

An Interim Report of XML Process Models

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Abstract

This report presents preliminary models for XML processes, and a general framework for its usage. The set of models are at an early stage of development and are not as yet complete. This report serves as an interim for further development in XML process modeling.

1 Introduction

A central problem with XML is that it is abstract enough to represent a diverse range of information. This is because in essence, it is just a data format, and hence anything that can be represented in data can be represented in XML. Hence it can be difficult to understand what is meant by XML development. To overcome this problem, XML was split into different process types, and a process framework was created to distinguish the many facets of XML development.

2 XML Process Framework

The XML process framework is represented in Fig. 1.

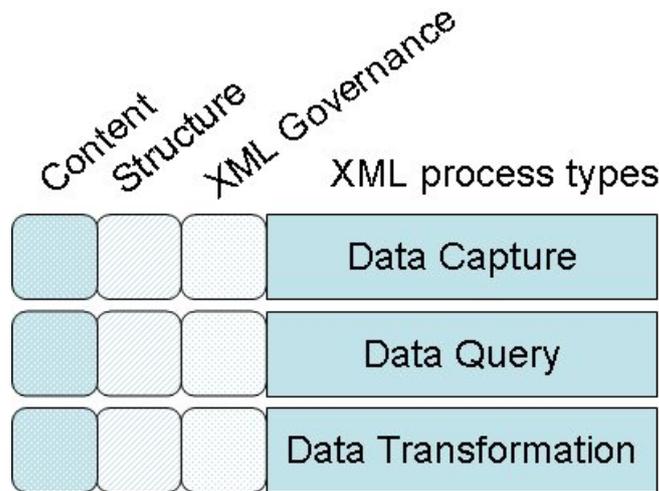


Figure 1: XML Process Framework

The 3 different XML process types are data capture, data query, and data transformation. Each of these process types have a process model defining the steps taken in that particular type of XML development. Attached to each of these XML processes are content, structure and XML governance decisions. These take the form of components that add to their respective process types and influence the decisions made within the processes.

Content deals with the instance level of XML documents which the XML process types use. This component encapsulates the individual instance and the collective datasets of instances.

Structure refers to the structure in which the content adheres to. The XML process types use structure, and are influenced by it. Also, the content and structure do not necessarily have to be completely aligned with each other.

XML governance deals with the architectural and managerial decisions made with a process model in respect to the content and structure components. These will influence the order in which processes are sequenced and the processes which are followed.

The XML process types can be further broken down into the following groups:

- Data capture
 - Create data
 - Update data
- Data query
 - Server side query
 - Client side query
- Data transformation
 - Up translate
 - Down translate
 - Cross translate

This breakdown is described in detail in Table 1.

XML Process Type	Description
Data capture	Getting data for the system. Specifically for instance data based on a schema
- Create data - Update data	Creating instance documents Updating instance documents
Data query	Extracting information from a system
- Server side query - Client side query	Processing a query within the system Querying a system
Data transformation	Converting one format to another
- Up translate - Down translate - Cross translate	Transforming non-XML documents to XML documents Transforming XML documents to non-XML documents Transforming XML documents to XML documents

Table 1: Description of XML Process Types

The process models for these XML process types are shown in the following sections. These process models were derived from interviews with industry partner Allette Systems.

3 Data Capture

3.1 Creating Data

The data capture process for creating data is shown in Fig 2.

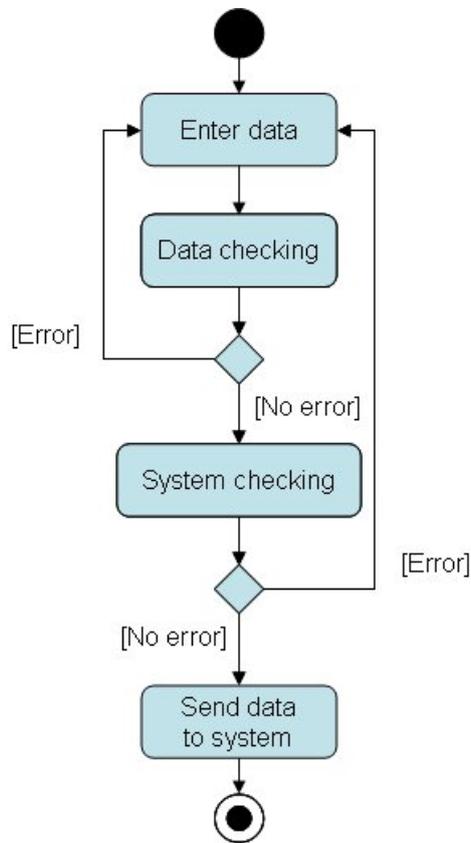


Figure 2: Create data process model

3.2 Update

The data capture process for updating data, is similar to the create data model(Fig 2).

