxwYX
lgU2lOZTo6XHRhYlxiM CBDZJ2aWNhbCBzd2Fll ApccGFyIFxiI EdyYW0gU3Rha
W46XHRhYlxiM CBnb2RlcmFOZSBFcgIOaGVsaWFsl ENlbgxzLiBTY2FudHkgcHVz
lGNlbgxzLiBNb2RlcmFOZSBNAhXlZCBvcmdhbmlzbXMGClxwYXl gXGIgVHJpY2h
vbW9uYXM6XHRhYlxiM CBObyBUcmlljaG9tb25hcyB2YWdpbmFsaXMgZGVtb25z
dHJhdGVkl ApccGFyIHOK</formattedData>
    <selected>true</selected>
  </report>
</reports>
</clinical>
- <serviceSpecificInformation>
  - <ns10:general>

```

```

        <ns10:referralReason>referral reason and provisional diagnosis details go
        here</ns10:referralReason>
        <ns10:clinicalDetails>Clinical Details, Relevant History and Physical Examination
        findings go here</ns10:clinicalDetails>
    </ns10:general>
</serviceSpecificInformation>
    <attachments />
</referral>
</m0:submittedData>
</for:dataContainer>
- <!--
Optional: -->
    <for:view>?</for:view>
- <!--
Optional: -->
    <for:viewType>?</for:viewType>
</for:return>
</for:getFormViewResponse>
</soapenv:Body>
</soapenv:Envelope>

```

Appendix B.9. getVersionRequest Example

(Informative)

```

- <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
- <SOAP-ENV:Body>
- <m:getVersion xmlns:m="http://www.hiso.govt.nz/10014.2/1.0/formsession">
    <m:sessionKey>3245678</m:sessionKey>
</m:getVersion>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Appendix B.10. getVersionResponse Example

(Informative)

```

- <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:for="http://www.hiso.govt.nz/10014.2/1.0/formsession">
    <soapenv:Header />
- <soapenv:Body>
- <for:getVersionResponse>
- <for:return>
    <for:application>mockPMS</for:application>
    <for:applicationVersion>10.0</for:applicationVersion>
    <for:version>10014.2/1.0</for:version>
</for:return>
</for:getVersionResponse>
</soapenv:Body>
</soapenv:Envelope>

```

Appendix B.11. processAction Example

(Informative)

This example describes the addTask action that requests the user application to add or complete a scheduled task. The actionContainer is defined in the table below. There is no response dataContainer is defined for this action.

Action Logic:

1. If no task with the same code exists for the patient, create a new task.
2. If task already exists, update the due date and recurrence interval.
3. If complete is "true", task would be recorded as having been completed today, and the next due dates set by the recurrence interval if specified.

Name	Type	Opt	Description
code	string	O	Concept ID of this action if defined in the data dictionary.
dueDate	dateTime	R	The date and time that the task is scheduled for.
taskDescription	string	R	A description of the task.
recurrenceInterval	positiveInteger	O	The interval between recurrences. Used to calculate subsequent due dates for task. If empty, it is a non-recurring task.
intervalUnit	string	C	A unit for the recurrenceInterval from the following list {days; weeks; months; years}. Required if value provided for recurrenceInterval.
complete	boolean	O	"true" if the task is also considered completed today. (Default=false).

Table 39: addTask actionContainer fields

Appendix B.12. processAction addTask Request Example

(Informative)

```
<?xml version="1.0" encoding="UTF-8" ?>
- <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
- <SOAP-ENV:Body>
- <m:processAction xmlns:m="http://www.hiso.govt.nz/10014.2/1.0/formsession">
  <m:sessionKey>3214567</m:sessionKey>
  <m:actionId>addTask</m:actionId>
  - <m:actionContainer>
    <code />
    <dueDate>2010-05-10T10:25:30</dueDate>
    <taskDescription>Remind patient to retake cholesterol test</taskDescription>
    <recurrenceInterval>6</recurrenceInterval>
    <intervalUnit>months</intervalUnit>
    <complete />
  </m:actionContainer>
</m:processAction>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Appendix B.13. processAction addTask Response Example

(Informative)

