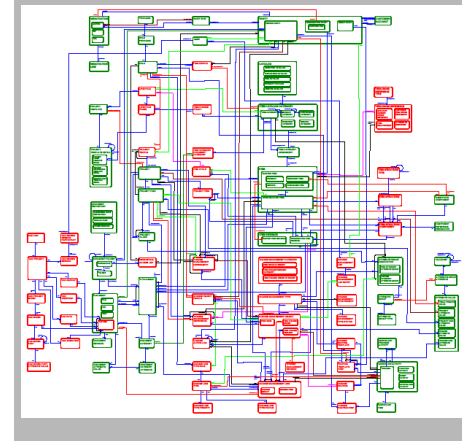


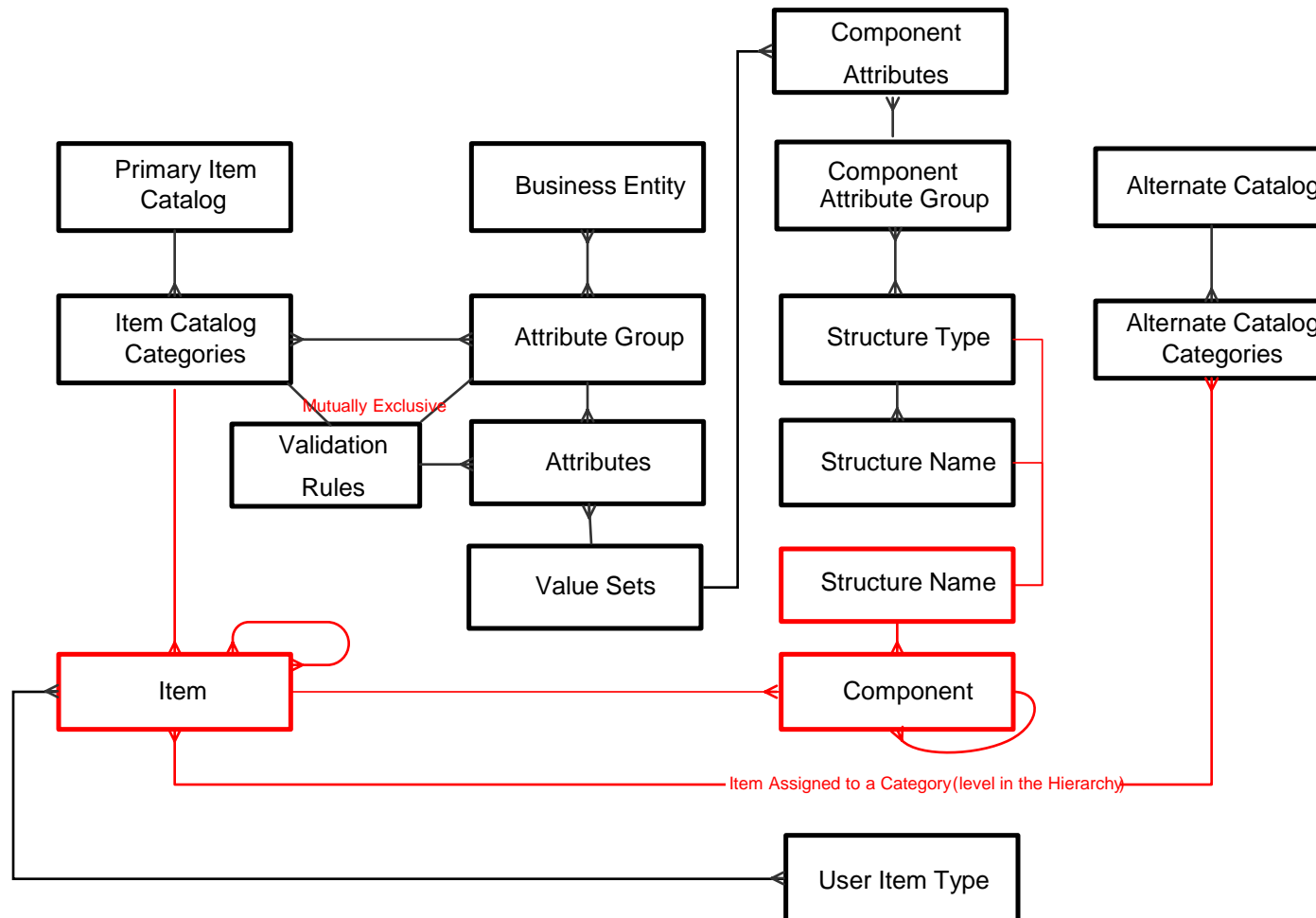
Topics

- PIM Logical Data Model
- SID
- Pricing
- Rules

PIM Logical Data Model



The Core Product Hub Data Model



“Item” is the base record for all Product data



Core Item Values

Item

ORACLE® Item Catalog
Item: Royal JP Play BB-VoIP-Wireless Revision: A
Description: Royal JP Play BB-VoIP-Wireless
Organizations: Mobile Operations (V1)

Home Logout Preferences Help Diagnostics

Item Lifecycle Change Management Configuration Transactions
Specifications Revisions Attachments Organizations People Associations Syndication

Search Item [Go] Advanced Search Shortcuts Create Document [Go]
Actions Update [Go]

Item Catalog Category Communications Class > Promotion Class
Description Royal JP Play BB-VoIP-Wireless

Detailed Description
Long Description Combined BroadBand VoIP and Wireless offering for the Premier Market

Primary Attributes

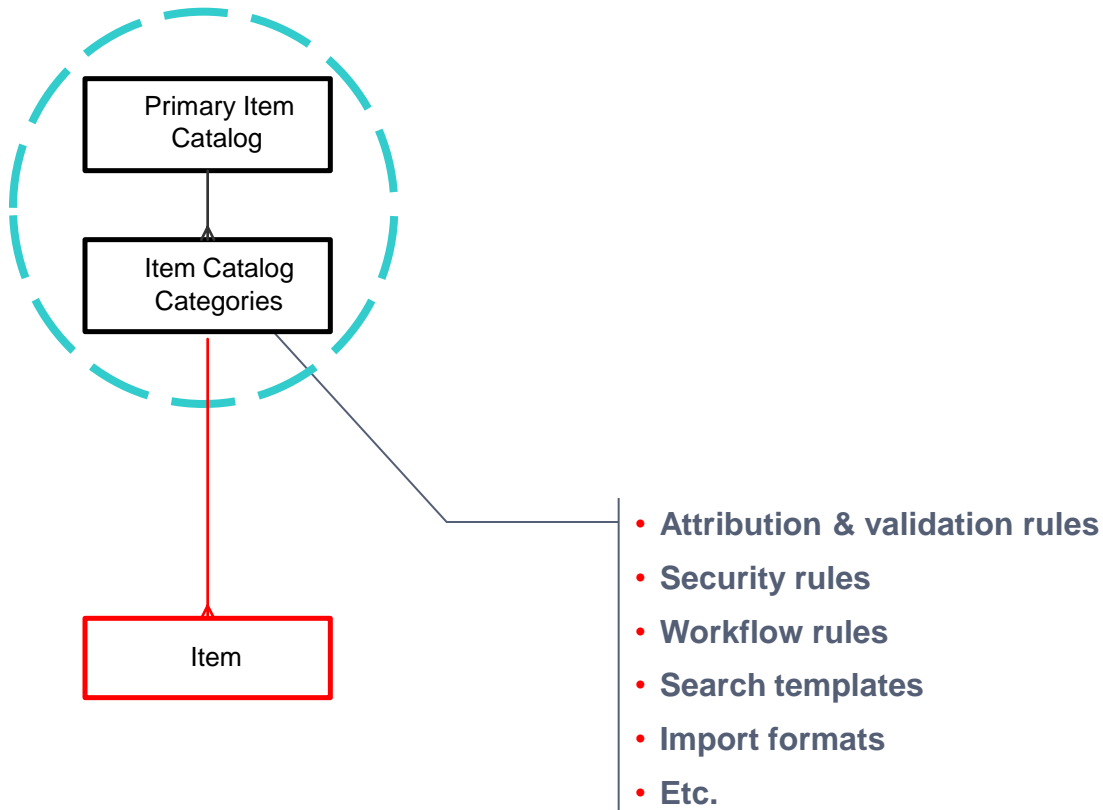
Lifecycle	Basic Comm Product Lifecycle	Lifecycle Phase	Sell
Item Status	Active	User Item Type	ATO model
Approval Status	Approved	Engineering Item	Yes
Primary Unit Of Measure	Each	Secondary Unit of Measure	Primary
Tracking	Primary	Pricing	0
Defaulting	Item specific	Positive Deviation Factor	0
Conversions	Style	Negative Deviation Factor	0
Trade Item Descriptor	Style Item	Creation Date	16-Oct-2009 06:16:39
Created By	Edgar Williams		

