

Network Working Group  
Internet Draft  
Intended status: Standard Track  
Expires: April 30, 2015

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October 27, 2014

Translation of XML Metadata Interchange (XMI) UML Model to YANG  
Modules  
draft-zheng-netmod-xmi-yang-translation-00.txt

## Abstract

This document defines a mechanism of translating XMI UML objects into YANG modules. With the translation mechanism, the data objects defined in XMI UML objects could be accessed via NETCONF.

## Status of this Memo

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## 1. Introduction

This document describes a mechanism of translating XMI (XML Metadata Interchange) [[XMI](#)] specified Model into YANG [[RFC6020](#)] modules. With the translation mechanism, the data objects defined in XMI UML objects could be accessed via NETCONF [[RFC6241](#)].

MOF is the foundation technology for describing metamodels. It covers a wide range of domains, and is based on a constrained subset of UML. XMI is widely used XML interchange format of UML. It defines the following aspects involved in describing objects in:

- The representation of objects in terms of XML elements and attributes.
- The standard mechanisms to link objects within the same file or across files.
- The validation of XMI documents using XML Schemas.
- Object identity, which allows objects to be referenced from other objects in terms of IDs and UUIDs.

The YANG modules that generated from XMI model should not be modified. Any necessary changes should be made by modifying the original XMI model (with proper updates of the XMI LAST-UPDATED and REVISION clauses) and then running the translation defined in this memo again. Note that this does not affect the usage of YANG augments and or YANG deviations: YANG modules generated from XMI model can be augmented like any other YANG module, and YANG deviations can be used to document how an implementation deviates from the generated YANG module.

## 2. Requirements Language and Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)] when they appear in ALL CAPS. When these words are not in ALL CAPS (such as "should" or "Should"), they have their usual

English meanings, and are not to be interpreted as [\[RFC2119\]](#) key words.

Terminology:

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### [3.](#) Requirements for translating XMI to YANG

As YANG is gradually becoming mature, more and more working groups are planning or have chosen YANG as the information model description language. These working groups or their service areas have existed for many years. Each working group already has their information model, and they used to use their traditional information model designing tools and hope to continue using the tools for a long time (e.g. using SMIV2 to construct MIB; using UML tools to build the UML objects). They only provide the YANG models when publishing the models.

As we all know, there has been a standard [\[RFC6643\]](#) of SMI to YANG conversion. But there is no standard to guide how to convert UML objects to YANG models. This memo specifying the conversion rules of translating XMI formatted UML models to YANG models.

### [4.](#) Mapping of Well-Known Types

The SMIV2 base types and some well-known derived textual conventions are mapped to YANG types by this section's rules.

### [5.](#) Translation of XMI Model classes

This section will describe how classes are translated. (TBD)

### [6.](#) Translation of XMI Attributes

This section will describe how XMI Attributes are translated.

#### 6.1. Element Identification Attributes

TBD.

## 6.2. Linking Attributes

TBD.

## 6.3. Type Attribute

TBD.

## [7. Translation of Model Representation](#)

This section will describe how Model Representation are translated.

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## [8. Security Considerations](#)

TBD.

## [9. IANA Considerations](#)

This document requires no IANA registration.

## [10. References](#)

### [10.1. Normative References](#)

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC6020] Bjorklund, M., "YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)", [RFC 6020](#), October 2010.
- [RFC6241] Enns, R., Bjorklund, M., Schoenwaelder, J., and A. Bierman, "Network Configuration Protocol (NETCONF)", [RFC 6241](#), June 2011.
- [RFC6991] Schoenwaelder, J., Ed., "Common YANG Data Types", [RFC 6991](#), July 2013.
- [XMI] <http://www.omg.org/spec/XMI/2.4.2>

### [10.2. Informative References](#)

[RFC6536] Bierman, A. and M. Bjorklund, "Network Configuration Protocol (NETCONF) Access Control Model", [RFC 6536](#), March 2012.

[RFC6643] J. Schoenwaelder, "Translation of Structure of Management Information Version 2 (SMIv2) MIB Modules to YANG Modules", [RFC 6643](#), February 2013.

## [11](#). Acknowledgments

This document was prepared using 2-Word-v2.0.template.dot.

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