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Functional Artifacts Guide
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Oracle Retail Functional Artifacts Guide, Release 13.2.4 for Windows

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Glossary

Preface

The *Oracle Retail Artifacts Guide* provides detailed information about how Oracle Retail artifacts are designed and packaged for release, as well as the standards used in their creation.

Audience

The *Oracle Retail Artifacts Guide* is intended for users of Oracle Retail applications, particularly application integrators, implementation staff, and retail IT personnel.

Related Documents

For more information, see the following documents in the Oracle Retail 13.2.4 documentation set:

- *Oracle Retail Integration Bus Implementation Guide*
- *Oracle Retail Integration Bus Installation Guide*
- *Oracle Retail Integration Bus Operations Guide*
- *Oracle Retail Integration Bus Release Notes*
- *Oracle Retail Integration Bus Hospital Administration Guide*
- *Oracle Retail Functional Artifact Generator Guide*
- *Oracle Retail Service-Oriented Architecture Enabler Tool Guide*

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- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instructions to re-create
- Exact error message received
- Screen shots of each step you take

Review Patch Documentation

When you install the application for the first time, you install either a base release (for example, 13.1) or a later patch release (for example, 13.1.2). If you are installing the base release, additional patch, and bundled hot fix releases, read the documentation for all releases that have occurred since the base release before you begin installation. Documentation for patch and bundled hot fix releases can contain critical information related to the base release, as well as information about code changes since the base release.

Oracle Retail Documentation on the Oracle Technology Network

Documentation is packaged with each Oracle Retail product release. Oracle Retail product documentation is also available on the following Web site:

http://www.oracle.com/technology/documentation/oracle_retail.html

(Data Model documents are not available through Oracle Technology Network. These documents are packaged with released code, or you can obtain them through My Oracle Support.)

Documentation should be available on this Web site within a month after a product release.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Introduction

The purpose of this document is to provide detailed information about the following:

- How artifacts are designed and packaged for release, as well as the standards used for their creation.
- Version strategy and implementation of that strategy, as well as the standards used for base Business Objects.
- Customization strategy and implementation of that strategy, including extension of base Business Objects.

Overview

The Oracle Retail Business Object (BO) is the name given to the logical representation of an Oracle Retail Business Entity. The definition of that object is in the form of an XML Schema (XSD). The schema represents the common object definition for business concepts, such as account, supplier, purchase order, and item.

Within Oracle Retail, the messages that flow between the retail applications are defined statically through these XML schemas (XSDs). These Business Objects are the message payloads, or the basis of message payloads for the Oracle Retail integration products, such as the Oracle Retail Integration Bus (RIB) and RIB Integration Gateway Services (IGS).

The Oracle Retail integration infrastructure products work with multiple technologies (for example, Java EE and PL/SQL). So they have different ways of representing the same functional XML message structure in the various technologies. The Business Object XSD is the common source used to generate the various manifestations of the BO (payloads) used within the infrastructure products and to ultimately communicate the Business Objects appropriately to the Oracle Retail API technology.

The XSDs are strict, and they are used by Oracle Retail standard tools to produce the design time physical objects used by the application's API technology (PL/SQL or Java), as well as the runtime validations used by the various integration components.

Note: See the *Oracle Retail Functional Artifact Generator Guide*.

Retail Functional Artifacts is the collective name given to the package containing the base Business Object XSDs and the various representations of the same structure/definition in these different technologies. These representations include the following:

- For Java EE, the artifacts are JAXB Java Beans. JAXB is a standard Java XML binding technology. It provides the mechanism to convert XML instances to Java objects (and vice versa) in a standard way. The JavaEE Web service infrastructure internally uses JAXB to marshal and unmarshal the SOAP messages. For every Business Object XSD, there is a corresponding JAXB beans.
- For PL/SQL retail applications, the artifacts are Oracle Objects. These objects are user defined database objects that define the XML message structure inside the database. For every Business Object XSD, there is a corresponding Oracle Object SQL defined.

Note: See the *Oracle Retail Functional Artifact Generator Guide*.

Packaging Structure and Standards

This chapter describes the physical packaging structure of the Retail Functional Artifacts. There are two Retail Functional Artifacts packages:

- RibFuncArtifact13.2.4ForAll13.2.4Apps_eng_ga.tar
- RetailFuncArtifact13.2.4ForAll13.2.4Apps_eng_ga.tar

The RibFuncArtifact contains additional artifacts specific to the RIB application, such as TAFR related artifacts. The RetailFunc contains only product independent artifacts. All content is versioned and follows the standards as described in Chapter 4, "[Artifact Versioning](#)."