```
- <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:for="http://www.hiso.govt.nz/10014.2/1.0/formsession"
xmlns:for1="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta">
  <soapenv:Header />
  - <soapenv:Body>
    - <for:processActionResponse>
      - <for:return>
        <for:responseCode>true</for:responseCode>
      </for:return>
    </for:processActionResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

Appendix B.14. saveContainerRequest Example

(Informative)

```
- <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:m0="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta">
  - <SOAP-ENV:Body>
    - <m:saveContainer xmlns:m="http://www.hiso.govt.nz/10014.2/1.0/formsession">
      <m:sessionKey>3214567</m:sessionKey>
      <m:resumePath>http://localhost:5088/dhb-referral/PrepopulateForm.action</m:resumePath>
    - <m:dataContainer>
      - <m0:formMetaData>
        <m0:formInstanceId conceptID="">20418</m0:formInstanceId>
        <m0:formInstanceVersion conceptID="">1.0</m0:formInstanceVersion>
        <m0:formEngineId conceptID="">NLER</m0:formEngineId>
        <m0:formInstanceCreationDate conceptID="">2010-02-
26+13:00</m0:formInstanceCreationDate>
        <m0:formInstanceOperationMode conceptID="" />
        <m0:formDefinitionId conceptID="">EREFERRAL</m0:formDefinitionId>
        <m0:formDefinitionVersion conceptID="">2.0</m0:formDefinitionVersion>
        <m0:formDefinitionDescription conceptID="" />
        <m0:formTitle conceptID="">eReferral</m0:formTitle>
        <m0:recipientAccount conceptID="">dhberef</m0:recipientAccount>
      </m0:formMetaData>
      - <m0:submittedData>
        - <referral xmlns="urn:net.hiso.dhb.referrals"
xmlns:ns2="urn:net.hiso.dhb.referrals.refinfo.colorectal"
xmlns:ns3="urn:net.hiso.dhb.referrals.refinfo.breast"
xmlns:ns4="urn:net.hiso.dhb.referrals.refinfo.breast_v2"
xmlns:ns5="urn:net.hiso.dhb.referrals.refinfo.diabetes_r"
xmlns:ns6="urn:net.hiso.dhb.referrals.refinfo.diabetes_p"
xmlns:ns7="urn:net.hiso.dhb.referrals.refinfo.diabetes_g"
xmlns:ns8="urn:net.hiso.dhb.referrals.refinfo.lifelink"
xmlns:ns9="urn:net.hiso.dhb.referrals.refinfo.trg.radiology"
xmlns:ns10="urn:net.hiso.dhb.referrals.refinfo.general"
xmlns:ns11="urn:net.hiso.dhb.referrals.refinfo.AOT"
xmlns:ns12="urn:net.hiso.dhb.referrals.refinfo.ASP"
xmlns:ns13="urn:net.hiso.dhb.referrals.refinfo.DO1"
xmlns:ns14="urn:net.hiso.dhb.referrals.common"
xmlns:ns15="urn:net.hiso.dhb.referrals.refinfo.AAU"
xmlns:ns16="urn:net.hiso.dhb.referrals.refinfo.M22"
xmlns:ns17="urn:net.hiso.dhb.referrals.refinfo.ADI"
xmlns:ns18="urn:net.hiso.dhb.referrals.refinfo.M28"
xmlns:ns19="urn:net.hiso.dhb.referrals.refinfo.MH-YMC"
xmlns:ns20="urn:net.hiso.dhb.referrals.refinfo.MH-YMA"
xmlns:ns21="urn:net.hiso.dhb.referrals.refinfo.M53"
xmlns:ns22="urn:net.hiso.dhb.referrals.refinfo.APO"
xmlns:ns23="urn:net.hiso.dhb.referrals.refinfo.M68"
xmlns:ns24="urn:net.hiso.dhb.referrals.refinfo.M73"
xmlns:ns25="urn:net.hiso.dhb.referrals.refinfo.ASO"
xmlns:ns26="urn:net.hiso.dhb.referrals.refinfo.PO7"
```

```

xmlns:ns27="urn:net.hiso.dhb.referrals.refinfo.S43"
xmlns:ns28="urn:net.hiso.dhb.referrals.refinfo.S03"
xmlns:ns29="urn:net.hiso.dhb.referrals.refinfo.S63">
- <administrativeDetails>
  <processingId>T</processingId>
  <referralId>NLER-20418</referralId>
  <referralDate>2010-02-26+13:00</referralDate>
  <referredToService>310004004</referredToService>
  <referredFor>Outpatient Appointment</referredFor>
  <serviceProvider>DHB</serviceProvider>
  - <accEligibility>
    <isEligible>>false</isEligible>
  </accEligibility>
  <senderEdi>ma65test</senderEdi>
</administrativeDetails>
- <referrer>
  - <name>
    <surname>Entwistle</surname>
    <firstName>Sam</firstName>
  </name>
  <id type="NZMC">88984</id>
  - <practice>
    <name>Millstone Family Practice</name>
    - <address>
      <streetAddress>17 York Street</streetAddress>
      <suburb>Parnell</suburb>
      <city>Auckland</city>
      <postCode />
    </address>
  </practice>
  - <contact>
    <telephone>093580116</telephone>
    <fax>093580116</fax>
  </contact>
  - <gpDetails>
    <sameAsReferrer>>true</sameAsReferrer>
  </gpDetails>
</referrer>
- <patient>
  <nhi>ABC1234</nhi>
  - <name>
    <firstName>MICKEY</firstName>
    <secondName />
    <surname>MOUSE</surname>
    <preferredName />
    <previousFamilyName />
  </name>
  - <postal>
    <streetAddress>1 Main Street</streetAddress>
    <suburb>Anaheim</suburb>
    <city>Santa Ana</city>
    <postCode>90210</postCode>
  </postal>
  - <residential>
    <sameAsPostal>>false</sameAsPostal>
    <streetAddress>12344 Disney Land</streetAddress>
    <suburb>Santa Monica</suburb>
    <city>Los Angeles</city>
    <postCode>1010</postCode>
  </residential>
  - <contact>
    <telephoneDaytime>112233445</telephoneDaytime>
    <telephoneEvening>234234</telephoneEvening>
    <telephoneCell />
  </contact>
  <dateOfBirth>2000-01-01T00:00:00.000+13:00</dateOfBirth>
  <gender>M</gender>
  - <ethnicities>
    <code1>111</code1>
  </ethnicities>
  - <language>
    <requiresInterpreter>>false</requiresInterpreter>
    <additionalInformation />