Actions Update [Go]

ORACLE®

All Items Belong to ONE Item Catalog Category

Item as an “Instance” of an ICC “class”



Item “Assigned” to a Primary Category

ORACLE® Item Catalog
Item: Royal JP Play BB-VoIP-Wireless Revision: A
Description: Royal JP Play BB-VoIP-Wireless
Organization: Vision Operations (V1)

Recent Home Logout Preferences Help Diagnostics

Item Lifecycle Change Management Configuration Transactions

Specifications Revisions Attachments Organizations People Associations Syndication

Search Item [Advanced Search](#) Shortcuts Create Document

Overview

Item Catalog Category [Communications Class](#) > [Promotion Class](#)
Description **Royal JP Play BB-VoIP-Wireless**

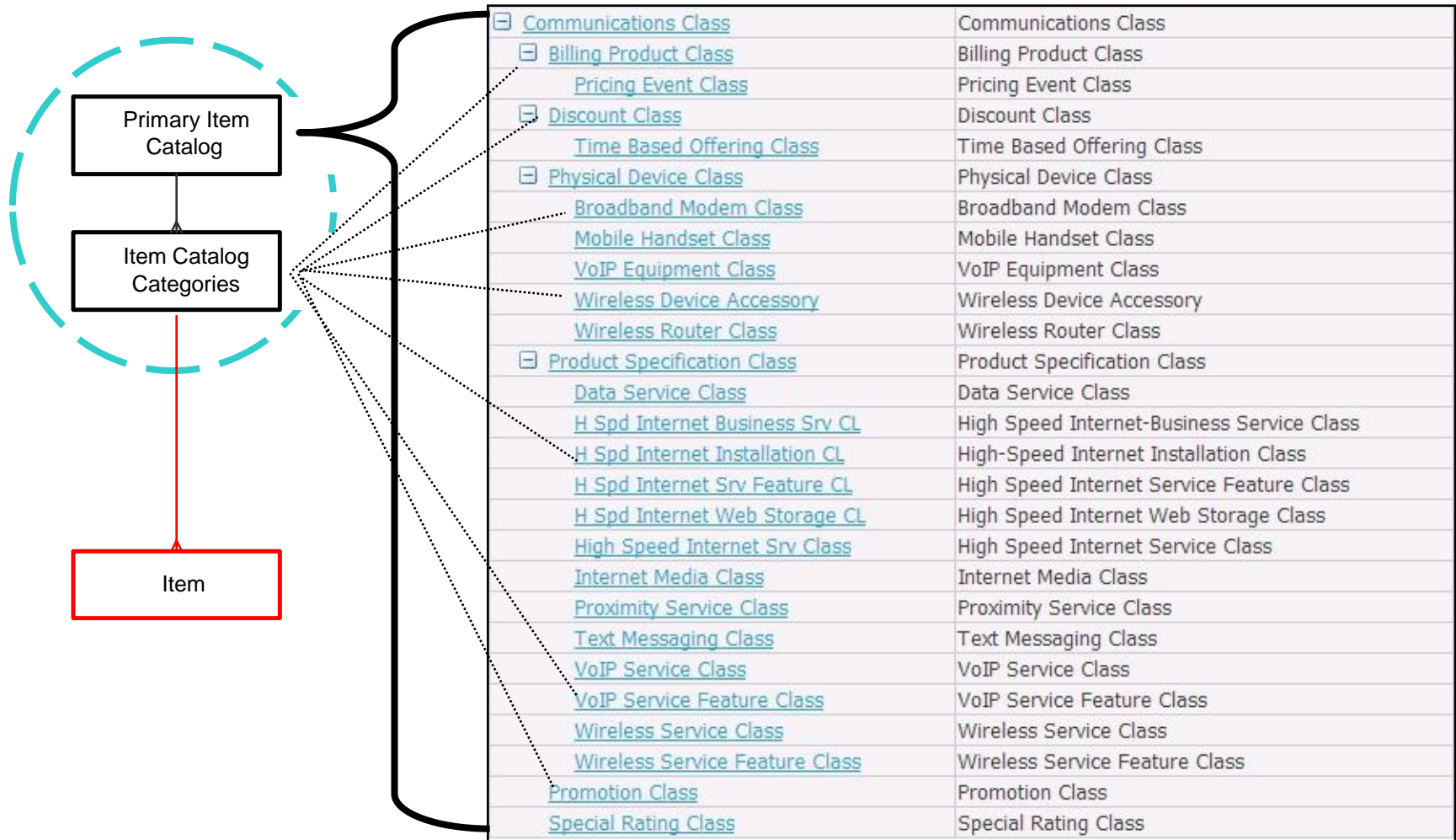
Detailed Description
Long Description **Combined BroadBand VoIP and Wireless offering for the Premier Market**

Primary Attributes

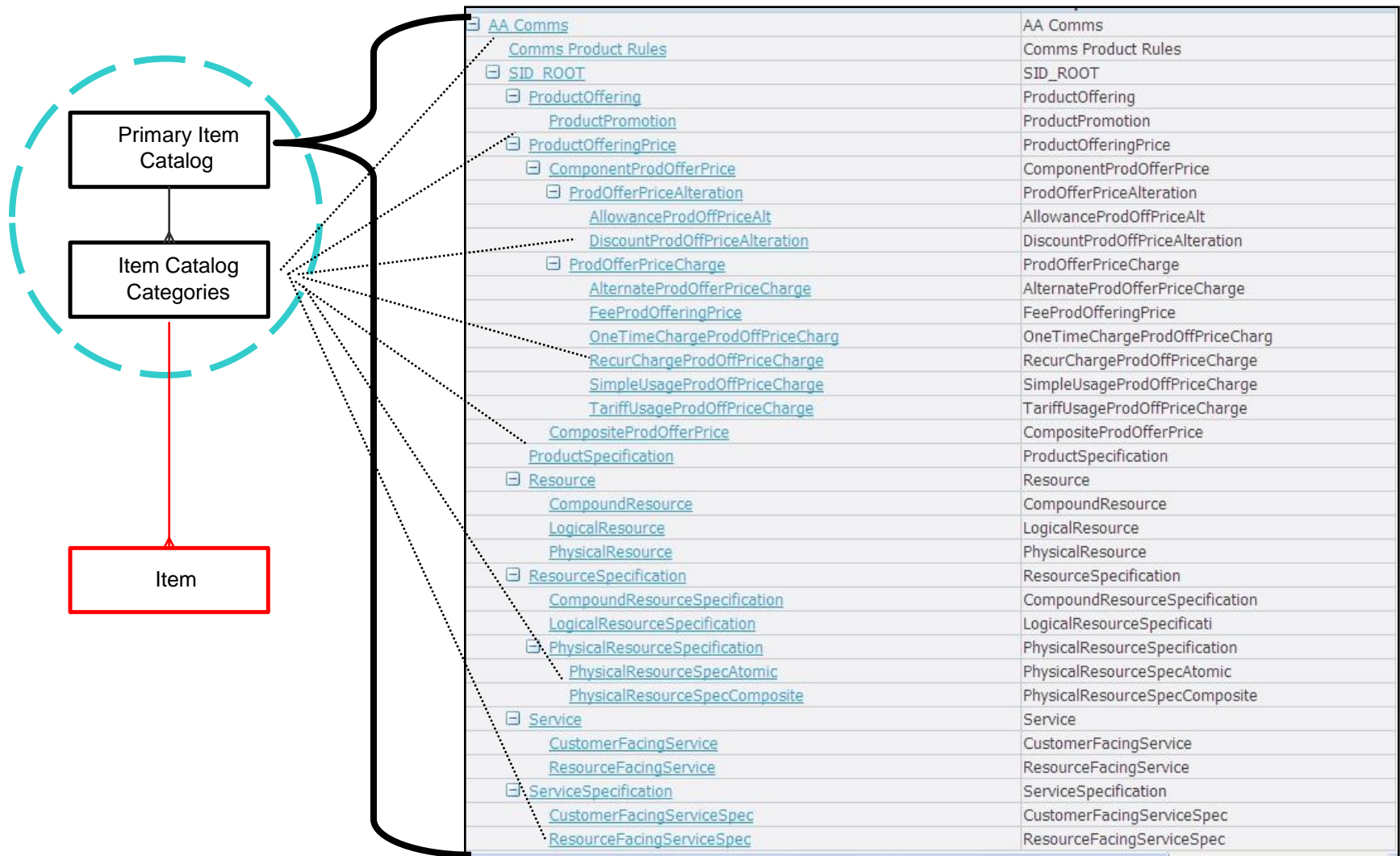
Lifecycle	Basic Comm Product Lifecycle	Lifecycle Phase	Sell
Item Status	Active	User Item Type	ATO model
Approval Status	Approved	Engineering Item	Yes
Primary Unit Of Measure	Each	Secondary Unit of Measure	
Tracking	Primary	Pricing	Primary
Defaulting		Positive Deviation Factor	0
Conversions	Item specific	Negative Deviation Factor	0
Style		Style Item	
Trade Item Descriptor		Creation Date	16-Oct-2009 06:16:39
Created By	Edgar Williams		