General Packaging Structure

The Retail Functional Artifacts are physically packaged as a directory structure. The following diagram illustrates the structure. Standard UNIX directory formatting is used within the rules associated with the physical packaging of the directory.

```
/retail/integration/base/
  bo/ (Business Objects)
    BO (Object Name)
      V[1] (Version - latest)
        BO.xsd (BO Schema)
    LocOfBO (Object Name)
      V[1] (Version - latest)
        LocOfBO.xsd (Localization hook to BO Schema)

/custom/
  bo/ (Business Objects)
    ExtOf<BO> (Object Name)
      V[1] (Version - latest)
        ExtOf<BO>.xsd (Custom BO Schema)
    EOfBr<BO> (Object Name)
      V[1] (Version - latest)
        EOfBr<BO>.xsd (Custom Localization BO Schema)
    EOfIn<BO> (Object Name)
      V[1] (Version - latest)
        EOfIn<BO>.xsd (Custom Localization BO Schema)

/localization/
  bo/ (Business Objects)
    Br<BO> (Object Name)
      V[1] (Version - latest)
        Br<BO>.xsd (Localization BO Schema)
    In<BO> (Object Name)
      V[1] (Version - latest)
        In<BO>.xsd (Localization BO Schema)
```

Note: With the Oracle Retail 13.2.4 release, the custom and localization directories are not created and populated by default in the generally available (GA) deliverable. A new tool that is part of the Functional Artifact Generator called the Template Creator is provided to create the placeholder XSDs and the import hooks in the base objects.

See the *Oracle Retail Functional Artifact Generator Guide* for information.

Business Object Structure

This chapter describes the directories that contain the Oracle Retail Business Objects.

Base and Custom Directories

The base directories contain the Oracle Retail Business Objects, as delivered with each release and used by Oracle Retail applications within the integration products. The packaging structure reflects the namespace and the versioning within the namespace.

For example:

The ASNInBO.xsd namespace:

```
targetNamespace="http://www.oracle.com/retail/integration/base/bo/ASNInBO/v1"
version="1.0"
xmlns=http://www.oracle.com/retail/integration/base/bo/ASNInBO/v1
```

The ASNInBO.xsd within the packaging structure:

```
retail/integration/base/bo/ASNInBO/v1/ASNInBO.xsd
```

Custom and Localization Directories and Namespaces

Additional directories, placeholder XSDs and hooks in the base XSDs are optionally created using the Template Creator tool.

The Template Creator creates the custom and localization directories and hooks for a specific business object (for example, ASNIn).

Note: For information, see the *Oracle Retail Artifact Generator Guide*.

On demand for the business object specified, the Template Generator will create hooks to customize or localize the Oracle Retail Business Object.

For example:

The LocOfASNInBO.xsd namespace:

```
targetNamespace="http://www.oracle.com/retail/integration/base/bo/LocOfASNInBO/v1"
version="1.0"
xmlns=http://www.oracle.com/retail/integration/base/bo/LocOfASNInBO/v1
```

The LocOfASNInBO.xsd within the packaging structure:

```
retail/integration/base/bo/LocOfASNInBO/v1/LocOfASNInBO.xsd
```

The custom business objects will be contained within the Custom sub directory, mimicking the base directory, but prefaced with ExtOf, EOfBr and EOfIn.

For example:

- The ExtOfASNInBO.xsd namespace:

```
targetNamespace="http://www.oracle.com/retail/integration/custom/bo/ExtOfASNInBO/v1"
version="1.0"
xmlns=http://www.oracle.com/retail/integration/custom/bo/ExtOfASNInBO/v1
```

The ExtOfASNInBO.xsd within the packaging structure:

```
retail/integration/custom/bo/ExtOfASNInBO/v1/ExtOfASNInBO.xsd
```

- The EOfBrASNInBO.xsd namespace

```
targetNamespace="http://www.oracle.com/retail/integration/custom/bo/EOfBrASNInBO/v1"
version="1.0"
xmlns=http://www.oracle.com/retail/integration/custom/bo/EOfBrASNInBO/v1
```

The EOfBrASNInBO.xsd within the packaging structure.

```
retail/integration/custom/bo/EOfBrASNInBO/v1/EOfBrASNInBO.xsd
```

The Localization directories will be contained within the Localization subdirectory, mimicking the base directory, but prefaced with Br and In.

For example:

The BrASNInBO.xsd namespace:

```
targetNamespace="http://www.oracle.com/retail/integration/localization/bo/BrASNInBO/v1"
version="1.0"
xmlns=http://www.oracle.com/retail/integration/localization/bo/BrASNInBO/v1
```

The BrASNInBO.xsd within the packaging structure.

```
retail/integration/localization/bo/BrASNInBO/v1/BrASNInBO.xsd
```

Within one artifact deliverable (packaged release) there will be only the latest version of each BO XSD file. For a breaking change, the XSD is moved to a directory with the same name as the version number in the changed namespace.

