

Business To Manufacturing   
Markup Language

Work Calendar

Version 0700

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B2MML-WorkCalendar

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# Change history

|  |  |  |  |
| --- | --- | --- | --- |
| **Change** | **Date** | **Person** | **Description** |
| V0700 | Aug 2015 | D. Brandl | * Initial Version |

# Schema Scope

This document defines the information about the definition of work calendar information 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](http://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 Work Calendar Definition, a single Work Calendar, or a collection of Work Calendar Definition and Work calendar Calendars.



Model of Exchanged Work Calendar Information

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 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.

Some elements are specified as “nillable”. At times, it is very important to distinguish between empty content and null content in your XML documents. XML Parsers consider text values of empty elements as an empty string, and not null. Elements which may be required, but which may have a null value are identified with a nill able attribute.

## WorkCalendarInformation

A main structuring element of the schema definition is WorkCalendarInformation. This element allows for the exchange of multiple WorkCalendarDefinitions and WorkCalendars in a single message.

## WorkCalendarDefinition

A main structuring element of the schema definition is WorkCalendarDefinition. This element allows for the exchange of information about a single work calendar definition.

## WorkCalendar

A main structuring element of the schema definition is WorkCalendar. This element allows for the exchange of information about a single work calendar.

# Element Definitions

| **Element/Type** | **Description** |
| --- | --- |
| WorkCalendar/Entry  ***WorkCalendarEntryType*** | Defines a single work calendar entry, which is specific date/time for a Work Calendar Definition Entry. (e.g. January 2, 2016). It contains the start time of the entry (in ISO 8601 format), the finish time of the entry (in ISO 8601 format), the entry type, and properties associated with the entry. There are no standard entry types defined. Entries may include exchanged property values.  WorkCalendar_diagrams/WorkCalendar_p189.png |
| WorkCalendarDefinition/Entry  ***WorkCalendarDefinitionEntryType*** | Defines a single work calendar defined entry, which defines the rule used to determine work calendar entries. It contains the recurrence time for the rule, the duration of the entry, the entry type, and properties associated with the entry. There are no standard entry types defined. The entry may include property definitions.  WorkCalendar_diagrams/WorkCalendar_p165.png  The Start Rule in a *work calendar definition entry* is defined in ISO 8601 format for a date and time.  EXAMPLE 1 2014-05-01.  The Start Rule may include an ending time, following ISO 8601 format for a time interval.  EXAMPLE 2 2014-05-01/2015-06-01.  The Recurrence Time Interval Rule in a *work calendar definition entry* is defined in ISO 8601 format for recurrences.  EXAMPLE 3 R2M15D – Recurrence every 2 months and 15 days.  The Duration Rule in a *work calendar definition entry* shall be defined in ISO 8601 format for durations.  EXAMPLE 4 PT15H – 15 hours. |
| WorkCalendarInformation  ***WorkCalendarInformationType*** | Defines a collection or work calendars and/or work calendar definitions. Contains the hierarchy scope of the work calendars and/or work calendar definitions and the published date of the calendars or definitions.  WorkCalendar_diagrams/WorkCalendar_p174.png |
| WorkCalendarDefinition  ***WorkCalendarDefinitionType*** | Contains a work calendar definition. This includes an ID of the work calendar definition, the hierarchy scope of the definition, and the entries that make up the work calendar definition. Each entry defines a rule that can be used to create a work calendar.  WorkCalendar_diagrams/WorkCalendar_p161.png |
| WorkCalendar  ***WorkCalendarType*** | Contains a work calendar, including the ID of the associated work calendar, a description of the calendar, and the entries for the calendar.  WorkCalendar_diagrams/WorkCalendar_p185.png |
| WorkCalendar/Entry/Property  ***WorkCalendarPropertyType*** | Contains a property for a work calendar entry. Properties define values for additional elements of data that may be associated with a specific entry.  WorkCalendar_diagrams/WorkCalendar_p173.png |
| WorkCalendarDefinition/Entry/Property  ***WorkCalendarDefinitionPropertyType*** | Contains a property for a work calendar definition entry. Properties define values or types for additional elements of data that may be associated with a work calendar definition entry.  WorkCalendar_diagrams/WorkCalendar_p156.png |

# 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.

| **Work calendar Information Elements** | **Description** |
| --- | --- |
| GetWorkCalendarInformation | Get *WorkCalendarInformation* definitions. |
| ShowWorkCalendarInformation | Returned information from the *Get*WorkCalendarInformation message. |
| ProcessWorkCalendarInformation | Process *WorkCalendarInformation* definitions. |
| AcknowledgeWorkCalendarInformation | Returned status from the *ProcessWorkCalendarInformation* message. |
| ChangeWorkCalendarInformation | Change *WorkCalendarInformation* definitions. |
| RespondWorkCalendarInformation | Returned status from the *ChangeWorkCalendarInformation* message. |
| CancelWorkCalendarInformation | Cancel *WorkCalendarInformation* definitions. |
| SyncWorkCalendarInformation | Published *WorkCalendarInformation* definitions. |

| **Work calendar Definition Elements** | **Description** |
| --- | --- |
| GetWorkCalendarDefinition | Get *WorkCalendarDefinition* definitions. |
| ShowWorkCalendarDefinition | Returned information from the *Get*WorkCalendarDefinition message. |
| ProcessWorkCalendarDefinition | Process *WorkCalendarDefinition* definitions. |
| AcknowledgeWorkCalendarDefinition | Returned status from the *ProcessWorkCalendarDefinition* message. |
| ChangeWorkCalendarDefinition | Change *WorkCalendarDefinition* definitions. |
| RespondWorkCalendarDefinition | Returned status from the *ChangeWorkCalendarDefinition* message. |
| CancelWorkCalendarDefinition | Cancel *WorkCalendarDefinition* definitions. |
| SyncWorkCalendarDefinition | Published *WorkCalendarDefinition* definitions. |

| **Work calendar Elements** | **Description** |
| --- | --- |
| GetWorkCalendar | Get *WorkCalendar* definitions. |
| ShowWorkCalendar | Returned information from the *Get*WorkCalendar message. |
| ProcessWorkCalendar | Process *WorkCalendar* definitions. |
| AcknowledgeWorkCalendar | Returned status from the *ProcessWorkCalendar* message. |
| ChangeWorkCalendar | Change *WorkCalendar* definitions. |
| RespondWorkCalendar | Returned status from the *ChangeWorkCalendar* message. |
| CancelWorkCalendar | Cancel *WorkCalendar* definitions. |
| SyncWorkCalendar | Published *WorkCalendar* 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 Committe was formed within MESA to provide a forum for the development of the B2MML and BatchML specifications.