Actions

ICC Hierarchy Configured to your needs



ICC Hierarchy Configured to your needs



ICC Hierarchy Configured to your needs

Simple UI for Definition

The screenshot displays the Oracle Item Catalog Administration web application. The top navigation bar includes the Oracle logo and the title 'Item Catalog Administration'. On the right, there are links for Home, Logout, Preferences, Help, and Diagnostics. Below this, a series of tabs represent different sections: Items, Structures, Change Management, Security, Functions, Catalogs, Value Sets, and Publish History. The 'Catalogs' tab is currently selected, and within it, the 'Item Catalog Categories' sub-tab is active. A breadcrumb trail shows 'Items: Item Catalog Categories >'. The main content area is titled 'Create Item Catalog Category' and includes a note: '* Indicates required field'. The form is divided into sections: 'Item Category' with a required 'Catalog' field set to 'New Item Catalog Category'; 'Item Catalog Category Details' with instructions on deactivating categories, and fields for 'Description' (set to 'New Item Catalog Category'), 'Parent Item Category' (set to 'Parent ICC Name'), 'Item Creation Allowed' (checked), 'Default Template', and an 'Inactivate' date field with a calendar icon; and 'Additional Attributes'. At the bottom right of the form are 'Cancel' and 'Apply' buttons. The footer contains a secondary navigation bar with links to 'About this Page' and 'Privacy Statement', and a copyright notice: 'Copyright (c) 2008, Oracle. All rights reserved.'

ORACLE® Item Catalog Administration

Home Logout Preferences Help Diagnostics

Items Structures Change Management Security Functions Catalogs Value Sets Publish History

Item Catalog Categories Cross Reference Types Lifecycle Phases Attribute Groups Templates GTIN Item Type Attribute Usages Match Rules

Items: Item Catalog Categories >

Create Item Catalog Category

* Indicates required field

Item Category

* Catalog

Item Catalog Category Details

To inactivate the Item Catalog Category, enter a current or future date. On that date, the system will also inactivate all active child item catalog categories.

Description Parent Item Category

☒ Item Creation Allowed Default Template

Inactivate

Additional Attributes

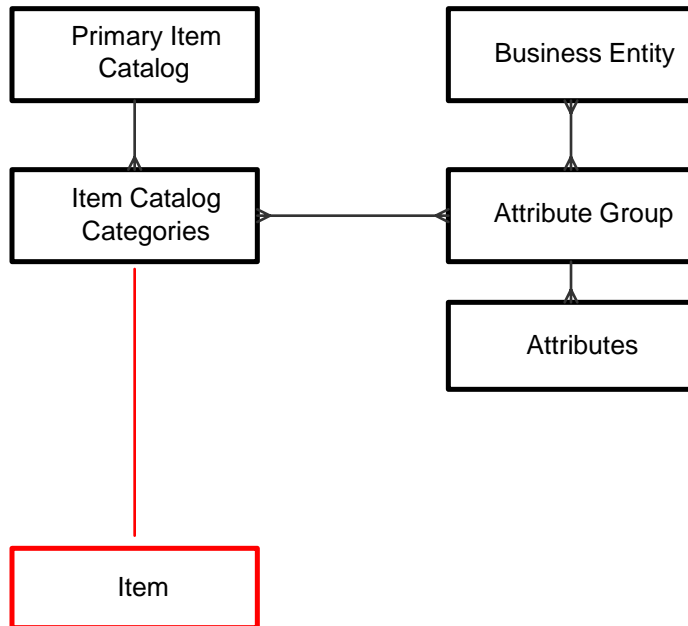
Items Structures Change Management Security Functions Catalogs Value Sets Publish History Home Logout Preferences Help Diagnostics

About this Page Privacy Statement

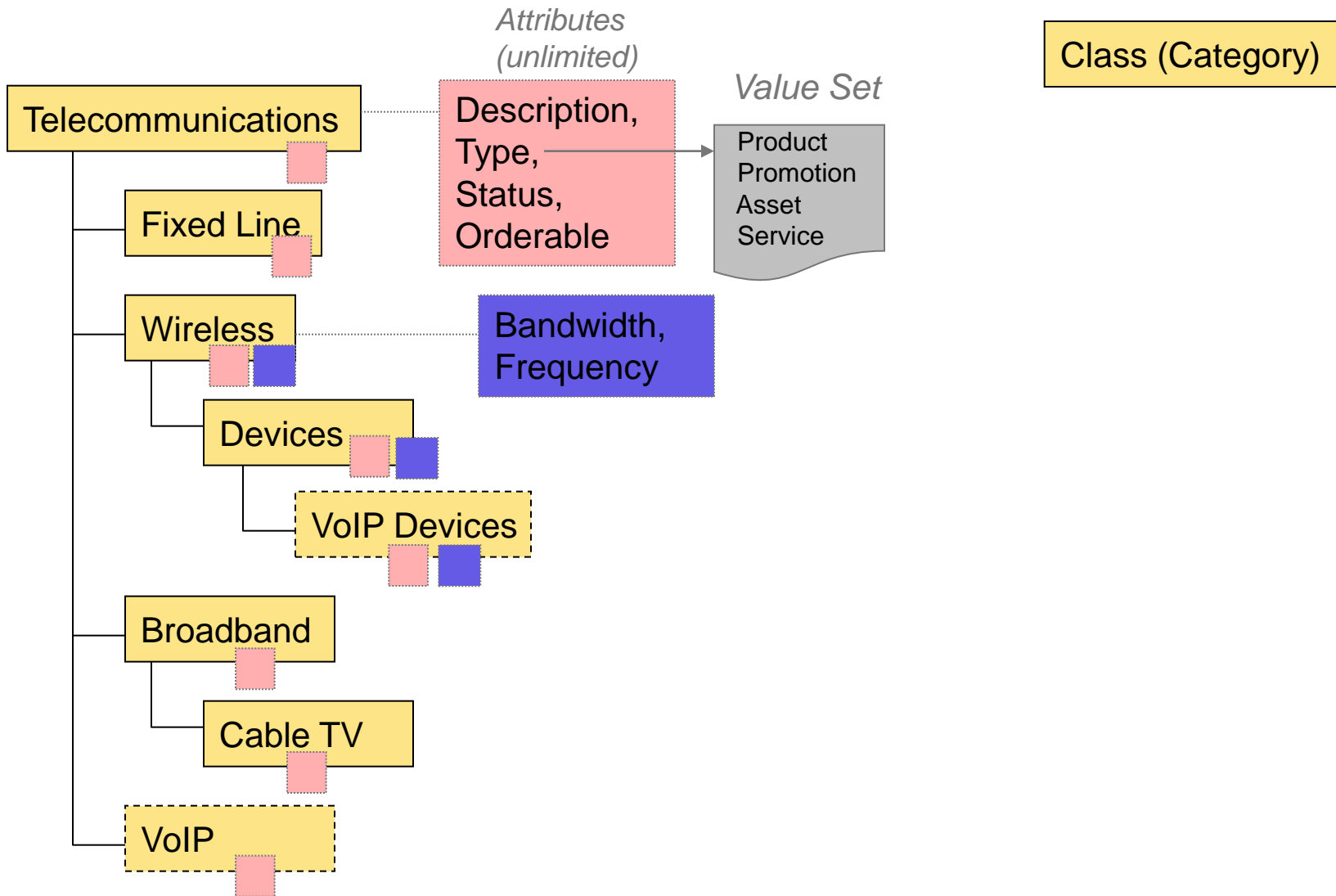
Copyright (c) 2008, Oracle. All rights reserved.