Artifact Versioning

This chapter describes versioning strategies and standards.

Common Versioning Strategies

The following describes types of versioning strategies, as explained in Thomas Erl's book, *Web Service Contract Design and Versioning for SOA*.

Strict Versioning

For strict versioning, any compatible or incompatible change results in a new version of the service contract. This type of versioning does not support backward or forward compatibility (for example, new change and new contract).

Flexible Versioning

For flexible versioning, an incompatible change results in a new version of the service contract, and the contract supports backward compatibility but not forward compatibility.

Oracle Retail Versioning Strategy

The version approach proposed for Oracle Retail is the Flexible Strategy, where an incompatible change results in a new version of the service contract, and the contract supports backward compatibility but not forward compatibility.

Loose Versioning

For loose versioning, any incompatible change results in a new version of the service contract, and the contract supports backward and forward compatibility.

Comparison Chart

The following chart compares the types of versioning strategies listed above. The values in the Characteristics column are described as follows:

- **Strictness:** The rigidity of the contract versioning strategy.
- **Governance Impact:** The amount of governance burden imposed by the strategy.
- **Complexity:** The overall complexity of the versioning process.

Characteristic	Strict Strategy	Flexible Strategy	Loose Strategy
Strictness	High	Medium	Low
Governance Impact	High	Medium	High
Complexity	Low	Medium	High

Oracle Retail Versioning Strategy

The version approach proposed for Oracle Retail is the Flexible Strategy, where an incompatible change results in a new version of the service contract, and the contract supports backward compatibility but not forward compatibility.

Reasons for Versioning an Artifact

For this proposal, there are two primary reasons to version an artifact:

- To recognize that an artifact as changed.
- To recognize whether the change is *breaking* or *non-breaking*, as described below.

Breaking Changes

A breaking change also is known as non-backward compatibility. For example, newer versions of producers based on the same Business Object will break existing consumers and require a regeneration of the client from the new wsdl.

Non-backward compatible changes include the following:

- Removing an operation.
- Renaming an operation.
- Changing the parameters of an operation, such as data type or order.

Non-breaking Changes

A non-breaking change also is known as backward compatibility. For example, newer versions of producers based on the same Business Object can be deployed without breaking existing consumers.

Backward compatible changes include the following:

- New operations.
- New data types.
- New optional fields to existing data types.
- Type expansion.

Versioning Retail Business Objects Schemas (XSDs)

This section provides examples of versioning Retail Business Objects (BO) schemas (XSD)s.

Versioning Approach for XSDs

The XSD is versioned by an attribute (version) and the namespace. The namespace is the key versioning point.

XSD Version Attribute

Topic	Description
Recommendation	Each XSD has a version attribute.
Rationale	The version attribute is used to indicate a change has occurred to the XSD. It is a simple counter that starts at 1.00 and bumps when any change is applied.
Example	<pre>targetNamespace="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v1" version="1.0" xmlns="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v1"</pre>

XSD Version Attribute Usage

Topic	Description
Recommendation	For any change, breaking or non-breaking, the version attribute is incremented.
Rationale	For a non-breaking change, the version will increment the point. For a breaking change, the version will bump. The breaking version bump equates to the same version reflected in the namespace.
Example - Non-breaking Change	<p>Original</p> <pre>targetNamespace="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v1" version="1.0" xmlns="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v1"</pre> <p>Non-breaking Change</p> <pre>targetNamespace="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v1" version="1.1" xmlns="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v1"</pre> <p>Breaking Change</p> <pre>targetNamespace="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v2" version="2.0" xmlns="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v2"</pre>

XSD Namespace Versioning

Topic	Description
Recommendation	XSD namespace is versioned.
Rationale	For breaking changes, the BO XSD namespace is versioned.
Example	<p>The following example shows how the versioning appears, before and after.</p> <p>Before</p> <pre>targetNamespace="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v1" version="1.0" xmlns="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v1"</pre> <p>After</p> <pre>targetNamespace="http://www.oracle.com/retail/integration/base/bo/PayTermDesc/v2" " version="2.0" xmlns="http://www.oracle.com/retail/integration/base/bo/PayTermBO/v2"</pre>

Parent/Child Versioning

Topic	Description
Recommendation	For Parent/Child versioning, if a child version changes (a breaking change) the parent version also must change.
Rationale	If a parent imports an XSD and it has a breaking change, the parent also will have a breaking change. So the versioning of the parent should reflect that.

XML Standards and Conventions

This chapter defines standards in the areas of naming conventions, XML standards, and customization/extension.

