The *open*EHR Archetype Model

The Template Object Model (TOM)

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a. Ocean Informatics

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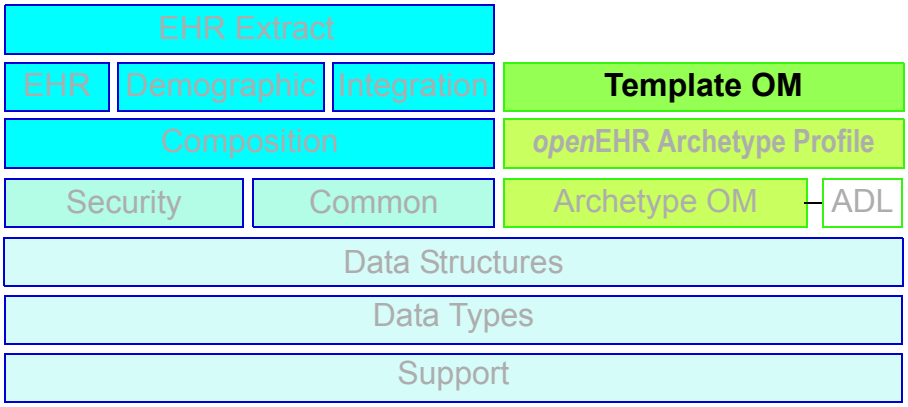

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Amendment Record

Issue	Details	Raiser	Completed
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RELEASE 1.0			
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RELEASE 0.96			

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1 Introduction

1.1 Purpose

This document describes an object model for *open*EHR templates, based only upon the generally accepted semantics of object models (typified by the OMG UML meta-model). The model presented here can be used as a basis for building software that processes archetypes and templates, independent of their persistent representation. As a specification, it can be treated as an API for templates.

It is recommended that the *open*EHR ADL and AOM documents be read in conjunction with this document, since they contain a detailed explanation of the semantics of archetypes.

1.2 Related Documents

Prerequisite documents for reading this document include:

- The *open*EHR Architecture Overview

Related documents include:

- The *open*EHR Archetype Definition Language (ADL)
- The *open*EHR Archetype Object Model (AOM)

1.3 Nomenclature

In this document, the term 'attribute' denotes any stored property of a type defined in an object model, including primitive attributes and any kind of relationship such as an association or aggregation. XML 'attributes' are always referred to explicitly as 'XML attributes'.

1.4 Status

This document is under development, and is published as a proposal for input to standards processes and implementation works.

The latest version of this document can be found in PDF format at http://svn.openehr.org/specification/BRANCHES/Release-1.0.1-candidate/publishing/architecture/am/tom.pdf. New versions are announced on openehr-announce@openehr.org.

Blue text indicates sections under active development.

THIS DOCUMENT IS UNDER ACTIVE DEVELOPMENT AND IS NOT YET SUBJECT TO ARB CONTROL.

1.5 Background

1.5.1 What is a Template?

The *open*EHR template concept is related to *open*EHR archetypes. Where archetypes define widely re-usable components of information, templates are locally defined and encapsulate local usage of archetypes, and relevant preferences. In informal terms, templates include the following semantics:

archetype 'chaining': choice of archetypes to make up a larger structure, specified via indicating identifiers of archetypes to fill slots in higher-level archetypes;

local optionality: narrowing of some or all 0..1 constraints to either 1..1 (mandatory) or 0..0 (removal) according to local needs;

tightened constraints: tightening of other constraints, including cardinality, value ranges, terminology value sets and so on;

default values: choice of default values for use in templated structure at runtime.

At runtime, templates are used with archetypes to create data and to control its modification. Template design is usually strongly linked to the design of corresponding screen forms.

1.6 Tools

Various tools exist for creating and processing templates. The *open*EHR tools are available in source and binary form from the website (http://www.openEHR.org).

2 The Template Object Model

2.1 Design Background

An underpinning principle of *open*EHR is the use of archetypes and templates, which are formal models of domain concepts controlling data structure and content of data. The elements of this architecture are twofold.

- The *open*EHR Reference Model (RM), defining the structure and semantics of information.
- The *open*EHR Archetype Model (AM), defining the structure and semantics of archetypes and templates. The AM consists of the archetype language definition language (ADL), the Archetype Object Model (AOM), the *open*EHR Archetype profile (OAP), and the Template Object Model (TOM).

This document describes the Template Object Model, which is used with the Archetype Object Model as a basis for archetype-processing software.

2.2 Package Structure

The *open*EHR `template` package is illustrated in FIGURE 1.