```

```

</language>
  <isNzResident>false</isNzResident>
  - <disabilities>
    <disabilitySelected>false</disabilitySelected>
    - <communication>
      <hasDifficulties>false</hasDifficulties>
      <comments />
    </communication>
    - <vision>
      <impaired>false</impaired>
      <comments />
    </vision>
    - <mobility>
      <hasDifficulties>false</hasDifficulties>
      <comments />
    </mobility>
    - <intellectual>
      <hasDisability>false</hasDisability>
      <comments />
    </intellectual>
  </disabilities>
</patient>
- <clinical>
  <coMorbidityes>Sequelae/malnut+oth nutrit def; Other bacterial pneumonia;
  Unspecified abortion</coMorbidityes>
  <smokingHistory />
  - <currentLongTermMedication>
    <startDate>2008-12-01+13:00</startDate>
    <treatmentInstructions>1</treatmentInstructions>
    <administrationInstructions>Take 1 tablet, four times a
    day</administrationInstructions>
  </currentLongTermMedication>
  - <medicalWarnings>
    - <warning>
      <date>2009-04-22+12:00</date>
      <recordingPersonId>88984</recordingPersonId>
      <description>Cabergoline - fafa</description>
    </warning>
    - <warning>
      <date>2008-12-01+13:00</date>
      <recordingPersonId>88984</recordingPersonId>
      <description>Calcium channel blockers - dihydropyridine type</description>
    </warning>
  </medicalWarnings>
  - <reports>
    - <report>
      <reportType conceptID="554.11.74.1" />
      <subject conceptID="554.11.73.1">Culture (12/12/1995)</subject>
      <sendingFacility conceptID="554.11.75.1">CPC</sendingFacility>
      <dateReceived conceptID="554.11.76.1">1995-12-12</dateReceived>
      <formattedData
      conceptID="554.11.77.1">e1xydGYxXGFuc2lcZGVmZjBcZGVmbGFuZzUxMjI7XGZv
      bnROYmx7XGYwXGZtb2Rlcm4gQ291cmllcjt9fQpcdmllld2tpbmQ0XHVjMVxwYXJk
      XHR4Mzc0NFxmMFxmczlwIERpYWdub3NOaWMgUmVwb3J0OiBDDWx0dXJlClxw
      YXl gClxwYXl gRnJvbTogQ1BDClXwYXl gUmVjZWl2ZWQgT246I DEyLURlYyOxOTk1
      ClxwYXl gUGF0aWVudDogTU9VU0UsIE1JQ0tFWQpccGFyIE5l STogSkRSMTI zNAPc
      cGFyIERPQjogMDEtSmFuLTIwMDAKXHBhciAKXHBhciAKXHBhciBNAhZlZCBncm93
      dGggY29uc2lzdGVudCB3aXRoi G5vcmlhbCB2YWdpbmFsI GZsb3JhLiBObyBwYXR
      ob2dlbnMgaXNvbGF0ZWQgClxwYXl gfQo= </formattedData>
      <selected>true</selected>
    </report>
    - <report>
      <reportType conceptID="554.11.74.1" />
      <subject conceptID="554.11.73.1">Genital Swab (12/12/1995)</subject>
      <sendingFacility conceptID="554.11.75.1">CPC</sendingFacility>
      <dateReceived conceptID="554.11.76.1">1995-12-12</dateReceived>
      <formattedData
      conceptID="554.11.77.1">e1xydGYxXGFuc2lcZGVmZjBcZGVmbGFuZzUxMjI7XGZv
      bnROYmx7XGYwXGZtb2Rlcm4gQ291cmllcjt9fQpcdmllld2tpbmQ0XHVjMVxwYXJk
      XHR4Mzc0NFxiXGYwXGZzMjAgRGhZ25vc3RpYyBSZXBvcnQ6I Edlbnl0YWwU3d
      hYgpccGFyI ApccGFyIEZyb206I ENQWpccGFyI FJlY2VpdmVki E9uOiAxMi1EZWMt
      MTK5NQpccGFyI FBhdGllbnQ6I E1PVVNFCLBNSUNLRVki KXHBhciBOSEk6I EpEUjEy
      MzQKXHBhciBET0I6I DAXLUphbi0yMDAwClxwYXl gClxwYXl gClxwYXl gU2l0ZTo6X