The standards in this document are for the artifacts used in Oracle Retail integration products, such as the RIB, Integration Gateway Services and Web Service Providers created by the Retail SOA Enabler tool. For Oracle AIA this section applies to edge-application Web services and integration patterns. These standards do not overlap the AIA standards for middle layer integrations. For those integrations, the AIA standards are directly applicable.

The standards and conventions described in this section are retail domain specific. The naming conventions and standards are only patterned after AIA concepts.

XML Standards and Conventions

This section describes XML standards and conventions.

The underscore (`_`) must be used for readability in naming simple elements

This standard is a significant deviation from generally accepted WS standards, including AIA. The underscore is used by the Business Objects in the RIB and by Oracle Retail PL/SQL applications.

Topic	Description
Recommendation	The underscore must be used for readability in naming simple elements, with no spaces or hyphens between words; lowerCamel case cannot be used.
Rationale	This is not the generally accepted recommendation in other XML standards. Because Business Objects are translated into Oracle Objects for use within the database by PL/SQL APIs, all elements are made uppercase by default. Readability is enhanced by using the underscore instead of the industry standard lowerCamel case.
Example	<code><xsd:element name="supplier_name" type="varchar2240"/></code>

Names must not contain special characters

Topic	Description
Recommendation	Names must not contain special characters.
Rationale	This is recommended to be similar to other XML standards. Note that the underscore is allowed. This is not the same as other standards.
Examples	space, '-', '.', '\$', '%', '#', '<', '>', '&', '?'

UpperCamel case must be used for naming complex types

Topic	Description
Recommendation	UpperCamel case must be used for naming complex types with no spaces or hyphens between words.
Rationale	This is recommended to be similar to other XML standards..
Example	<code><xsd:complexType name="SupplierType" /></code>

Avoid XML schema keywords as element names

Topic	Description
Recommendation	Avoid XML schema keywords as element names. Do not use XSD keywords, such as element, sequence, and complexType as element names.
Rationale	This is recommended to be similar to other XML standards.
Example	<code><xs:element name="element" type="xs:integer" /></code>

Avoid Java keywords

Topic	Description
Recommendation	Avoid Java keywords as element names.
Rationale	This is recommended to be similar to other XML standards.
Examples	abstract, assert, boolean, break, byte, case, catch, char, class, const, continue, default, do, double, else, enum, extends, false, final, finally, float, for, goto, if, implements, import, instanceof, int, interface, long, native, new, null, package, private, protected, public, return, short, static, strictfp, super, switch, synchronized, this, throw, throws, transient, true, try, void, volatile, while.

Avoid having numeric characters in the name

Topic	Description
Recommendation	Avoid having numeric characters in the name.
Rationale	This is recommended to be similar to other XML standards.
Example	<code><xsd:element name="supplier1Name" type="varchar2240"/></code>

All XSD elements should be annotated

Topic	Description
Recommendation	<p>The definitions of all elements/attributes/enumerations should be included in the schema as notations.</p> <p>Each XSD file should declare as a namespace:</p> <pre>xmlns:retailDoc="http://www.w3.org/2001/XMLSchema"</pre>
Rationale	<p>This is recommended to be similar to other XML standards.</p> <p>The XSD should be the source of truth and include the business functional documentation of the element.</p> <p>The annotation standard should be independent of any repository specific requirements.</p> <p>The retailDoc namespace will allow intelligent processing in the XML/XSD parser in the future. There can be different behavior for a documentation element when the prefix is retailDoc versus anything else (including xs: or xsd:), even though all of them belong to same namespace.</p>
Example	<pre>xmlns:retailDoc="http://www.w3.org/2001/XMLSchema" <xs:element name="unit_qty" type="number12_4"> <retailDoc:annotation> <retailDoc:documentation>Contains the number of items expected to be received based on the supplier's ASN for this Item/Shipment combination.</retailDoc:documentation> </retailDoc:annotation> </xs:element></pre>

All XSDs should use the date type, xsd:dateTime, and the XML format, 2002-05-30T09:00:00

Topic	Description
Recommendation	All XSDs should use the date type, xsd:dateTime, and the XML format, 2002-05-30T09:00:00
Rationale	This is recommended to be similar to other XML standards.
Example	<code><xs:element name="ship_date" type="xs:dateTime"></code>

Retail Business Objects Schema

The logical representation of an Oracle Retail business entity is known as the Oracle Retail Business Object. For the purposes of this document, it describes the definition of that object in the form of an XML Schema (XSD). The schema represents the common object definition for business concepts such as Account, Supplier, Purchase Order, and Item.

Business Object (XSD) names should not contain names.

