|  |
| --- |
|  |
| |  |  |  | | --- | --- | --- | | 75 | Date: | $date.get(‘MMMM YYYY’) | |
| Archetype Modeling Language (AML)  #set ($version = “0.5”)  Version: $version  **OMG Document Number: formal/$date.get(‘YYYY-M-d’)**  **Standard document URL: http://www.omg.org/spec/AML/1.0**  Original File: N/A |

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#set ($AMLAuthors = ["Robert Lario", "Angelique J. Cortez", “Harold Solbrig”, “Dave Carlson”, “Deepak K. Sharma”])

**Acknowledgements**

The following individuals submitted parts of this specification and/or have assisted the AML team in the development of the specification:

#foreach ($au in $AMLAuthors)

* $au

#end

#set ($AMLOrgs = ["Mayo Clinic", "Second Organization name", “Third Organization name”])

The following organization supported the development of the specification:

#foreach ($orgs in $AMLOrgs)

* $orgs

#end

#set ($amlContribs = {“Robert Lario” : “Robert’s Org”, “Angelique J. Cortez” : “Angelique’s Org”, “Harold Solbrig” : “Mayo Clinic”, “Dave Carlson” : “XML Modeling”, “Deepak K. Sharma” : “Mayo Clinic”})

|  |  |
| --- | --- |
| **Author** | **Organization** |
| #forrow($key in $amlContribs.keySet()) $key | $amlContribs.get($key) #endrow |

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# Preface

**OMG**

Founded in 1989, the Object Management Group, Inc. (OMG) is an open membership, not-for-profit computer industry standards consortium that produces and maintains computer industry specifications for interoperable, portable, and reusable enterprise applications in distributed, heterogeneous environments. Membership includes Information Technology vendors, end users, government agencies, and academia.  
  
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Specifications within the Catalog are organized by the following categories:

**OMG Modeling Specifications**

• UML  
• MOF  
• XMI  
• CWM  
• Profile specifications

**OMG Middleware Specifications**

• CORBA/IIOP  
• IDL/Language Mappings  
• Specialized CORBA specifications  
• CORBA Component Model (CCM)

**Platform Specific Model and Interface Specifications**

• CORBAservices  
• CORBAfacilities  
• OMG Domain specifications  
• OMG Embedded Intelligence specifications  
• OMG Security specifications

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**Typographical Conventions**

The type styles shown below are used in this document to distinguish programming statements from ordinary English. However, these conventions are not used in tables or section headings where no distinction is necessary.

Times/Times New Roman - 10 pt.: Standard body text

**Helvetica/Arial - 10 pt. Bold: OMG Interface Definition Language (OMG IDL) and syntax elements.**

Courier - 10 pt. Bold: Programming language elements.

Helvetica/Arial - 10 pt : Exceptions

NOTE: Terms that appear in italics are defined in the glossary. Italic text also represents the name of a document, specification, or other publication.

###############################################

## Imports

###############################################

#import('js', 'com.nomagic.reportwizard.tools.script.JavaScriptTool')

#import("query", "com.nomagic.reportwizard.tools.QueryTool")

#import('text', 'com.nomagic.reportwizard.tools.TextTool')

###############################################

#\* MACRO writeText

Writes Text.

\*#

###############################################

#macro (writeText $txt $preserveHTML)

#if($preserveHTML)

$text.html($txt)#else

$txt#end#end

###############################################

#\* MACRO writeHeading

Writes heading titles for a given indentation.

\*#

###############################################

#macro (writeHeading $object $text $isBookmark $headingLevel $headType)

#set($disp = $text)

#if($headType)

#set($disp = “<$headType> $text”)

#end

#if($headingLevel == 1)

#if($isBookmark == “true”)

# $bookmark.create($object.ID, $disp)

#else

# $disp

#end

#elseif($headingLevel == 2)

#if($isBookmark == “true”)

## $bookmark.create($object.ID, $disp)

#else

## $disp

#end

#elseif($headingLevel == 3)

#if($isBookmark == “true”)

### $bookmark.create($object.ID, $disp)

#else

### $disp

#end

#elseif ($headingLevel == 4)

#if($isBookmark == “true”)

#### $bookmark.create($object.ID, $disp)

#else

#### $disp

#end

#else

#if($isBookmark == “true”)

#### $bookmark.create($object.ID, $disp)

#else

#### $disp#end#end#end

###############################################

#\* MACRO writeBookmark (Depricated – use writeHeading now)

Writes hyperlinks for a given title.