“User Defined Attribute Groups” Mapped to Categories

Provides different data models for each category of item



Attribute Mapping Inheritance



Item Attributes Differ Based on ICC

ORACLE® Item Catalog
Item: Royal JP Play BB-VoIP-Wireless Revision: A
Description: Royal JP Play BB-VoIP-Wireless
Organization: Vision Operations (V1)

Item Lifecycle Change Management Configuration Transactions

Specifications Revisions Attachments Organizations People Associations

Search Item Go Advanced

Overview

Classification and Categories

Transaction Attributes

Comms Attributes - Item Level

Comms Attributes - Item Rev Level

Eligibility Rules

Compatibility Rules

Promotion Upgrade Rules

Physical Attributes

Sales and Order Management

Planning

Purchasing

Inventory/WMS

Manufacturing

Service

Descriptive Attributes

Overview

Item Catalog Category Communications Class > Promotion Class

Description: Royal JP Play BB-VoIP-Wireless

Detailed Description

Primary Attributes

Lifecycle Basic Co

Item Status Active

Approval Status Approv

Primary Unit Of Measure Each

Tracking Primary

Defaulting

Conversions Item sp

Style

Trade Item Descriptor

Created By Edgar W

ORACLE® Item Catalog
Item: Call Forwarding Recurring Revision: A
Description: Call Forwarding Recurring
Organization: Vision Operations (V1)

Item Lifecycle Change Management Configuration Transactions

Specifications Revisions Attachments Organizations People Associations Syndication

Search Item Go Advanced Search

Overview

Item Catalog Category Communications Class > Product Specification Class > Wireless Service Feature Class

Description: Call Forwarding Recurring

Detailed Description

Primary Attributes

Lifecycle

Item Status Active

Approval Status Approved

Primary Unit Of Measure Each

Tracking Primary

Defaulting

Conversions Item specific

Style

Trade Item Descriptor

Created By Steve Williams

Pricing

Compatibility Rules

Eligibility Rules

Physical Attributes

Sales and Order Management

Planning

Purchasing

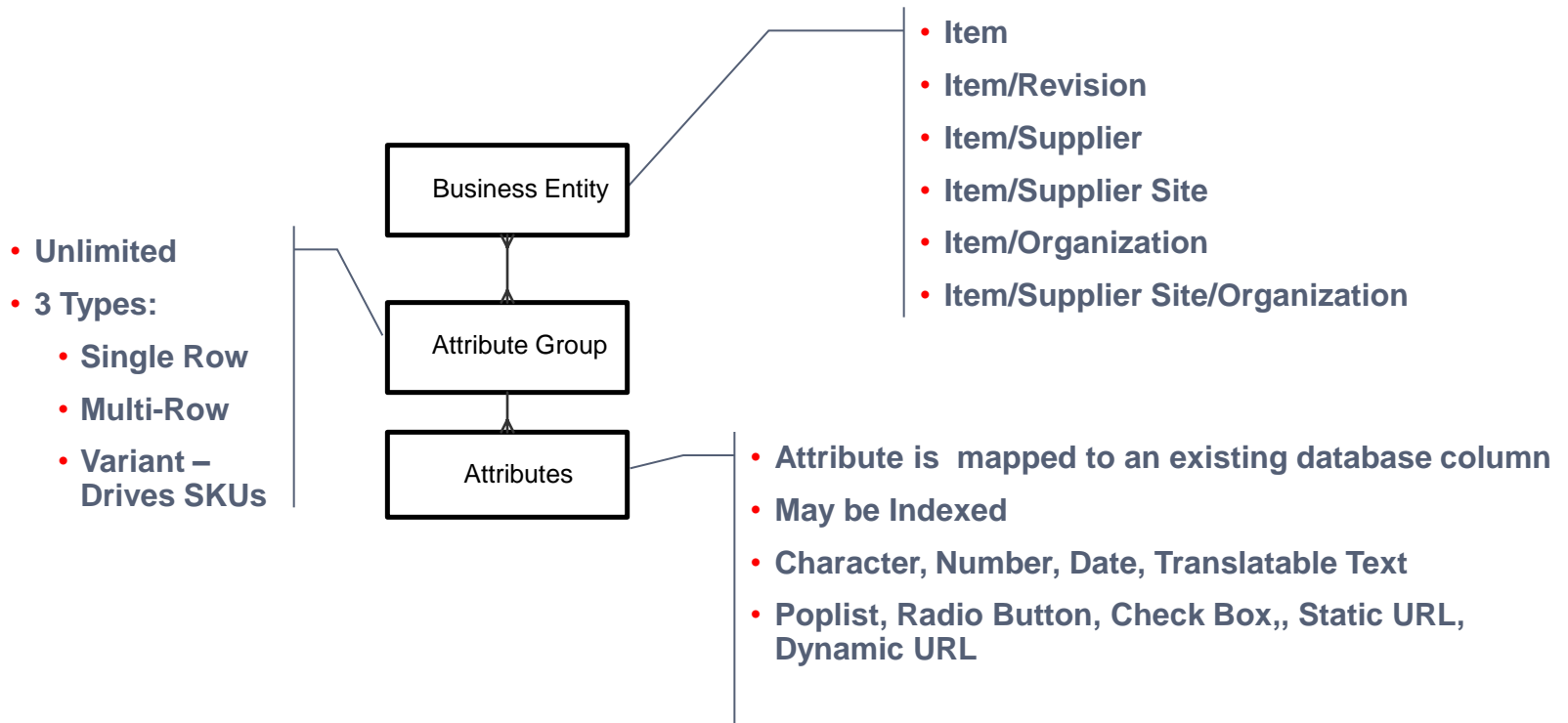
Inventory/WMS

Manufacturing

Service

Descriptive Attributes

User Defined Attributes (UDAs)



Product Definition Attributes Example

Price Type		Orderable	No
Structure Type	Customizable	Sales Product	No
Service Product	No	Product Level	
Format		Parent Product	
Quantity		Pricing Code	None
Product Line		Entity Type	Promotion
Product Details: Marketing			
Targeted Industry		Targeted Min Age	
Targeted Max Age		Targeted Postal Code	
Targeted Country			
Product Details: Service			
MTBF		MTTR	
Field Replaceable	No	Return if Defective	No
Tool	No		
Product Details: Logistics			
Vendor Part Number		Item Size	
Lead Time		Ship Carrier	
Ship Method		Allocate Below Safety	No
Auto Substitute	No	Auto Allocate	No
Auto Explode	No	Shipping Required	No
Product Details: Additional Information			
Division Code SAP		Global Product Identifier	
Serialized	No	Model Product	No
Taxable	No	Tax Subcomponent Flag	No
Project Resource	No	Compensable	No
Communications:Product Info			
Track As Asset	Yes	Network Element Type	
Compound Product	No	Special Rating Max Items	
Special Rating Type		Composition Type	
Success Dependency		Billable	No
Billing Type		Product Type	
Service Instance Enabled	No	Fulfillment Item Code	
MSISDN Required	No		

Attribute Group Name

**Attributes
(for this group only)**

Pricing/Billing Attributes Example

utilizing “MultiRow” attribute groups

Details	
Priority	1
Product Type	Subscription
Applies To	
Multi-RUM Support	No

ID	Name	Tax When	Advance Bill	Charge Cycle Fees in advance of billing cycle	Unit	Advance cycle fee on billing date
ALDF_ACT_6524	ALDF Activation	No Taxes	No			No
ALDF_MRC_6524	ALDF Subscription	No Taxes	No			No
ALDF_USG_6524	ALDF Usage	No Taxes	No			No