Topic	Description
Recommendation	The Business Object name should not contain message related operations or actions, such as Request or Response.
Rationale	The name should be only a business noun and should not necessarily reference the usage of the object.
Example	ItemRequest.xsd or ItemResponse.xsd.

Business Object (XSD) names should not contain CRUD operations.

Topic	Description
Recommendation	The Business Object name should not contain message related operations or actions, such as Create, Update, Process, and Get.
Rationale	The name should be only a business noun and should not necessarily reference the usage of the object CRUD operations.
Example	ItemCreate.xsd or ItemMod.xsd.

Each Business Object (XSD) file must define only one top level/global element.

Topic	Description
Recommendation	Each Business Object (XSD) file must define only one tope level/global element.

The Business Object (XSD) file must match the name of the top level element

Topic	Description
Recommendation	Every XSD file must define only one top level/global element, and the file name must match the name of the top level element.
Rationale	This is recommended to be similar to other XML standards.
Example	SupplierBO.xsd <pre><xs:element name="SupplierBO"> <retailDoc:annotation> <retailDoc:documentation></retailDoc:documentation> </retailDoc:annotation> </xs:complexType></pre>

Each Business Object (XSD) must have its own namespace

Topic	Description
Recommendation	Each Business Object must have its own namespace.
Rationale	This is to eliminate conflicts when a service consumer will consume multiple from the same provider and the generate client side code should not have conflict. Each BO having its own namespace also allows versioning of each BO. The file will be located in a directory structure that matches the path portion of the namespace URLs for the top level type that is defined in that file.
Example	targetNamespace="http://www.oracle.com/retail/integration/base/bo/SupplierBO/v1" version="1.0" xmlns="http://www.oracle.com/retail/integration/base/bo/SupplierBO/v1"

Each Business Object (XSD) namespace should not contain application identifiers

Topic	Description
Recommendation	Each Business Object namespace should not contain application identifiers.
Rationale	Business Objects are not tied to any specific retail applications. These are generic business objects that belong to the full retail domain. So the Business Object namespace should not contain application identifiers.
Example	targetNamespace="http://www.oracle.com/retail/integration/base/bo/SupplierBO/v1" version="1.0" xmlns="http://www.oracle.com/retail/integration/base/bo/SupplierBO/v1"

Each Business Object (XSD) root should be annotated

Topic	Description
Recommendation	The XSD should be the source of truth and include the business functional documentation of the element.
Rationale	This is recommended to be similar to other XML standards. The annotation standard is independent of any repository specific requirements for the Business Objects.
Example	<pre><xs:element name="SupplierBO"> < retailDoc:annotation> < retailDoc:documentation> Merchandise Suppliers are suppliers of goods and services to be sold by the retailer to customers </ retailDoc:documentation> </ retailDoc:annotation></pre>

Customization and Extension

Customization and extension are customer side activities. The Oracle Retail release of Functional Artifacts coincides with a Oracle Retail Enterprise Release. Any new Business Objects or changes to existing base Business Objects are handled as described in Chapter 4, "[Artifact Versioning](#)." The packaging schema is discussed in Chapter 2, "[Packaging Structure and Standards](#)."

Business Object customization is defined as changes or extension of the base XSDs made by a customer to satisfy a customer specific business requirement.

Oracle Application Integration Architecture (AIA) and other industry standards have defined an approach using well known tags and packaging locations to separate the custom extensions from the base. This allows the extensions to be preserved as updates to the base are applied. Oracle Retail has implemented the same model.

Business Object Customization Tools and Approaches

The *Oracle Retail Functional Artifact Guide* describes the tool used to generate the Functional Artifacts from the Business Object XSDs. The guide also contains examples and step-by-step instructions through simple use cases.

The *Oracle Retail Integration Bus Implementation Guide* contains a chapter about RIB customization and extension, with examples that include use cases including customization to the Business Objects.

The Retail SOA Enabler Tool uses Functional Artifacts as one of its tools inputs in the process of creating Web services.

Business Object Customization Standards

This section demonstrates the standards used to create and manage functional artifacts, as they relate to the customization and extension of the base business objects (XSDs).

The Functional Artifact Generator tool called the Template Creator is used to create the customization objects and hooks as described in the following example. Using the Template Generator is recommended for performing the basic steps of creating placeholders and imports.

Note: For a step-by-step example, see the *Oracle Retail Functional Artifact Generator Guide*.