\*#

###############################################

#macro (writeBookmark $object $text $headingLevel)

#if($headingLevel == 1)

# $bookmark.create($object.ID, $text)

#elseif($headingLevel == 2)

## $bookmark.create($object.ID, $text)

#elseif($headingLevel == 3)

### $bookmark.create($object.ID, $text)

#elseif ($headingLevel == 4)

#### $bookmark.create($object.ID, $text)

#else

## $bookmark.create($object.ID, $text)

#end

#end

###############################################

#\* MACRO printAttr

\*#

###############################################

#macro(printAttr $att)

* $att.visibility $att.name#if($att.type) : $bookmark.open($att.type.ID, $att.type.name)#end#if($att.multiplicity != “”) [$att.multiplicity]#end#if($att.defaultValue) = $att.defaultValue.text#end

#end

###############################################

#\* MACRO printOper

\*#

###############################################

#macro(printOper $oper)

#set($paramLists = $oper.ownedParameter)

#set($size = 0)

#foreach($p in $paramLists)

#if($p.direction != “return”)

#set($size = $size +1)

#end

#end

#set($i = 1)

* $oper.visibility $oper.name (#foreach($param in $paramLists)#if($param.direction != “return”)$param.name#if($param.type) : $bookmark.open($param.type.ID, $param.type.name)#end#if($param.multiplicity != “”) [$param.multiplicity]#end#if($param.defaultValue) = $param.defaultValue.text#end#if($size != $i), #end#set($i = $i + 1)#end#end)#if($oper.type) : $bookmark.open($oper.type.ID, $oper.type.name)#end#if($oper.hasTypeModifier() && $oper.typeModifier != “”)$oper.typeModifier#end

#end

###############################################

#\* MACRO printAsso

\*#

###############################################

#macro(printAsso $attribute $association $object)

#foreach($member in $association.memberEnd)

#if($member.type != $object)

#set($memberEnd = $member)

#end

#end

* $memberEnd.visibility#if($attribute.name != “”) $attribute.name#end#if($memberEnd.type) : $bookmark.open($memberEnd.type.ID, $memberEnd.type.name)#end#if($memberEnd.multiplicity != “”) [$memberEnd.multiplicity]#end #if($memberEnd.defaultValue) = $memberEnd.defaultValue.text#end

#end

###############################################

#\* MACRO printDiagrams

Prints diagrams for a given element

\*#

###############################################

#macro (printDiagrams $pkgdiagrams)

#if($pkgdiagrams)

#if($pkgdiagrams.size() > 0)

#foreach($diag in $sorter.humanSort($pkgdiagrams))

$image.setWidth($diag.image, -2)

**$diag.name**

#if($diag.documentation != “”)

#writeText($diag.documentation)

#end

#set($diagramElements = $array.createArray())

#set($diagramElements = $report.getDiagramElements($diag))

## Collecting Diagram elements

#set($interfaceLists = $array.createArray())

#set($classLists = $array.createArray())

#set($enumLists = $array.createArray())

#foreach($element in $diagramElements)

#if($element.elementType == “interface”)

#set($tmp = $interfaceLists.add($element))

#set($tmp = $packageInterface.remove($element))

#elseif($element.elementType == “class”)

#set($tmp = $classLists.add($element))

#set($tmp = $packageClass.remove($element))

#elseif($element.elementType == “enumeration”)

#set($tmp = $enumLists.add($element))

#set($tmp = $packageEnum.remove($element))

#end

#end

## Print Diagram elements

## remove next three lines when done.

##[Interfaces = $interfaceLists.size(), Classes = $classLists.size(), Enumerations = $enumLists.size()]

## print interfaceLists, classLists, enumLists

#if($interfaceLists.size() > 0)

#set($knownInterface = $array.createArray())

#foreach($interface in $sorter.humanSort($interfaceLists))

#if(!$printedInterfaces.contains($interface))

#set($tmp = $printedInterfaces.add($interface))

#createInterfaceContent($interface)

#else

#set($tmp = $knownInterface.add($interface))

#end

#end

#if($knownInterface.size() > 0)

#writeHeading($knownInterface, “Known other interfaces”)

#set($size = $knownInterface.size())

#foreach($i in $knownInterface)$bookmark.open($i.ID, $i.name)#if($size != $velocityCount), #end#end

#end

#end##endinterface

#if($classLists.size() > 0)

#set($knownClass = $array.createArray())

#foreach($class in $sorter.humanSort($classLists))

#if(!$printedClasses.contains($class))

#set($tmp = $printedClasses.add($class))

#createClassContent($class)

#else

#set($tmp = $knownClass.add($class))

#end

#end

#if($knownClass.size() > 0)

#writeHeading($knownClass, “Known other classes”)