Rate Data					
ID	Name	Overrides Credit Limit	Discount Bracket Based On	Resource Balance ID	

Event Map			
Event	Measured By	Rate Plan Structure	Rate Plan ID
/event/billing/product/purchase	Occurrence	Single Rate Plan	ALDF_ACT_6524
/event/billing/product/fee/cycle/cycle_forward_monthly	Occurrence	Single Rate Plan	ALDF_MRC_6524
/event/delayed/session/telco	Occurrence	Single Rate Plan	ALDF_USG_6524

Balance Impacts																							
		Rate	Rate		Resource		Impact	ERA	Traffic	Contract					Fixed	Scaled	Price		Pricing	Dynamic			
Seq	Rate Plan ID	ID	Min	Max	ID	GLID	Category	ID	Direction	Type	Sponsorable	Proratable	Discountable	Grantable	Amount	Amount	List Name	Price	Commit Type	Discount Method	Units	Start	End
1	ALDF_ACT_6524				840		Loyalty				No	No	No	No		10							08-May-2009
2	ALDF_ACT_6524				840		No_Loyalty				No	No	No	No		300							08-May-2009
3	ALDF_MRC_6524				840			BG			No	No	No	No		2							08-May-2009
4	ALDF_MRC_6524				840						No	No	No	No		65							08-May-2009
8	ALDF_USG_6524				840				F2Mobile		No	No	No	No		0.33							08-May-2009
6	ALDF_USG_6524				840			BG	F2GSM		No	No	No	No		0.34							08-May-2009
7	ALDF_USG_6524				840				F2Fixed		No	No	No	No		0.1							08-May-2009
5	ALDF_USG_6524				840			BG	F2Fixed		No	No	No	No		0.1							08-May-2009

1	ALDF_ACT_6524			840	Loyalty					No	No	No	No	10							08-May-2009	
2	ALDF_ACT_6524			840	No_Loyalty					No	No	No	No	300							08-May-2009	
3	ALDF_MRC_6524			840			BG			No	No	No	No	2							08-May-2009	
4	ALDF_MRC_6524			840						No	No	No	No	65							08-May-2009	
8	ALDF_USG_6524			840				F2Mobile		No	No	No	No	0.33							08-May-2009	
6	ALDF_USG_6524			840			BG	F2GSM		No	No	No	No	0.34							08-May-2009	
7	ALDF_USG_6524			840				F2Fixed		No	No	No	No	0.1							08-May-2009	
5	ALDF_USG_6524			840			BG	F2Fixed		No	No	No	No	0.1							08-May-2009	

Defining Attribute Groups

ORACLE® Item Catalog Administration

Home Logout Preferences Help Diagnostics

Items Structures Change Management Security Functions Catalogs Value Sets Publish History

Item Catalog Categories Cross Reference Types Lifecycle Phases **Attribute Groups** Templates GTIN Item Type Attribute Usages Match Rules

Items: Attribute Groups >

Create Attribute Group for Item Management

* Indicates required field

* Internal Name

* Display Name

Description

Behavior

* Number of columns in the page layout

Language Translation Capable

Business Entities

Select All | Select None

Select Name	Style to SKU	View	Privilege	Raise Attribute Change Event
			Edit	Pre Post
<input type="checkbox"/> Item Supplier Site	Defaulting	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> Item Revision		<input type="text"/>	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> Item	Defaulting	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> Item Supplier	Defaulting	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> Item Supplier Site Organization	Defaulting	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> Item Organization	Defaulting	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/>

Cancel! Apply and Add Attributes Apply

Defining an Attribute in a Group

ORACLE® Item Catalog Administration

Home Logout Preferences Help Diagnostics

Items Structures Change Management Security Functions Catalogs Value Sets Publish History

Item Catalog Categories | Cross Reference Types | Lifecycle Phases | **Attribute Groups** | Templates | GTIN | Item Type | Attribute Usages | Match Rule

Items: Attribute Groups > Create Attribute Group >

Create Attribute

* Indicates required field

* Internal Name: NewAttribute01

* Display Name: A New Attribute

* Sequence: 10

Tip:

Data Type: Char

* Column: C_EXT_ATTR1

☒ Enabled

☐ Required

Display as: Text Field

☐ Indexed

Value Set

Value Set Name:

Default Value

Default Value:

Language Translation Capable

Char

Char

Number

Standard Date

Standard DateTime

Translatable Text

Text Field

Checkbox

Dynamic URL

Hidden

Radio Group

Static URL

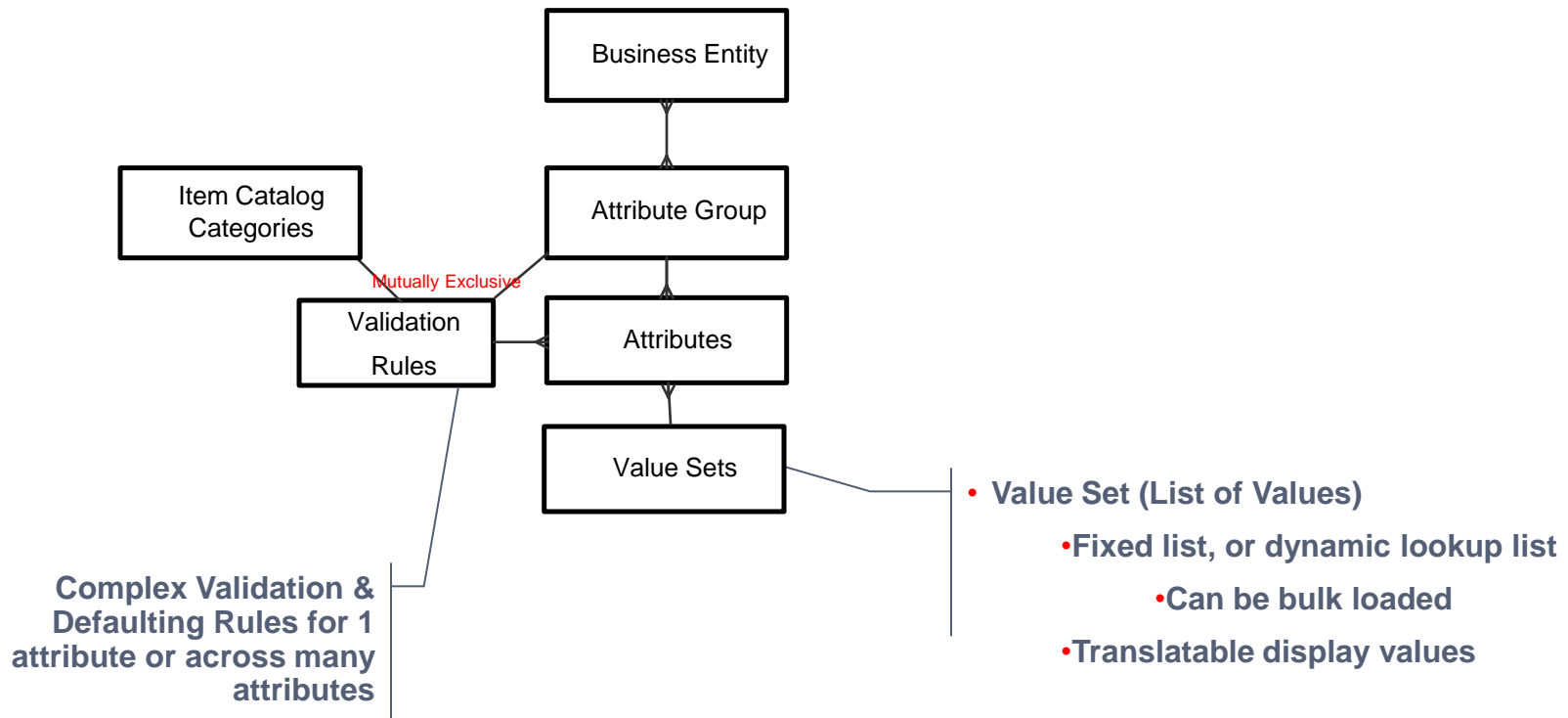
Text Area

Text Field

Apply and Add Another

Cancel Apply

Validation of User Defined Attributes (UDAs)



Rule Set for Complex Validations

Name **Retail_price**

Description Positive Retail Price

Internal Name **retail_price**

Type **Validations**

Item Catalog Category **Canned, Glass Fruit**

Business Entities **Item**

Rules **Attributes** **Rule Sets Where Included** **Where Used**

Search

Specify parameters and values to filter the data that is displayed in your results set.