Each Business Object schema module must import its custom Business Object schema module:

Topic	Description
Recommendation	Each BO schema must import its custom BO schema module.
Rationale	The custom schema is well defined and in the packaging structure.
Example	<pre>targetNamespace=http://www.oracle.com/retail/integration/base/bo/ASNInBO/v1 version="1.0" xmlns="http://www.oracle.com/retail/integration/base/bo/ASNInBO/v1" xmlns:ExtOfASNInBO=http://www.oracle.com/retail/integration/custom/bo/ExtOfASNInBO/v1 xmlns:retailDoc=http://www.w3.org/2001/XMLSchema xmlns:xs="http://www.w3.org/2001/XMLSchema"> <xs:import namespace="http://www.oracle.com/retail/integration/custom/bo/ExtOfASNInBO/v1" schemaLocation="../../../../custom/bo/ExtOfASNInBO/v1/ExtOfASNInBO.xsd"> </xs:import></pre>

Each BO XSD complexType must have a local element named Custom<Parent Type Name> added.

Topic	Description
Recommendation	Each BO XSD complexType must have a local element named Custom<Parent Type Name> added.
Rationale	A local element named "Custom<Parent Type Name>" exists at the end of every EBO type. For example, CustomASNInBO.
Example	<pre><xs:element maxOccurs="1" minOccurs="0" ref="ExtOfASNInBO:ExtOfASNInItem"> </xs:element></pre>

The Custom<Parent Type Name> must not be recursively defined.

Topic	Description
Recommendation	The Custom<Parent Type Name> must not recursively define a note named Custom<Parent Type Name> within it.
Rationale	A Custom<Parent Type Name> must be one level deep, or in relatively flattened structure (to reduce complexity).
Example	

The custom BO schema module must be named ExtOf<BO>.

Topic	Description
Recommendation	The naming convention for the custom XSD for an BO must be as follows: ExtOf<BO>.
Rationale	The naming convention standardizes the names for namespace, packaging, and tool generation of Objects.
Example	ASNInBO.xsd has a corresponding ExtOfASNInBO.xsd: <pre>xmlns="http://www.oracle.com/retail/integration/base/bo/ASNInBO/v1" xmlns:ExtOfASNInBO="http://www.oracle.com/retail/integration/custom/bo/ExtOfASNInBO/v1"</pre>

Each Business Object schema module must import its localized Business Object schema module.

Topic	Description
Recommendation	Each LocOf< BO > schema must import its localization BO schema module.
Rationale	The localization schema is well defined and in the packaging structure.
Example	<pre>targetNamespace=http://www.oracle.com/retail/integration/base/bo/LocOfASNInBO/v1 version="1.0" xmlns="http://www.oracle.com/retail/integration/base/bo/LocOfASNInBO/v1" xmlns:BrASNInBO=http://www.oracle.com/retail/integration/localization/bo/BrASNInBO/v1 xmlns:InASNInBO=http://www.oracle.com/retail/integration/localization/bo/InASNInBO/v1 xmlns:retailDoc=http://www.w3.org/2001/XMLSchema xmlns:xs="http://www.w3.org/2001/XMLSchema"> <xs:import namespace="http://www.oracle.com/retail/integration/localization/bo/BrASNInBO/v1" schemaLocation="../../../localization/bo/BrASNInBO/v1/BrASNInBO.xsd"> </xs:import> <xs:import namespace="http://www.oracle.com/retail/integration/localization/bo/InASNInBO/v1" schemaLocation="../../../localization/bo/InASNInBO/v1/InASNInBO.xsd"> </xs:import></pre>

Each BO XSD complexType must have a local element named Localization<Parent Type Name> added.

Topic	Description
Recommendation	The naming convention for the custom XSD for an localized BO must be as follows: EOfBr<BO> or EOfIn<BO>.
Rationale	The naming convention standardizes the names for namespace, packaging, and tool generation of Objects.
Example	ASNInBO.xsd has a corresponding EOfBrASNInBO.xsd and EOfInASNInBO: <code>xmlns="http://www.oracle.com/retail/integration/localization/bo/BRASNInBO/v1"</code> <code>xmlns:EOfBrASNInBO="http://www.oracle.com/retail/integration/custom/bo/EOfBrASNInBO/v1"</code>

Localization—Retail Business Objects

The deployment of Oracle Retail applications across the globe often drive requirements to localize the messages that flow among the Oracle Retail applications to support the region specific requirements (such as tax laws).

As localization of Business Objects is performed as part of the localization process, where the end-point APIs are changed or added to per region specific business requirements, localizations are meant to be performed by Oracle Retail or Partners. The localization points are not for use by customers. However, localization customization is possible for use by customers.

This chapter demonstrates the standards used to create and manage functional artifacts as they relate to the localization and extension of the base business objects (XSDs).

The Functional Artifact Generator tool called the Template Creator is used to create the localization objects and hooks as described in the following example. The Template Generator is recommended for performing the basic steps of creating placeholders and imports.

Note: For a step-by-step example, see the *Oracle Retail Functional Artifact Generator Guide*.

