



Business To Manufacturing Markup Language

Resource Relationship Network

Version 6.0 - March 2013

B2MML-ResourceRelationshipNetwork



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CHANGE HISTORY

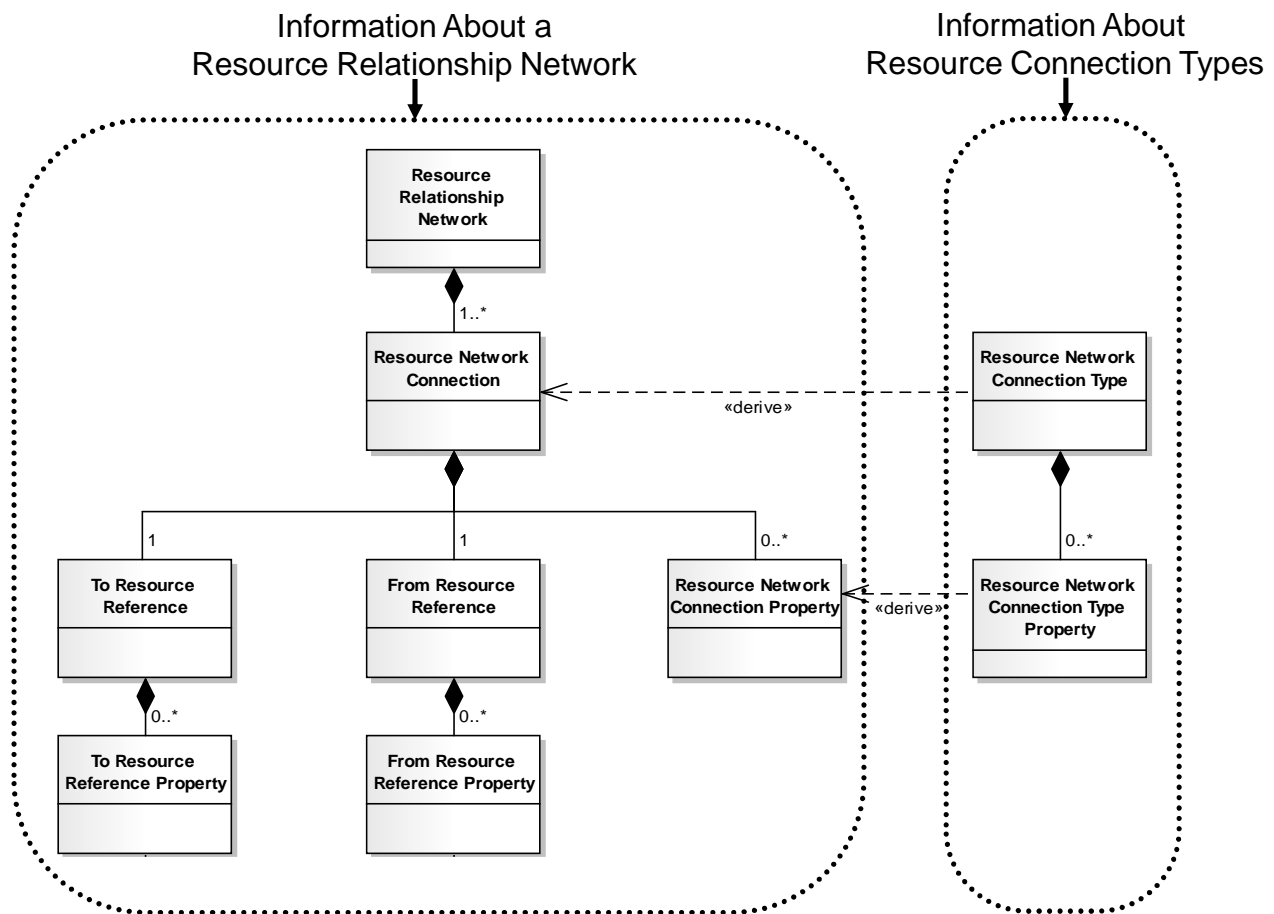
Change	Date	Person	Description
V0600	Aug 2012	D. Brandl	<ul style="list-style-type: none">Initial Version

SCHEMA SCOPE

This document defines the information about the definition of resource relationship networks that may be exchanged by manufacturing operations management systems. This information is based on the data models and attributes defined in the ANSI/ISA 95.00.04 Enterprise/Control System Integration standard. Contact ISA (The Instrumentation, System, and Automation Society) for copies of the standard. Additional information on the standard is available at www.isa.org.