☒ Show table data when all conditions are met.

☐ Show table data when any condition is met.

Name

Description

Using Attribute Group

UsingAttribute

Go **Clear** Add Another **A**

Select: **Add Above** **Add Below** **Delete** | **Update Sequence**

[Select All](#) | [Select None](#)

Select Sequence	Name	Description	Attribute Groups	Attributes	Update Copy
<input type="checkbox"/>	1	CGF001 CGF Positive Retail Price	retail_item_information	standard_unit_retail	

Update Validation Rule

* Name

Description

* Severity

If Expression

☒ TIP If Expression evaluates to true for validation to occur.

Validation Condition

☒ TIP Validation fails when Condition evaluates to False, passes if it evaluates to True.

*

Explanation Message

☒ TIP Enter Attribute Values by surrounding name with \$. Example: \$PhysicalAttributes.Length\$

Rules Can Drive UI Behaviour

ORACLE® Item Catalog
Item: 4912345679901234 Revision: 0
Organization: DE Country Catalogue (DEX)

Recent Home Logout Preferences Help Diagnostics

Item Lifecycle Change Management Configuration Transactions

Specifications Revisions Attachments Organizations People Associations Syndication

Error
Qty of HDMI inputs must be greater than 0 when HDMI = Yes

Update Television Specifications

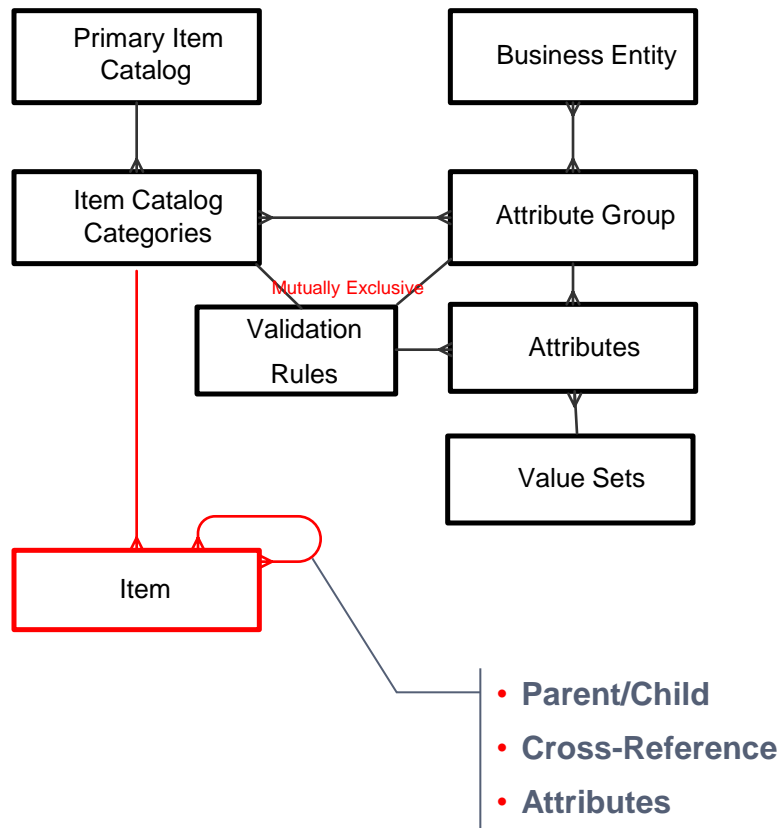
Cancel Apply

Television Main Specifications

Manufacturer	Sony	Screen Size (in)	40
Screen Size (cm)	102	Horizontal Resolution (dpi)	1920
calculated from inches		<input type="checkbox"/> Electronic Program Guide	
Vertical Resolution (dpi)	1080	Frequency	50 Hz
Contrast Ratio (X:1)	16000		
<input checked="" type="checkbox"/> HDMI			
HDMI Qty			

Television Extras

Item/Item Relationships



Item Relationships

Relation Type

ORACLE® Item Catalog
Item: A-210309-427 Revision: A
Organization: Vision Operations (V1)

Home Logout Preferences Help Diagnostics

Item Lifecycle Change Management Configuration Transactions

Specifications Revisions Attachments Organizations People Associations

Item: Associations >

Cross References

Related Items

Update

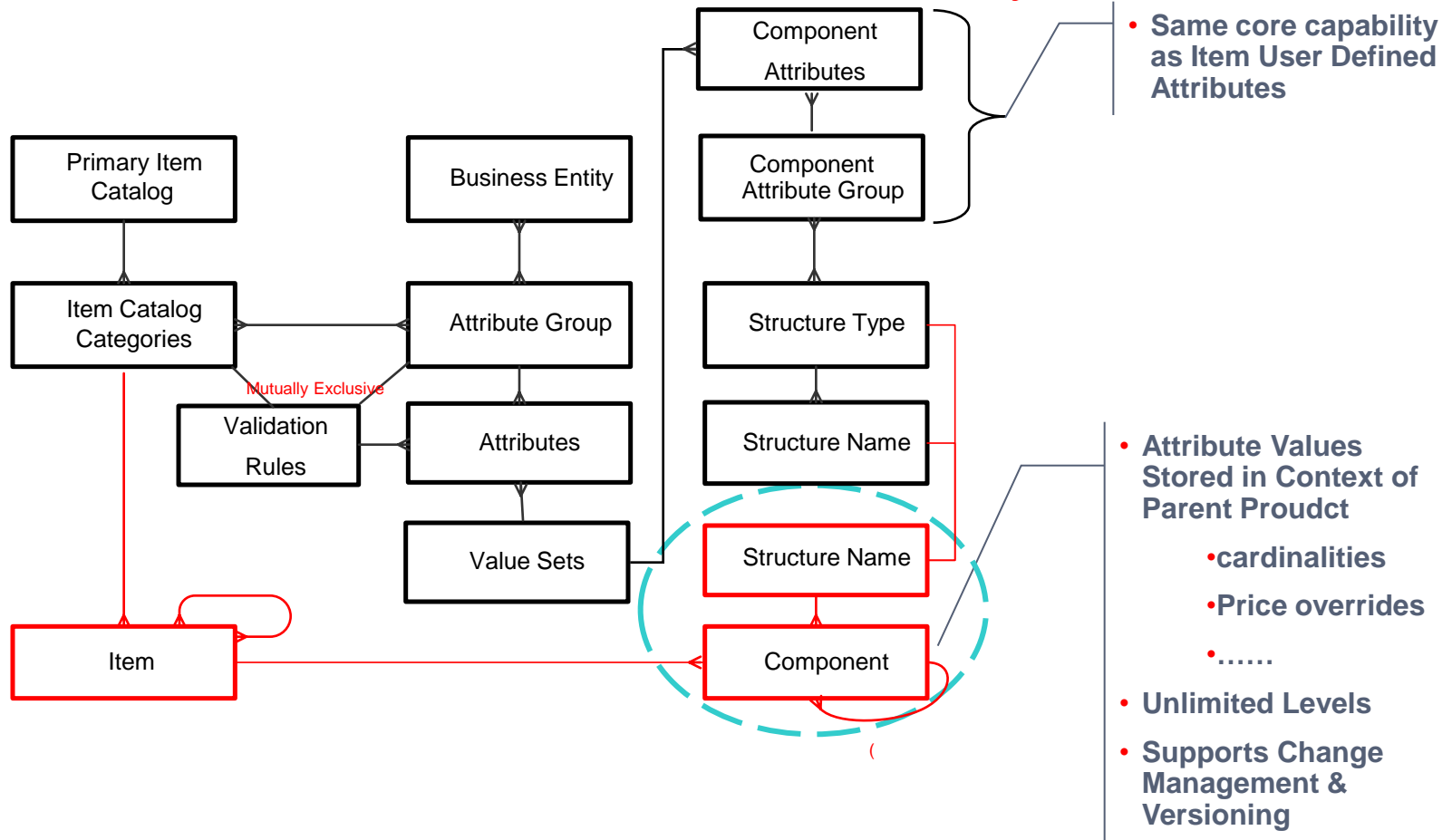
To Item	Description	Type	Reciprocal	Planning Enabled	Effectivity Dates	Planning Details	Additional Attributes
A-210309-701	DOOR ASSY 'N' DATA LINK	Substitute	Yes	No			

Derived Related Items

From Item	Description	Type	Reciprocal	Planning Enabled	Effectivity Dates
No results found.					