Business Objects Localization

Business Object localization is defined as extensions of the base XSDS made by Oracle Retail or partners to satisfy region specific business requirements.

Localization Hooks in Base Business Objects

The following table describes the hooks in base Business Objects.

Reference	Description	Example
Every Base BO XSD imports a LocOf<BO> XSD.	A new placeholder XSD is created for each base Business Object. Every Business Object XSD imports the LocOf<BO> XSD.	<pre> <xs:import namespace="http://www.oracle.com/retail/integration/custom/bo/ExtOfASNInDesc/v1" schemaLocation="../../../../custom/bo/ExtOfASNInDesc/v1/ExtOfASNInDesc.xsd"> <retailDoc:annotation> <retailDoc:documentation>It's a referenced element. For detailed description, please refer referenced element doc.</retailDoc:documentation> </retailDoc:annotation> </xs:import> <xs:import namespace="http://www.oracle.com/retail/integration/base/bo/LocOfASNInDesc/v1" schemaLocation="../../../../base/bo/LocOfASNInDesc/v1/LocOfASNInDesc.xsd"> <retailDoc:annotation> <retailDoc:documentation>It's a referenced element. For detailed description, please refer referenced element doc.</retailDoc:documentation> </retailDoc:annotation> </xs:import> </pre>
Every Base BO XSD complex type has a localization point.	Within each base Business Object, every complex type contains a reference to a placeholder for that complex type within the LocOf for that Business Object.	<pre> <xs:element name="ASNInItem"> <retailDoc:annotation> <retailDoc:documentation>Description is not available.</retailDoc:documentation> </retailDoc:annotation> <xs:complexType> <xs:sequence> <xs:element maxOccurs="1" minOccurs="0" ref="ExtOfASNInDesc:ExtOfASNInItem"> <retailDoc:annotation> <retailDoc:documentation>Provide an extension hook to customize ASNInItem.</retailDoc:documentation> </retailDoc:annotation> </xs:element> <xs:element maxOccurs="1" minOccurs="0" ref="LocOfASNInDesc:LocOfASNInItem"> <retailDoc:annotation> <retailDoc:documentation>Provide an extension hook to localize ASNInItem.</retailDoc:documentation> </retailDoc:annotation> </xs:element> </xs:sequence> </xs:complexType> </pre>

Region Specific Placeholders

The following table describes region specific placeholders.

Reference	Description	Example
LocOfBO imports All Specific Locals	The LocOf XSD is the point at which all specific localization XSDs are imported and referred to. There is one for each region (such as Brazil, India, and China). The ISO standard alpha-2 country code is used as the identifier.	<pre> <xs:schema elementFormDefault="qualified" targetNamespace="http://www.oracle.com/retail/integrati on/base/bo/LocOfASNInDesc/v1" version="1.0" xmlns="http://www.oracle.com/retail/integration/base/bo /LocOfASNInDesc/v1" xmlns:BrASNInDesc="http://www.oracle.com/retail/integra tion/localization/bo/BrASNInDesc/v1" xmlns:InASNInDesc="http://www.oracle.com/retail/integra tion/localization/bo/InASNInDesc/v1" xmlns:retailDoc="http://www.w3.org/2001/XMLSchema" xmlns:xs="http://www.w3.org/2001/XMLSchema"> <retailDoc:annotation> <retailDoc:documentation>This is root element of this document which contains name space definitions for the document elements.</retailDoc:documentation> </retailDoc:annotation> <xs:import namespace="http://www.oracle.com/retail/integration/loc alization/bo/InASNInDesc/v1" schemaLocation="../../../../../../localization/bo/InASNInDesc /v1/InASNInDesc.xsd"> <retailDoc:annotation> <retailDoc:documentation>It's a referenced element. For detailed description, please refer referenced element doc.</retailDoc:documentation> </retailDoc:annotation> </xs:import> </xs:import namespace="http://www.oracle.com/retail/integration/loc alization/bo/BrASNInDesc/v1" schemaLocation="../../../../../../localization/bo/BrASNInDesc /v1/BrASNInDesc.xsd"> <retailDoc:annotation> <retailDoc:documentation>It's a referenced element. For detailed description, please refer referenced element doc.</retailDoc:documentation> </retailDoc:annotation> </xs:import> </xs:schema> </pre>