#set($size = $knownClass.size())

#foreach($c in $knownClass)$bookmark.open($c.ID, $c.name)#if($size != $velocityCount), #end#end

#end

#end##endclass

#if($enumLists.size() > 0)

#set($knownEnum = $array.createArray())

#foreach($enum in $sorter.humanSort($enumLists))

#if(!$printedEnums.contains($enum))

#set($tmp = $printedEnums.add($enum))

#createEnumerationContent($enum)

#else

#set($tmp = $knownEnum.add($enum))

#end

#end

#if($knownEnum.size() > 0)

#writeHeading($knownEnum, “Known other enumerations”)

#set($size = $knownEnum.size())

#foreach($e in $knownEnum)$bookmark.open($e.ID, $e.name)#if($size != $velocityCount), #end#end

#end

#end##endenumeration

#end

## Print packageInterface, packageClass, packageEnum

#if($packageInterface.size() > 0)

#set($knownInterface = $array.createArray())

#foreach($interface in $sorter.humanSort($packageInterface))

#if(!$printedInterfaces.contains($interface))

#set($tmp = $printedInterfaces.add($interface))

#createInterfaceContent($interface)

#else

#set($tmp = $knownInterface.add($interface))

#end

#end

#if($knownInterface.size() > 0)

#writeHeading($knownInterface, “Known other interfaces”)

#set($size = $knownInterface.size())

#foreach($i in $knownInterface)$bookmark.open($i.ID, $i.name)#if($size != $velocityCount), #end#end

#end

#end##endpackageInterface

#if($packageClass.size() > 0)

#set($knownClass = $array.createArray())

#foreach($class in $sorter.humanSort($packageClass))

#if(!$printedClasses.contains($class))

#set($tmp = $printedClasses.add($class))

#createClassContent($class)

#else

#set($tmp = $knownClass.add($class))

#end

#end

#if($knownClass.size() > 0)

#writeHeading($knownClass, “Known other classes”)

#set($size = $knownClass.size())

#foreach($c in $knownClass)$bookmark.open($c.ID, $c.name)#if($size != $velocityCount), #end#end

#end

#end##endpackageClass

#if($packageEnum.size() > 0)

#set($knownEnum = $array.createArray())

#foreach($enum in $sorter.humanSort($packageEnum))

#if(!$printedEnums.contains($enum))

#set($tmp = $printedEnums.add($enum))

#createEnumerationContent($enum)

#else

#set($tmp = $knownEnum.add($enum))

#end

#end

#if($knownEnum.size() > 0)

#writeHeading($knownEnum, “Known other enumerations”)

#set($size = $knownEnum.size())

#foreach($e in $knownEnum)$bookmark.open($e.ID, $e.name)#if($size != $velocityCount), #end#end

#end

#end##endpackageEnum

#end

#end

#end

## Tracks which classes have been printed/documented so far.

#set($printedInterfaces = $array.createArray())

#set($printedClasses = $array.createArray())

#set($printedEnums = $array.createArray())

###############################################

#\* MACRO findNestedElement

\*#

###############################################

#macro(findNestedElement $object)

#set($innerElement = $report.getInnerElement($object))

#foreach($nested in $innerElement)

#if($nested.elementType != “package” && $nested.elementType != “model” && $nested.elementType != “profile” )

#if($nested.elementType == “interface”)

#set($tmp = $nestedInterface.add($nested))

#elseif($nested.elementType == “class”)

#set($tmp = $nestedClass.add($nested))

#elseif($nested.elementType == “enumeration”)

#set($tmp = $nestedEnum.add($nested))

#end

#set($in = $report.getInnerElement($nested))

#if($in.size() > 0)

#findNestedElement($nested)

#end

#end

#end

#end

###############################################

#\* MACRO createInterfaceContent

\*#

###############################################

#macro(createInterfaceContent $interface)

#writeHeading($interface, $interface.name, “true”, 3, “Interface”)

#if($interface.documentation != “”)

#writeHeading($interface, “Description”, “false”, 5)

#writeText($interface.documentation, “true”)

#end

#end

###############################################

#\* MACRO createClassContent

\*#

###############################################

#macro(createClassContent $class)

#writeHeading($class, $class.name, “true”, 3, “Class”)

#if($class.documentation != “”)

#writeHeading($class, “Description”, “false”, 5)

#writeText($class.documentation, “true”)

#end

#set($classAtt = $array.createArray())

#foreach($a in $class.ownedAttribute)

#if(!$a.association)

#set($tmp = $classAtt.add($a))

#end

#end

#if($classAtt.size() > 0)

#writeHeading($classAtt, “Attributes”, “false”, 5)