Product Configuration “Structures”

parent/child, contains, uses, hasRelation, used by...



PIM - Product Workbench

Power UI for product administrators

Product bundling through
Drag and drop, overrides,
exclusion rules, "ctrl" multi
select,
Ctrl+z undo...

The screenshot shows the Oracle Product Workbench interface. On the left, a tree view under 'Organizations' shows 'Vision Oper...' expanded, listing various product components like 'Sky is the Limit Broadband ...', 'Basic Internet Package for ...', 'Premium Internet Package ...', 'Wireless Router', '50 Text Messages free for ...', 'Wireless Voice Service Fea...', 'Call Forwarding Recuring', 'Call Waiting Recuring', 'Wireless Caller ID Recuring', 'VOIP Core Service', 'VOIP Recuring Discount', 'VOIP Monthly 50% Discoun...', and 'Royalty Play Broadband-Vo...'. A red callout points to this tree with the text 'Favorite Items for quick navigation C'. The main workspace displays 'Vision Operations-Royalty Play BB-VoIP-Wireless(A-A)' with a table of components: Royalty Play BB-VoIP-Wireless, VOIP Core Bundle, Broadband Bundle, H Spd Inet Activation Discount, Wireless Service Plan, and VOIP Recuring Discount. A red callout points to this table with the text 'Work area supports multiple structures simultaneously, Comparisons where used...'. Below the table, a detailed view for 'VOIP Core Bundle' is shown, including fields for Number, Revision, Item Catalog Category, Primary Unit of Measure, Lifecycle, Item Status, Engineering, and User Item Type. A red callout points to this detailed view with the text 'Seamless navigation to html UI'. Another window titled 'Vision Operations-VOIP Core Bund...' is open, showing a similar table for 'VOIP Core Bundle' with components like VOIP Laptop Phone, VOIP Core Service, VOIP Adaptor, and VOIP Phone. A red callout points to this window with the text 'Seamless navigation to html UI'. A red callout points to the top right of the interface with the text 'Product bundling through Drag and drop, overrides, exclusion rules, "ctrl" multi select, Ctrl+z undo...'. The bottom of the interface shows a 'Done' button and 'Total Component' label.

Favorite Items for quick navigation C

Work area supports multiple structures simultaneously, Comparisons where used...

Seamless navigation to html UI

Seamless navigation to html UI

ORACLE®

Reusable Product Components and Configurations

building blocks

Component	Description	Category
[-] Wireless Service Plan	Wireless Service Plan	Product Specification Class
[-] Wireless Voice Srv Features	Wireless Voice Service Features	Product Specification Class
[-] Wireless Voice Mail Recurring	Wireless Voice Mail Recurring	Wireless Service Feature...
[-] Wireless Caller ID Recurring	Wireless Caller ID Recurring	Wireless Service Feature...
[-] Call Waiting RC Disc	Call Waiting Recuring Discount	Discount Class
[-] Call Waiting Recuring	Call Waiting Recuring	Wireless Service Feature...
[-] Call Forwarding RC Disc	Call Forwarding Recuring Disc...	Discount Class
[-] Call Forwarding Recuring	Call Forwarding Recuring	Wireless Service Feature...
[-] Wireless Voice Service	Wireless Voice Service	Product Specification Class
[-] Wireless Service Options	Wireless Service Options	Wireless Service Class
[-] Premium Wireless 800	Premium Wireless 800	Wireless Service Class
[-] Basic Wireless 550	Basic Wireless 550	Wireless Service Class
[-] Wireless Service Disc Options	Wireless Service Discount Opti...	Discount Class
[-] Wireless First Month Discount	Wireless First Month Discount	Discount Class
[-] Prem Wireless RC 10% Disc	Premium Wireless Recuring 1...	Time Based Offering Class
[-] Prem Wless First 3 Mths Disc	Premium Wireless First 3 Mont...	Discount Class
[-] Minutes Usage Discount	Minutes Usage Discount	Discount Class
[-] Text Messaging Service	Text Messaging Service	Product Specification Class
[-] Text Messaging Usage	Text Messaging Usage	Text Messaging Class
[-] Text Messaging Options	Text Messaging Options	Text Messaging Class
[-] SMS Usage Discount	SMS Usage Discount	Discount Class
[-] 50 Msgs free First 3 Mths Disc	50 Text Messages free for First...	Discount Class
[-] Special Rating Product Options	Special Rating Product Options	Special Rating Class
[-] Friends	Friends	Special Rating Class
[-] Family	Family	Special Rating Class
[-] Colleagues	Colleagues	Special Rating Class
[-] Wireless Srv Device Options	Wireless Service Device Options	Mobile Handset Class
[-] Wireless Proximity Service	Wireless Proximity Service	Product Specification Class
[-] Proximity Service Usage	Proximity Service Usage	Proximity Service Class
[-] Proximity Service RC Disc	Proximity Service Recuring Di...	Time Based Offering Class
[-] Proximity Service Recuring	Proximity Service Recuring	Proximity Service Class
[-] Unlimited Mobile Internet	Unlimited Mobile Internet	Data Service Class
[-] Mobile content product	Mobile content product	Data Service Class
[-] Bluetooth Headset	Bluetooth Headset	Wireless Device Accessory

Component	Description	Category
[-] VOIP Core Bundle	VOIP Core Bundle	Product Specification Class
[-] VOIP Laptop Phone	VOIP Laptop Phone	VoIP Equipment Class
[-] VOIP Core Service	VOIP Core Service	Product Specification Class
[-] VOIP Fax Service	VOIP Fax Service	VoIP Service Feature Class
[-] VOIP Service Options	VOIP Service Opti...	VoIP Service Class
[-] Basic VOIP	Basic VOIP	VoIP Service Class
[-] VOIP w/ unlimited calls	VOIP w/ unlimited...	VoIP Service Class
[-] VOIP Caller ID	VOIP Caller ID	VoIP Service Feature Class
[-] VOIP Voicemail	VOIP Voicemail	VoIP Service Feature Class
[-] VOIP Adaptor	VOIP Adaptor	VoIP Equipment Class
[-] VOIP Phone	VOIP Phone	VoIP Equipment Class

Component	Description	Category
[-] Broadband Bundle	Broadband Bundle	Product Specification Class
[-] Internet Modem Options	Internet Modem Options	Broadband Modem Class
[-] Dynex Modem	Dynex Modem	Broadband Modem Class
[-] Motorola Modem	Motorola Modem	Broadband Modem Class
[-] Broadband Service	Broadband Service	Product Specification Class
[-] Internet Media Service	Internet Media Service	Product Specification Class
[-] Internet Content on Demand	Internet Content on Demand	Internet Media Class
[-] Internet Video on Demand	Internet Video on Demand	Internet Media Class
[-] Internet Secure Firewall	Internet Secure Firewall	H Spd Internet Srv Feature...
[-] Internet Email Options	Internet Email Options	H Spd Internet Srv Feature...
[-] Electronic Mail	Electronic Mail	H Spd Internet Srv Feature...
[-] Internet Email Service	Internet Email Service	Product Specification Class
[-] Internet Email	Internet Email	H Spd Internet Srv Feature...
[-] H Spd Internet Options	High Speed Internet Options	High Speed Internet Srv Cl...
[-] Prem H Spd Internet Rec	Premium High Speed Internet...	High Speed Internet Srv Cl...
[-] Elite H Spd Internet Rec	Elite High Speed Internet Re...	High Speed Internet Srv Cl...
[-] Basic H Spd Internet Rec	Basic High Speed Internet R...	High Speed Internet Srv Cl...
[-] Wireless Router	Wireless Router	Wireless Router Class
[-] H Spd Internet Activation	High Speed Internet Activation	Pricing Event Class
[-] H Spd Internet Installation	High Speed Internet Installation	H Spd Internet Installation CL