```

```

HRhYIxiMCBDZXJ2aWNhbCBzd2FiiApccGFyIFxiEddyYW0gU3RhaW46XHRhYIxiMC
BNb2RlcmFOZSBFcGI0aGVsaWFsIENibGxzLiBTY2FudHkgcHVzIGNlbGxzLiBNb2Rlc
mFOZSBNaXhlZCBvcmdhbmlzbXMgClxwYXl gXGIgVHJpY2hvbW9uYXM6XHRhYIxi
MCBObyBUcmIjaG9tb25hcyB2YWdpbmFsaXMgZGVtb25zdHJhdGVkiApccGFyIHOK
</formattedData>
  <selected>true</selected>
</report>
</reports>
</clinical>
- <serviceSpecificInformation>
  - <ns10:general>
    <ns10:referralReason>referral reason and provisional diagnosis details go
    here</ns10:referralReason>
    <ns10:clinicalDetails>Clinical Details, Relevant History and Physical Examination
    findings go here</ns10:clinicalDetails>
  </ns10:general>
</serviceSpecificInformation>
  <attachments />
</referral>
</m0:submittedData>
</m: dataContainer>
  <m: view>String</m: view>
  <m: viewType>normalizedString</m: viewType>
  <m: viewSignature>String</m: viewSignature>
  <m: completed>true</m: completed>
  <m: continueSession>true</m: continueSession>
</m: saveContainer>
</SOAP-ENV: Body>
</SOAP-ENV: Envelope>