#foreach($att in $classAtt)

#if(!$att.association)

#printAttr($att)

#if($att.documentation != “”)

#writeText($att.documentation, “true”)#end#end#end#end

#set($classOper = $class.ownedOperation)

#if($classOper.size() > 0)

#writeHeading($classOper, “Operations”, “false”, 5)

#foreach($oper in $classOper)

#printOper($oper)

#if($oper.documentation != “”)

#writeText($oper.documentation, “true”)

#end

#end

#end

#set($associationLists = $array.createArray())

#foreach($attribute in $class.ownedAttribute)

#if($attribute.association)

#set($tmp = $associationLists.add($attribute.association))

#end

#end

#if($associationLists.size() > 0)

#writeHeading($associationLists, “Associations”, “false”, 5)

#foreach($attribute in $class.ownedAttribute)

#if($attribute.association)

#set($association = $attribute.association)

#printAsso($attribute, $association, $class)

#if($memberEnd.type.documentation != “”)

#writeText($memberEnd.type.documentation, “true”)

#end

#end

#end

#end

#end

###############################################

#\* MACRO createEnumerationContent

\*#

###############################################

#macro(createEnumerationContent $enum)

#writeHeading($enum, $enum.name, “true”, 3, “Enumeration”)

#if($enum.documentation != “”)

#writeHeading($enum, “Description”, “false”, 5)

#writeText($enum.documentation, “true”)

#end

#end

###############################################

#\* MACRO packageList

This macro goes through the package list (staring with what is supplied in scope by the report wizard.

\*#

###############################################

#set($level = 0)

#macro (packageList, $parentPackage, $plevel)

## Main package’s Classes, Interfaces and Enumerations

#set($packageInterface = $array.createArray())

#set($packageClass = $array.createArray())

#set($packageEnum = $array.createArray())

## Nested Classes, Interfaces and Enumerations

#set($nestedInterface = $array.createArray())

#set($nestedClass = $array.createArray())

#set($nestedEnum = $array.createArray())

#if($parentPackage.elementType == “package”)

#foreach($element in $parentPackage.ownedElement)

#if($element.elementType == “interface”)

#set($tmp = $packageInterface.add($element))

#set($inner = $report.getInnerElement($element))

#if($inner.size() > 0)

#findNestedElement($element)

#end

#elseif($element.elementType == “class”)

#set($tmp = $packageClass.add($element))

#set($inner = $report.getInnerElement($element))

#if($inner.size() > 0)

#findNestedElement($element)

#end

#elseif($element.elementType == “enumeration”)

#set($tmp = $packageEnum.add($element))

#set($inner = $report.getInnerElement($element))

#if($inner.size() > 0)

#findNestedElement($element)

#end

#end

#end

#end

#set($tmp = $array.addCollection($packageInterface, $nestedInterface))

#set($tmp = $array.addCollection($packageClass, $nestedClass))

#set($tmp = $array.addCollection($packageEnum, $nestedEnum))

#set($diagramList = $array.createArray())

#foreach($d in $sorter.humanSort($parentPackage.ownedDiagram))

#if($d.diagramType == “Class Diagram”)

#set($tmp = $diagramList.add($d))

#end

#end

#if($parentPackage != $project.model)

#\* Only print “Package” if the index starts with section 8

or higher and it is in a subsection like 8.1 or 8.2.3.

The top level packages in ‘specification’ are just section

names.

\*#

# #set($displayTitle = $js.eval(‘pkgname.replace(/[0-9\.]/gi, “”)’, ‘pkgname’, $parentPackage.name))

# #if($js.eval(‘(pkgn.charAt(0) > “7”)&&(pkgn.indexOf(“.”) != -1)’, ‘pkgn’, $parentPackage.name))

# #writeHeading($displayTitle, $displayTitle, “false”, $plevel, “Package”)

#else

# #writeHeading($displayTitle, $displayTitle, “false”, $plevel)

#end

#if($parentPackage.documentation != “”)

#writeText($parentPackage.documentation)

#end

#printDiagrams($diagramList)

#end

## recurse for sub-packages

#set ($subPackages = $parentPackage.nestedPackage)

#foreach ($pkg in $sorter.humanSort($subPackages))

#if ($plevel == 1)

#packageList($pkg, 2)

#elseif($plevel == 2)

#packageList($pkg, 3)

#elseif($plevel == 3)

#packageList($pkg, 4)

#else

#packageList($pkg, 5)

#end

#end

#end

###############################################

#\* MAIN

\*#

###############################################

#foreach ($pkg in $packageScope)

#packageList($pkg, 1)

#end