Reference	Description	Example
<p>Each of the specific localization XSDs will resolve the references with the actual localization specific elements.</p>	<p>For each of the complex types in the region specific XSD, the place to perform the actual localizations.</p>	<pre> <xs:schema elementFormDefault="qualified" targetNamespace="http://www.oracle.com/retail/integrati on/localization/bo/BrASNInDesc/v1" version="1.0" xmlns="http://www.oracle.com/retail/integration/localiz ation/bo/BrASNInDesc/v1" xmlns:retailDoc="http://www.w3.org/2001/XMLSchema" xmlns:xs="http://www.w3.org/2001/XMLSchema"> <xs:import namespace="http://www.oracle.com/retail/integration/cus tom/bo/EOfBrASNInDesc/v1" schemaLocation="../../../../custom/bo/EOfBrASNInDesc/v1 /EOfBrASNInDesc.xsd"> <retailDoc:annotation> <retailDoc:documentation>It's a referenced element.</retailDoc:documentation> </retailDoc:annotation> </xs:import> <xs:element name="BrASNInItem"> <xs:complexType> <xs:sequence> </xs:sequence> </xs:element> </xs:schema> </pre>

Localization Customization

The following table describes the hook for localization customization.

Reference	Description	Example
Each specific localization XSD complex type contains a customization hook.	In each of the specific localizations, a hook back to the customization of that complex type is referenced.	<pre> <xs:schema elementFormDefault="qualified" targetNamespace="http://www.oracle.com/retail/integration/localization/bo/BrASNInDesc/v1" version="1.0" xmlns="http://www.oracle.com/retail/integration/localization/bo/BrASNInDesc/v1" xmlns:retailDoc="http://www.w3.org/2001/XMLSchema" xmlns:xs="http://www.w3.org/2001/XMLSchema"> <xs:import namespace="http://www.oracle.com/retail/integration/custom/EOfBrASNInDesc/v1" schemaLocation="../../../../custom/EOfBrASNInDesc/v1/EOfBrASNInDesc.xsd"> <retailDoc:annotation> <retailDoc:documentation>It's a referenced element.</retailDoc:documentation> </retailDoc:annotation> </xs:import> <xs:element name="BrASNInItem"> <xs:complexType> <xs:sequence> <xs:element maxOccurs="1" minOccurs="0" ref="EOfBrASNInDesc:EOfBrASNInItem"> <retailDoc:annotation> <retailDoc:documentation>Provide an extension hook to customize ASNInItem</retailDoc:documentation> </retailDoc:annotation> </xs:element> </xs:sequence> </xs:complexType> </xs:element> </xs:schema> </pre>

Adding Localization Fields

To add the localization specific fields in a placeholder, the first step is to determine the region specific XSD, which follows the naming convention below.

<CC><BO>.xsd (for example BrASNInDesc), where CC = 2 char ISO country code.

Determine the complex type fields that must be added. Add the fields and generate payloads using the Artifact Generator tool.

Note: See also the *Oracle Retail Functional Artifact Generator Guide*.

Adding Localization Customization Fields

Customization of localization Business Objects follows the same process required for base Business Objects customization.

References

The following is a list of reference materials providing more information on the topics covered in this guide.

- [XML] Extensible Markup Language (XML) 1.0 (Second Edition)
<http://www.w3.org/TR/REC-xml>
- [XMLSchema1] W3C Recommendation, XML Schema Part 1: Structures
<http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/>
- [XMLSchema2] W3C Recommendation, XML Schema Part 2: Datatypes
<http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>
- [OAGINDR] OAGi OAGIS 9.0 Naming and Design Rules Standard version 0.7, published September 30, 2005
- [CCTS] UN/CEFACT Core Components Technical Specification Draft 2.2, published March 31 ,2006.
www.unece.org/cefact/ebxml/CCTS_V2-01_Final.pdf
- [UNCEFACTNDR] UN/CEFACT XML Naming and Design Rules, Draft 2.0, published January 20, 2006
http://www.unece.org/cefact/xml/xml_index.htm
- Oracle Application Integration Architecture - Enterprise Object Library 2.2: Enterprise Business Objects and Messages XML Naming and Design Rules Part No. E12769-01 August 2008.
- ARTS SOA Best Practices Technical Report Version 1.2.0 November 19, 2008 - Candidate Recommendation.
- "Web Service Contract Design and Versioning for SOA," Thomas Erl, et. al., September 2008, Prentice Hall.
- WS-I Basic Profile 1.1.
<http://www.ws-i.org/Profiles/BasicProfile-1.1.html>

Glossary

The following is a list of acronyms used within this guide.

ABCS

Application Business Connector Service

AIA

Application Integration Architecture

ABM

Application Business Message

ABO

Application Business Object

BO

Retail Business Object

EBM

Enterprise Business Message

EBO

Enterprise Business Object

ESB

Enterprise Service Bus

ODI

Oracle Data Integrator

POJO

Plain Old Java Object

RGBU

Retail Global Business Unit

RTG

Retail Technology Group

SOA

Service Oriented Architecture: This term refers to an architectural style of building reliable distributed systems that deliver functionality as services, with additional emphasis on loose coupling between interacting services.