```

Appendix B.15. saveContainerResponse Example

(Informative)

```

- <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:for="http://www.hiso.govt.nz/10014.2/1.0/formsession">
  <soapenv:Header />
  - <soapenv:Body>
    - <for: saveContainerResponse>
      - <for: return>
        <for: response>true</for: response>
      </for: return>
    </for: saveContainerResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

Appendix C. formDataSubmitter Interface and Examples

The terms 'normative' and 'informative' are used in Standards to define the application of an appendix. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance and does not form part of the mandatory requirements of the Standard.

Appendix C.1. formDataSubmitter WSDL in Document/Literal Style

(normative)

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:apachesoap="http://xml.apache.org/xml-
soap" xmlns:impl="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter/wsdl"
xmlns:intf="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter/wsdl"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:sg="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta"
targetNamespace="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter/wsdl">
  <wsdl:types>
    <schema targetNamespace="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter/wsdl"
xmlns="http://www.w3.org/2001/XMLSchema">
      <import namespace="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter"
schemaLocation="hiso_formDataSubmitter.xsd"/>
    </schema>
  </wsdl:types>
  <wsdl:message name="soapIn">
    <wsdl:part name="send" element="sg:send"/>
  </wsdl:message>
  <wsdl:message name="soapOut">
    <wsdl:part name="sendResponse" element="sg:sendResponse"/>
  </wsdl:message>
  <wsdl:portType name="FormDataSubmitter">
    <wsdl:operation name="send">
      <wsdl:input message="impl:soapIn"/>
      <wsdl:output message="impl:soapOut"/>
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="FormDataSubmitterSoapBinding" type="impl:FormDataSubmitter">
    <wsdlsoap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="send">
      <wsdlsoap:operation soapAction="urn:#send"/>
      <wsdl:input>
        <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter/wsdl"/>
      </wsdl:input>
      <wsdl:output>
        <wsdlsoap:body use="literal"
namespace="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter/wsdl"/>
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>
  <wsdl:service name="FormDataSubmitterService">
    <wsdl:port name="FormDataSubmitter" binding="impl:FormDataSubmitterSoapBinding">
      <wsdlsoap:address location="http://{0}:{1}/FormDataSubmitter"/>
    </wsdl:port>
  </wsdl:service>
</wsdl:definitions>
```


Appendix C.2. formDataSubmitter Schema

(Informative)

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter"
xmlns:fm="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta"
targetNamespace="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:import namespace="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta"
schemaLocation="hiso_formInstanceMeta.xsd"/>
  <xs:element name="send">
    <xs:annotation>
      <xs:documentation>send the message to the recipient system</xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element name="sendingApplication" type="xs:normalizedString"/>
        <xs:element name="senderAccount" type="xs:normalizedString"/>
        <xs:element name="senderPassword" type="xs:normalizedString"/>
        <xs:element name="messageId" type="xs:normalizedString" minOccurs="0"/>
        <xs:element name="dataContainer" type="fm:FormData"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="sendResponse">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="responseCode" type="xs:normalizedString"/>
        <xs:element name="messageId" type="xs:normalizedString" minOccurs="0"/>
        <xs:element name="responseToMessageId" type="xs:normalizedString"/>
        <xs:element name="dataContainer" type="fm:FormData"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