4 Data Query

4.1 Server side query

The data query process model for the server side is shown in Fig 3.

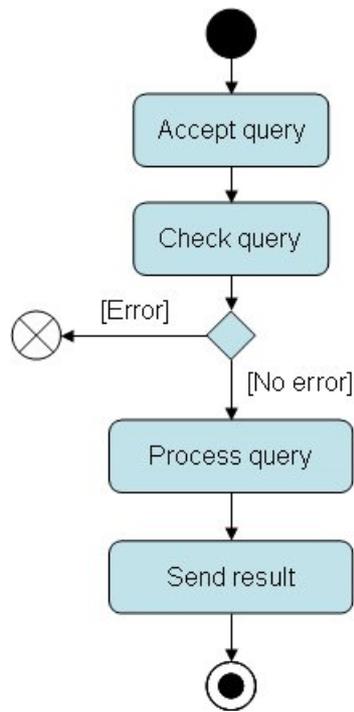


Figure 3: Server side query process model

4.2 Client side query

The data query process model for the client side is shown in Fig 4.

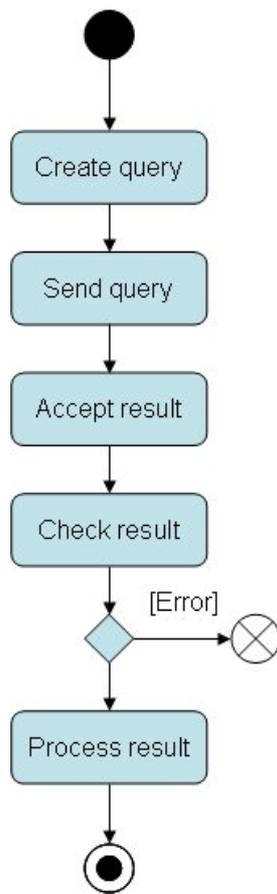


Figure 4: Client side query process model

5 Data Transformation

5.1 Up translate

The data transformation process model for an up translate is shown in Fig 5.

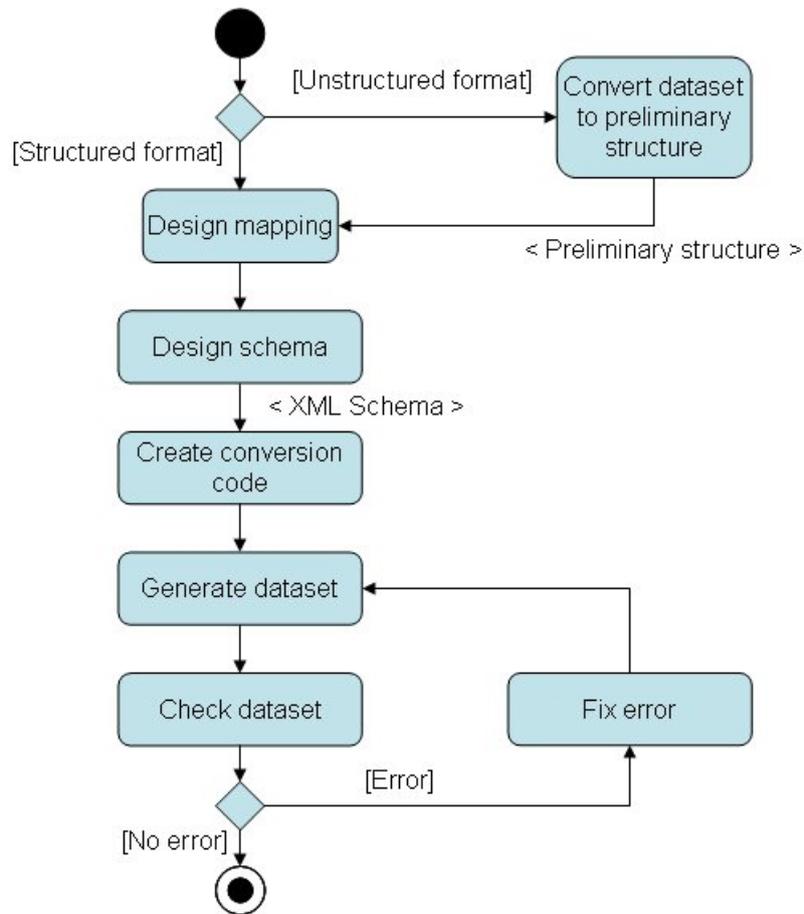


Figure 5: Up translate process model

5.2 Down translate

The data transformation process model for a down translate has not been created yet.