Key Information Assumptions

The data represented in these schemas is derived from the UML model below. This model is defined in the ANSI/ISA 95.00.04 standard. The key assumption is that the information will be accessed by a single resource relationship network or a collection of resource network connection types.



Model of Exchanged Resource Relationship Networks

This schema uses a common schema for definition of elements that are used in multiple schemas, such as ID, Description, and Value. See the document defining the Common schema for definition of the common elements.

Type Definitions

The XML schema uses a model that defines simple and complex data types for each element. The data types all follow the convention of a suffix of "Type" added to the element name.

The method is a modification of the "Venetian Blind Model", defined in the book Professional XML Schemas, 2001, published by WROX (ISBN 1-861005-47-4). It makes all of the type names global and usable in user derived works, without a loss of context or additional information required to identify the element as of being of the same type as related B2MML elements

ResourceNetworkConnectionInformation

A main structuring element of the schema definition is ResourceNetworkConnectionInformation. This element allows for the exchange of information about one or more resource network connection types.

ResourceNetworkConnectionType

Thus element allows for the exchange of information about a single resource network connection type. It may contain properties associated with the connection type.

ResourceRelationshipNetwork

A main structuring element of the schema definition is ResourceRelationshipNetwork which contains a set of resource network connections, the relationship type (Physical or Logical), the relationship form (Permanent or Transient), and other information about the relationship.

ResourceNetworkConnection

Contains the information about a single connection between resources, defining the "from" and the "to" side of the relationship. It may contain properties associated with the specific connection.

ELEMENT DEFINITIONS

Element/Type	Description
ResourceNetworkConnectionInformation ResourceNetworkConnectionInformationType	<p>Contains one or more resource network connection type definitions.</p>
ResourceNetworkConnectionType ResourceNetworkConnectionTypeType	<p>Contains a single resource network connection type definition. It contains a set of connection properties and the ID of the connection type (used in a ResourceNetworkConnection to identify the connection type).</p>
ConnectionProperty ResourceProperty ResourcePropertyType	<p>Contains either a property for a connection type or a property for a connection.</p>

Element/Type	Description
ResourceRelationshipNetwork ResourceRelationshipNetworkType	<p>Contains a single resource relationship network, made up of one or more connections, the relationship type (Physical or Logical), the relationship form (Permanent or Transient), the hierarchy scope of the relationship, and the published date of the relationship.</p>
ResourceNetworkConnection ResourceNetworkConnectionType	<p>Defines a single resource relationship, with a “from” and a “to” resource reference, the ID of the connection type, and connection properties.</p>
FromResourceReference ToResourceReference ResourceReferenceType	<p>Contains a reference to a single resource with the ID of the resource, the type of the resource (Personnel, Personnel Class, Equipment, Equipment Class, ...), and any properties required to identify the specific resource.</p>