Appendix C.3. sendRequest Example

(Informative)

```
- <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:m0="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta">
  - <SOAP-ENV:Body>
    - <m:send xmlns:m="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter">
      <m:sendingApplication>PMS</m:sendingApplication>
      <m:senderAccount>ma65test</m:senderAccount>
      <m:senderPassword>1</m:senderPassword>
      <m:messageId>NLER-20418-20100226102030</m:messageId>
    - <m:dataContainer>
      - <m0:formMetaData>
        <m0:formInstanceId conceptID="">20418</m0:formInstanceId>
        <m0:formInstanceVersion conceptID="">1.0</m0:formInstanceVersion>
        <m0:formEngineId conceptID="">NLER</m0:formEngineId>
        <m0:formInstanceCreationDate conceptID="">>2010-02-
26+13:00</m0:formInstanceCreationDate>
        <m0:formInstanceOperationMode conceptID="" />
        <m0:formDefinitionId conceptID="">EREFERRAL</m0:formDefinitionId>
        <m0:formDefinitionVersion conceptID="">2.0</m0:formDefinitionVersion>
```

```

    <m0:formDefinitionDescription conceptID="" />
    <m0:formTitle conceptID="">eReferral</m0:formTitle>
    <m0:encryptedFlag conceptID="" />
    <m0:signatures conceptID="" />
    <m0:recipientAccount conceptID="">dhberef</m0:recipientAccount>
  - <m0:copyToRecipientAccounts>
    <m0:ccRecipientAccount conceptID="" />
</m0:copyToRecipientAccounts>
</m0:formMetaData>
- <m0:submittedData>
  - <referral xmlns="urn:net.hiso.dhb.referrals"
  xmlns:ns2="urn:net.hiso.dhb.referrals.refinfo.colorectal"
  xmlns:ns3="urn:net.hiso.dhb.referrals.refinfo.breast"
  xmlns:ns4="urn:net.hiso.dhb.referrals.refinfo.breast_v2"
  xmlns:ns5="urn:net.hiso.dhb.referrals.refinfo.diabetes_r"
  xmlns:ns6="urn:net.hiso.dhb.referrals.refinfo.diabetes_p"
  xmlns:ns7="urn:net.hiso.dhb.referrals.refinfo.diabetes_g"
  xmlns:ns8="urn:net.hiso.dhb.referrals.refinfo.lifelink"
  xmlns:ns9="urn:net.hiso.dhb.referrals.refinfo.trg.radiology"
  xmlns:ns10="urn:net.hiso.dhb.referrals.refinfo.general"
  xmlns:ns11="urn:net.hiso.dhb.referrals.refinfo.AOT"
  xmlns:ns12="urn:net.hiso.dhb.referrals.refinfo.ASP"
  xmlns:ns13="urn:net.hiso.dhb.referrals.refinfo.D01"
  xmlns:ns14="urn:net.hiso.dhb.referrals.common"
  xmlns:ns15="urn:net.hiso.dhb.referrals.refinfo.AAU"
  xmlns:ns16="urn:net.hiso.dhb.referrals.refinfo.M22"
  xmlns:ns17="urn:net.hiso.dhb.referrals.refinfo.ADI"
  xmlns:ns18="urn:net.hiso.dhb.referrals.refinfo.M28"
  xmlns:ns19="urn:net.hiso.dhb.referrals.refinfo.MH-YMC"
  xmlns:ns20="urn:net.hiso.dhb.referrals.refinfo.MH-YMA"
  xmlns:ns21="urn:net.hiso.dhb.referrals.refinfo.M53"
  xmlns:ns22="urn:net.hiso.dhb.referrals.refinfo.APO"
  xmlns:ns23="urn:net.hiso.dhb.referrals.refinfo.M68"
  xmlns:ns24="urn:net.hiso.dhb.referrals.refinfo.M73"
  xmlns:ns25="urn:net.hiso.dhb.referrals.refinfo.ASO"
  xmlns:ns26="urn:net.hiso.dhb.referrals.refinfo.P07"
  xmlns:ns27="urn:net.hiso.dhb.referrals.refinfo.S43"
  xmlns:ns28="urn:net.hiso.dhb.referrals.refinfo.S03"
  xmlns:ns29="urn:net.hiso.dhb.referrals.refinfo.S63">
    - <administrativeDetails>
      <processingId>T</processingId>
      <referralId>NLER-20418</referralId>
      <referralDate>2010-02-26+13:00</referralDate>
      <referredToService>310004004</referredToService>
      <referredFor>Outpatient Appointment</referredFor>
      <serviceProvider>DHB</serviceProvider>
    - <accEligibility>
      <isEligible>>false</isEligible>
    </accEligibility>
      <senderEdi>ma65test</senderEdi>
    </administrativeDetails>
    - <referrer>
      - <name>
        <surname>Entwistle</surname>
        <firstName>Sam</firstName>
      </name>
      <id type="NZMC">88984</id>
    - <practice>
      <name>Millstone Family Practice</name>
    - <address>
      <streetAddress>17 York Street</streetAddress>
      <suburb>Parnell</suburb>