5.3 Cross translate

The data transformation process model for a cross translate has not been created yet.

6 Process model components

A potential for future study is breaking up the XML process models into components. An example of this is shown in Fig 6.

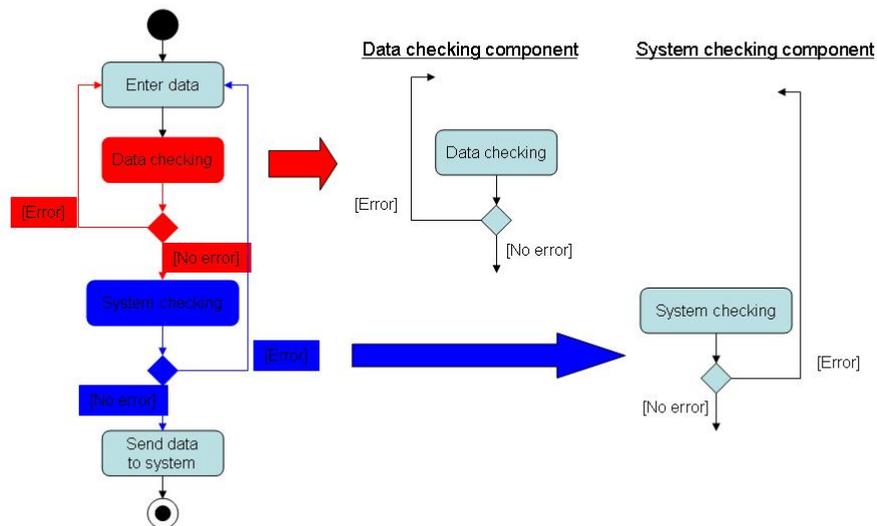


Figure 6: Create data process components

In breaking the process models into components, the core processes can be identified. For example from Fig 6, the core process model can be identified for creating data, shown in Fig 7.

Through this, variability can be accommodated for, which will assist in formulating the outcomes of XML Governance decisions.

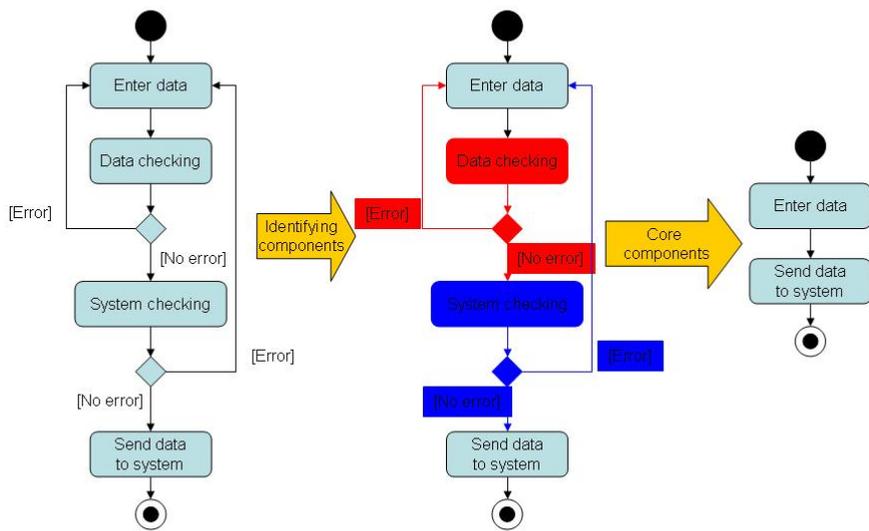


Figure 7: Deriving core create data process components

7 Conclusion and Future Study

This report has provided an interim overview of XML process models and a framework for their usage. These models and the framework have to still be completed, and further elaborated upon. Also, the implications of extracting components from the XML process models have to be further researched.

8 Acknowledgments

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