TRANSACTION ELEMENTS

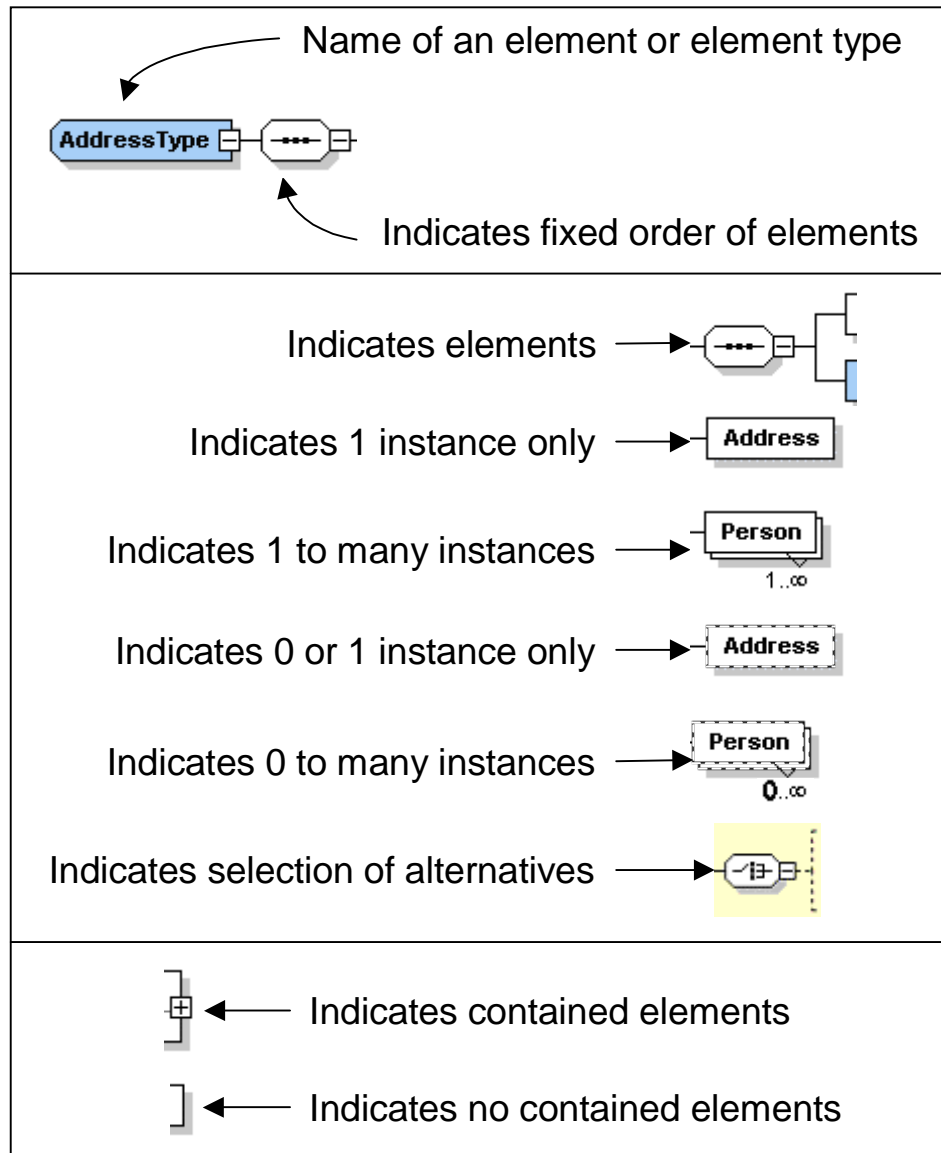
The following elements are defined to support the ISA 95 Part 5 transactions, using the transaction data types defined in the B2MML-Common.xsd schema.

Resource Network Connection Information Elements	Description
GetResourceNetworkConnectionInformation	Get <i>ResourceNetworkConnectionInformation</i> definitions.
ShowResourceNetworkConnectionInformation	Returned information from the <i>GetResourceNetworkConnectionInformation</i> message.
ProcessResourceNetworkConnectionInformation	Process <i>ResourceNetworkConnectionInformation</i> definitions.
AcknowledgeResourceNetworkConnectionInformation	Returned status from the <i>ProcessResourceNetworkConnectionInformation</i> message.
ChangeResourceNetworkConnectionInformation	Change <i>ResourceNetworkConnectionInformation</i> definitions.
RespondResourceNetworkConnectionInformation	Returned status from the <i>ChangeResourceNetworkConnectionInformation</i> message.
CancelResourceNetworkConnectionInformation	Cancel <i>ResourceNetworkConnectionInformation</i> definitions.
SyncResourceNetworkConnectionInformation	Published <i>ResourceNetworkConnectionInformation</i> definitions.

Resource Relationship Network Elements	Description
GetResourceRelationshipNetwork	Get <i>ResourceRelationshipNetwork</i> definitions.
ShowResourceRelationshipNetwork	Returned information from the <i>GetResourceRelationshipNetwork</i> message.
ProcessResourceRelationshipNetwork	Process <i>ResourceRelationshipNetwork</i> definitions.
AcknowledgeResourceRelationshipNetwork	Returned status from the <i>ProcessResourceRelationshipNetwork</i> message.
ChangeResourceRelationshipNetwork	Change <i>ResourceRelationshipNetwork</i> definitions.
RespondResourceRelationshipNetwork	Returned status from the <i>ChangeResourceRelationshipNetwork</i> message.
CancelResourceRelationshipNetwork	Cancel <i>ResourceRelationshipNetwork</i> definitions.
SyncResourceRelationshipNetwork	Published <i>ResourceRelationshipNetwork</i> definitions.

DIAGRAM CONVENTION

The schema diagrams using the following convention to illustrate the structure of the schema elements, the type of the elements and attributes, and the rules for optional elements and repetition.





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About the XML Committee: The XML Committee was formed within MESA to provide a forum for the development of the B2MML and BatchML specifications.