```

```

        <city>Auckland</city>
        <postCode />
    </address>
</practice>
- <contact>
    <telephone>093580116</telephone>
    <fax>093580116</fax>
</contact>
- <gpDetails>
    <sameAsReferrer>true</sameAsReferrer>
</gpDetails>
</referrer>
- <patient>
    <nhi>ABC1234</nhi>
    - <name>
        <firstName>MICKEY</firstName>
        <secondName />
        <surname>MOUSE</surname>
        <preferredName />
        <previousFamilyName />
    </name>
    - <postal>
        <streetAddress>1 Main Street</streetAddress>
        <suburb>Anaheim</suburb>
        <city>Santa Ana</city>
        <postCode>90210</postCode>
    </postal>
    - <residential>
        <sameAsPostal>>false</sameAsPostal>
        <streetAddress>12344 Disney Land</streetAddress>
        <suburb>Santa Monica</suburb>
        <city>Los Angeles</city>
        <postCode>1010</postCode>
    </residential>
    - <contact>
        <telephoneDaytime>112233445</telephoneDaytime>
        <telephoneEvening>234234</telephoneEvening>
        <telephoneCell />
    </contact>
    <dateOfBirth>2000-01-01T00:00:00.000+13:00</dateOfBirth>
    <gender>M</gender>
    - <ethnicities>
        <code1>111</code1>
    </ethnicities>
    - <language>
        <requiresInterpreter>>false</requiresInterpreter>
        <additionalInformation />
    </language>
    <isNzResident>>false</isNzResident>
    - <disabilities>
        <disabilitySelected>>false</disabilitySelected>
        - <communication>
            <hasDifficulties>>false</hasDifficulties>
            <comments />
        </communication>
        - <vision>
            <impaired>>false</impaired>
            <comments />
        </vision>
        - <mobility>
            <hasDifficulties>>false</hasDifficulties>
            <comments />

```

```

</mobility>
- <intellectual>
  <hasDisability>false</hasDisability>
  <comments />
</intellectual>
</disabilities>
</patient>
- <clinical>
  <coMorbidityes>Sequelae/malnut+oth nutrit def; Other bacterial pneumonia;
  Unspecified abortion</coMorbidityes>
  <smokingHistory />
- <currentLongTermMedication>
  <startDate>2008-12-01+13:00</startDate>
  <treatmentInstructions>1</treatmentInstructions>
  <administrationInstructions>Take 1 tablet, four times a
  day</administrationInstructions>
</currentLongTermMedication>
- <medicalWarnings>
  - <warning>
    <date>2009-04-22+12:00</date>
    <recordingPersonId>88984</recordingPersonId>
    <description>Cabergoline - fafa</description>
  </warning>
  - <warning>
    <date>2008-12-01+13:00</date>
    <recordingPersonId>88984</recordingPersonId>
    <description>Calcium channel blockers - dihydropyridine type</description>
  </warning>
</medicalWarnings>
- <reports>
  - <report>
    <reportType conceptID="554.11.74.1" />
    <subject conceptID="554.11.73.1">Culture (12/12/1995)</subject>
    <sendingFacility conceptID="554.11.75.1">CPC</sendingFacility>
    <dateReceived conceptID="554.11.76.1">1995-12-12</dateReceived>
    <formattedData
    conceptID="554.11.77.1">e1xydGYxXGFuc2lcZGVmZjBcZGVmbGFuZzUxMjI7
    XGZvbnR0Ymx7XGYwXGZtb2Rlcm4gQ291cmllcjt9fQpcdmll2tpbmQ0XHVj
    MVxwYXJkXHR4Mzc0NFxmMFxmczlwIERpYWdub3N0aWMGUmVwb3J0OiB
    DdWx0dXJlClxwYXJlClxwYXJlRnJvbTogQ1BDClXwYXJlUmVjZWl2ZWQgT2
    46IDEyLURlYy0xOTk1ClxwYXJlUGF0aWVudDogTU9VU0UsIE1JQ0tFWQpcc
    GFyIE5ISTogSkRSMtIzNApccGFyIERPQjogMDEtSmFuLTlwMDAKXHBhciaK
    XHBhciaKXHBhciaBNAhZCBncm93dGggY29uc2lzdGVudCB3aXR0IG5vcm1
    hbCB2YWdpbmFsIGZsb3JhLiBObyBwYXR0b2dlbnMgaXNvbGF0ZWQgClxw
    YXJlGfQo=</formattedData>
    <selected>true</selected>
  </report>
  - <report>
    <reportType conceptID="554.11.74.1" />
    <subject conceptID="554.11.73.1">Genital Swab (12/12/1995)</subject>
    <sendingFacility conceptID="554.11.75.1">CPC</sendingFacility>
    <dateReceived conceptID="554.11.76.1">1995-12-12</dateReceived>
    <formattedData
    conceptID="554.11.77.1">e1xydGYxXGFuc2lcZGVmZjBcZGVmbGFuZzUxMjI7
    XGZvbnR0Ymx7XGYwXGZtb2Rlcm4gQ291cmllcjt9fQpcdmll2tpbmQ0XHVj
    MVxwYXJkXHR4Mzc0NFxiXGYwXGZzMjAgRGlhZ25vc3RpYyBSZXBvcnQ6IE
    dlbnl0YWwgU3dhYgpccGFyIApccGFyIEZyb206IENQwpcGFyIFJlY2Vpdm
    VklE9uOiAxMi1EZWMtMTk5NQpccGFyIFBhdGllbnQ6IE1PVVNFLCBNSUNLR
    VklKXHBhciaBOSEk6IEpUjEyMzQKXHBhciaBET0l6IDAxLUphbi0yMDAwClxw
    YXJlClxwYXJlClxwYXJlU2l0ZT06XHRhYlxiMCBDZXJ2aWNhbCBzd2FiaPcc
    GFyIFxiEYyW0gU3RhaW46XHRhYlxiMCBNb2RlcmF0ZSBFfcGI0aGVsaWFsI
    ENlbGxzLiBTY2FudHkgcHVzIGNlbGxzLiBNb2RlcmF0ZSBNaXhZCBvcmdhb
  </formattedData>
  </report>