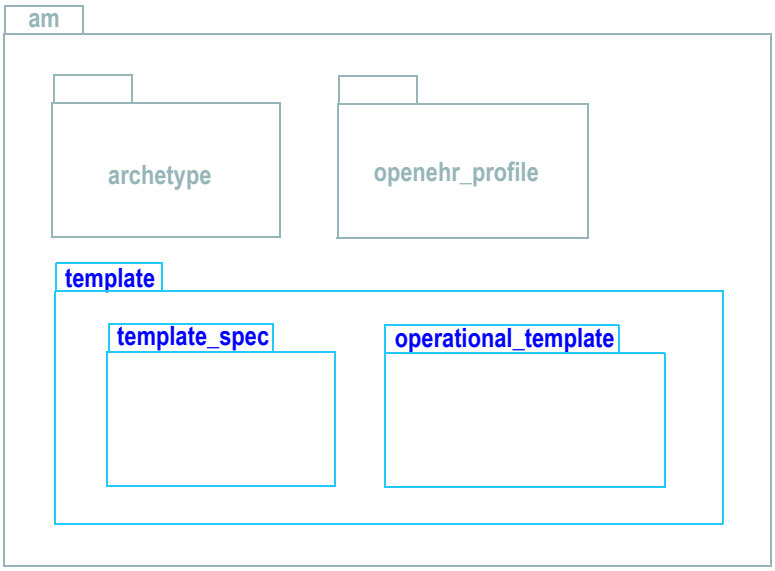

FIGURE 1 openehr.am.template Package in context

Two forms of templates are used in *open*EHR. The form created by template design tools is known as the 'specification' form, since it specifies the contents of a template using references to archetypes and other additions. The specification form is defined in the `am.template.template_spec` package. The second form is the 'operational' form, created by processing a template specification so as to partially pre-populate terminology value sets, expand out references to other templates and archetypes, and create runtime structures that representing other aspects of the specification. The operational form is specified in the `operational_template` package.

3 The Template_spec Package

3.1 Overview

To Be Continued:

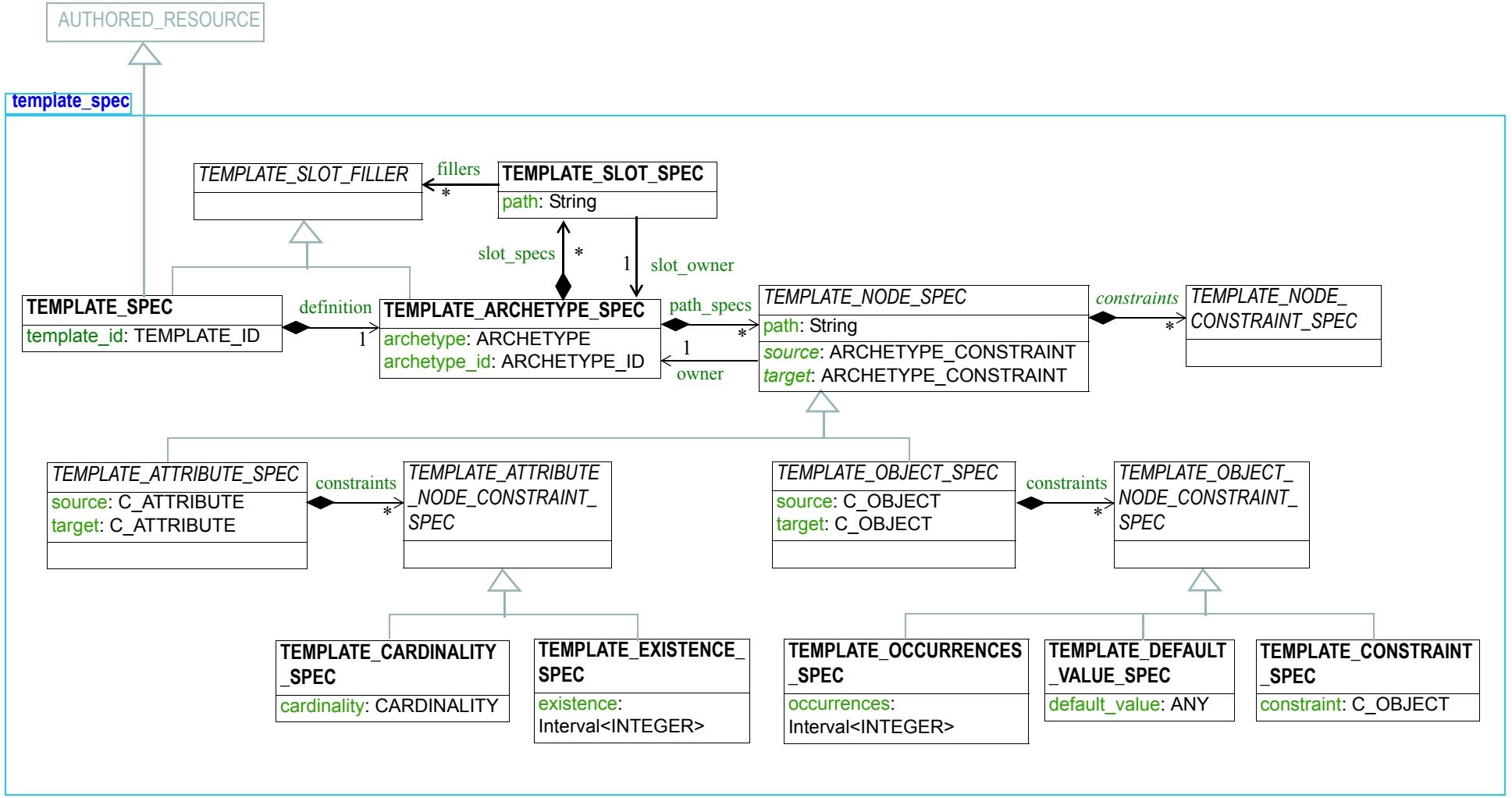

FIGURE 2 The openehr.am.template.template_spec Package

3.1.1 Example

```
(TEMPLATE_SPEC) <
    definition = <
       archetype_id = <openEHR-EHR-COMPOSITION.report.v1>
       slot_specs = <
          ["/content"] = <
             path = </content>
             fillers = <
                ["findings"] = <
                   archetype_id = <openEHR-EHR-SECTION.findings.v1>
                   slot_specs = <
                      ["items"] = <
                         path = <items>
                         fillers = <
                            ["histology"] = <
                               cardinality = <min = <1> max = <1>>
                               archetype_id = <openEHR-EHR-
                                                  OBSERVATION.histology.v1>
                            >
                         >
                      >
                   >
                >
                ["summary"] = <
                   archetype_id = <openEHR-EHR-SECTION.summary.v1>
                   slot_specs = <
                      ["items"] = <
                         path = <items>
                         fillers = <
                            ["clinical_synopsis"] = <
                               archetype_id = <openEHR-EHR-
                                     EVALUATION.clinical_synopsis.v1>
                            >
                            ["problem-diagnosis-histological"] = <
                               archetype_id = <openEHR-EHR-
                                     EVALUATION.problem-diagnosis-
                                     histological.v1>
                               path_specs = <
                                  path = </data[at0001]/items[at0031]>
                                  [1] = <
                                     cardinality = <max = <0>>
                                  >
                               >
                            >
                         >
                      >
                   >
                >
             >
          >
       >
    >
```

3.2 Class Definitions

3.2.1 TEMPLATE_SPEC Class

CLASS	TEMPLATE_SPEC	
Purpose		
Use		
Abstract	**Signature**	**Meaning**
	template_id: ARCHETYPE_ID	
Invariant	*xxx*	

4 The Operational_template Package

4.1 Overview

To Be Continued:

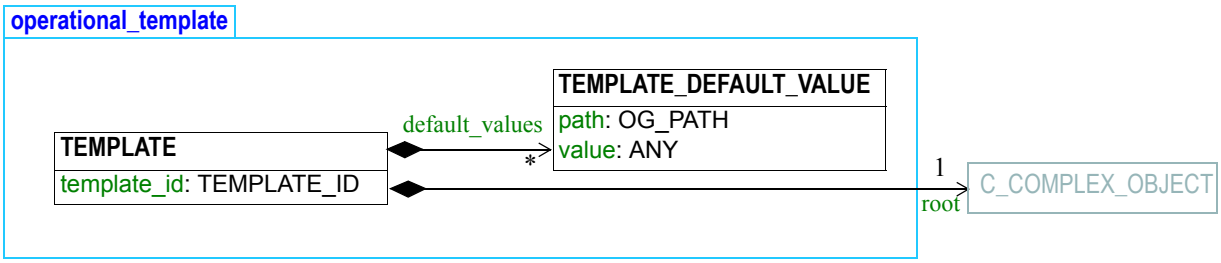

FIGURE 3 The openehr.am.template.operational_template Package

4.2 Class Definitions

4.2.1 TEMPLATE Class

CLASS	TEMPLATE	
Purpose		
Use		
Abstract	**Signature**	**Meaning**
	template_id: TEMPLATE_ID	
Invariant	*xxx*	

A References

Publications

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