```

```

mlzbXMgClxwYXlgXGlgVHJpY2hvbW9uYXM6XHRhYlxiMCBObyBUcmIjaG9t
b25hcyB2YWdpbmFsaXMgZGVtb25zdHJhdGVklApccGFyIH0K</formattedDat
a>
  <selected>true</selected>
</report>
</reports>
</clinical>
- <serviceSpecificInformation>
  - <ns10:general>
    <ns10:referralReason>referral reason and provisional diagnosis details go
    here</ns10:referralReason>
    <ns10:clinicalDetails>Clinical Details, Relevant History and Physical
    Examination findings go here</ns10:clinicalDetails>
  </ns10:general>
</serviceSpecificInformation>
  <attachments />
</referral>
</m0:submittedData>
</m:dataContainer>
</m:send>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Appendix C.4. sendResponse Example

(Informative)

```

- <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:sub="http://www.hiso.govt.nz/10014.2/1.0/formDataSubmitter"
  xmlns:for="http://www.hiso.govt.nz/10014.2/1.0/formInstanceMeta">
  <soapenv:Header />
  - <soapenv:Body>
    - <sub:sendResponse>
      <sub:responseCode>200</sub:responseCode>
      <sub:messageId>NLER-20418-20100226102030-ACK</sub:messageId>
      <sub:responseToMessageId>NLER-20418-20100226102030</sub:responseToMessageId>
    - <sub:dataContainer>
      - <for:formMetaData>
        <for:formInstanceId conceptID="">20418</for:formInstanceId>
        <for:formInstanceVersion conceptID="">1.0</for:formInstanceVersion>
        <for:formEngineId conceptID="">NLER</for:formEngineId>
        <for:formInstanceCreationDate conceptID="">>2010-02-
        26+13:00</for:formInstanceCreationDate>
        <for:formInstanceOperationMode conceptID="" />
        <for:formDefinitionId conceptID="">EREFERRAL</for:formDefinitionId>
        <for:formDefinitionVersion conceptID="">2.0</for:formDefinitionVersion>
        <for:formDefinitionDescription conceptID="" />
        <for:formTitle conceptID="">eReferral</for:formTitle>
        <for:encryptedFlag conceptID="" />
        <for:signatures conceptID="" />
        <for:recipientAccount conceptID="">dhberref</for:recipientAccount>
      - <for:copyToRecipientAccounts>
        <for:ccRecipientAccount conceptID="" />
      </for:copyToRecipientAccounts>
    </for:formMetaData>
    <for:submittedData />
  - <!--
Optional:
-->
  - <for:responseData>
    <for:applicationResponseCode>200</for:applicationResponseCode>

```

```
<for:applicationResponseMessage>Received  
successfully</for:applicationResponseMessage>  
<for:receivingSystemId>22222</for:receivingSystemId>  
</for:responseData>  
</sub:dataContainer>  
</sub:sendResponse>  
</soapenv:Body>  
</soapenv:Envelope
```