Using the Building Blocks

Each Item's
Class

Component	Description	Category
Royalty Play BB-VoIP-Wireless	Royalty Play Broadband-VoIP-Wireless	Promotion Class
Broadband Bundle	Broadband Bundle	Product Specification Class
H Spd Inet Activation Discount	High Speed Internet Activation Discount	Discount Class
VOIP Core Bundle	VOIP Core Bundle	Product Specification Class
VOIP Monthly 50% Disc Time Ltd	VOIP Monthly 50% Discount Time Limited	Time Based Offering Class
VOIP Recurring Discount	VOIP Recurring Discount	Discount Class
Wireless Service Plan	Wireless Service Plan	Product Specification Class

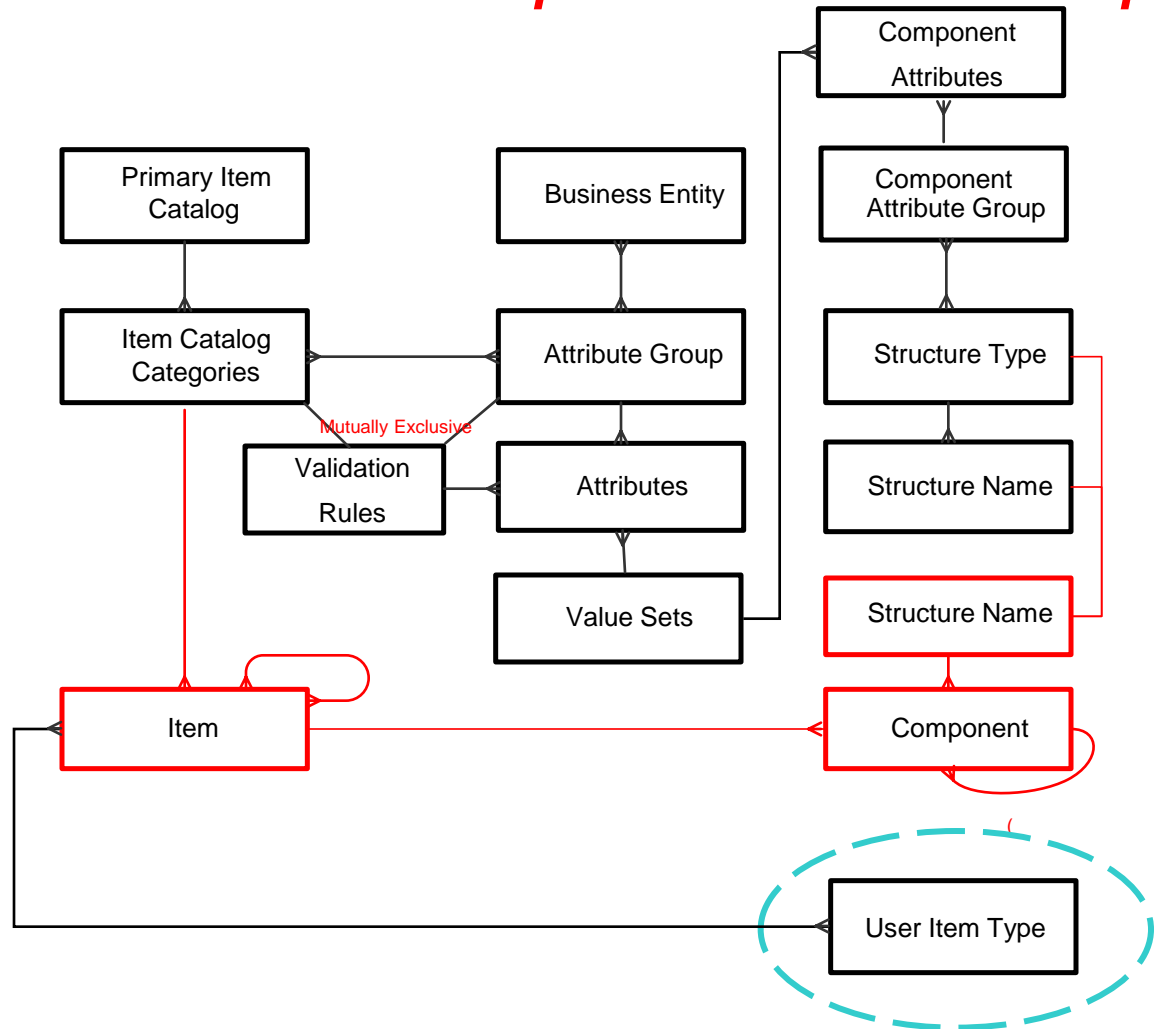
Component	Description	Category
Royalty Play BB-VoIP-Wireless	Royalty Play Broadband-VoIP-Wireless	Promotion Class
Broadband Bundle	Broadband Bundle	Product Specification Class
Broadband Service	Broadband Service	Product Specification Class
H Spd Internet Options	High Speed Internet Options	High Speed Internet Srv ...
Internet Email Options	Internet Email Options	H Spd Internet Srv Featu...
Internet Media Service	Internet Media Service	Product Specification Class
Internet Secure Firewall	Internet Secure Firewall	H Spd Internet Srv Featu...
H Spd Internet Activation	High Speed Internet Activation	Pricing Event Class
H Spd Internet Installation	High Speed Internet Installation	H Spd Internet Installatio...
Internet Modem Options	Internet Modem Options	Broadband Modem Class
Dynex Modem	Dynex Modem	Broadband Modem Class
Wireless Router	Wireless Router	Wireless Router Class
H Spd Inet Activation Discount	High Speed Internet Activation Discount	Discount Class
VOIP Core Bundle	VOIP Core Bundle	Product Specification Class
VOIP Adaptor	VOIP Adaptor	VoIP Equipment Class
VOIP Core Service	VOIP Core Service	Product Specification Class
VOIP Caller ID	VOIP Caller ID	VoIP Service Feature Class
VOIP Fax Service	VOIP Fax Service	VoIP Service Feature Class
VOIP Service Options	VOIP Service Options	VoIP Service Class
VOIP Voicemail	VOIP Voicemail	VoIP Service Feature Class
VOIP Laptop Phone	VOIP Laptop Phone	VoIP Equipment Class
VOIP Phone	VOIP Phone	VoIP Equipment Class
VOIP Monthly 50% Disc Time Ltd	VOIP Monthly 50% Discount Time Limited	Time Based Offering Class
VOIP Recurring Discount	VOIP Recurring Discount	Discount Class
Wireless Service Plan	Wireless Service Plan	Product Specification Class
Bluetooth Headset	Bluetooth Headset	Wireless Device Accessory
Mobile content product	Mobile content product	Data Service Class
Unlimited Mobile Internet	Unlimited Mobile Internet	Data Service Class
Wireless Proximity Service	Wireless Proximity Service	Product Specification Class
Proximity Service RC Disc	Proximity Service Recurring Discount	Time Based Offering Class
Proximity Service Recurring	Proximity Service Recurring	Proximity Service Class
Proximity Service Usage	Proximity Service Usage	Proximity Service Class
Wireless Srv Device Options	Wireless Service Device Options	Mobile Handset Class
Wireless Voice Service	Wireless Voice Service	Product Specification Class
Special Rating Product Options	Special Rating Product Options	Special Rating Class
Text Messaging Service	Text Messaging Service	Product Specification Class
Wireless Service Disc Options	Wireless Service Discount Options	Discount Class
Wireless Service Options	Wireless Service Options	Wireless Service Class
Wireless Voice Srv Features	Wireless Voice Service Features	Product Specification Class

"Items"

ORACLE

User Item Type

control of allowable parent/child relationships



User Item Type

control of allowable parent/child relationships

Update Component Type Rule

Parent Item Type **ProductPromotion**

Select Component Item Type:

[Select All](#) | [Select None](#)

Select	Component Item Type	Description
<input type="checkbox"/>	BundledProductOffering	BundledProductOffering
<input type="checkbox"/>	SimpleProductOffering	SimpleProductOffering
<input type="checkbox"/>	ComponentProdOfferPrice	ComponentProdOfferPrice
<input type="checkbox"/>	CompositeProdOfferPrice	CompositeProdOfferPrice



Update Component Type Rule

Parent Item Type **CompositeProductSpecification**

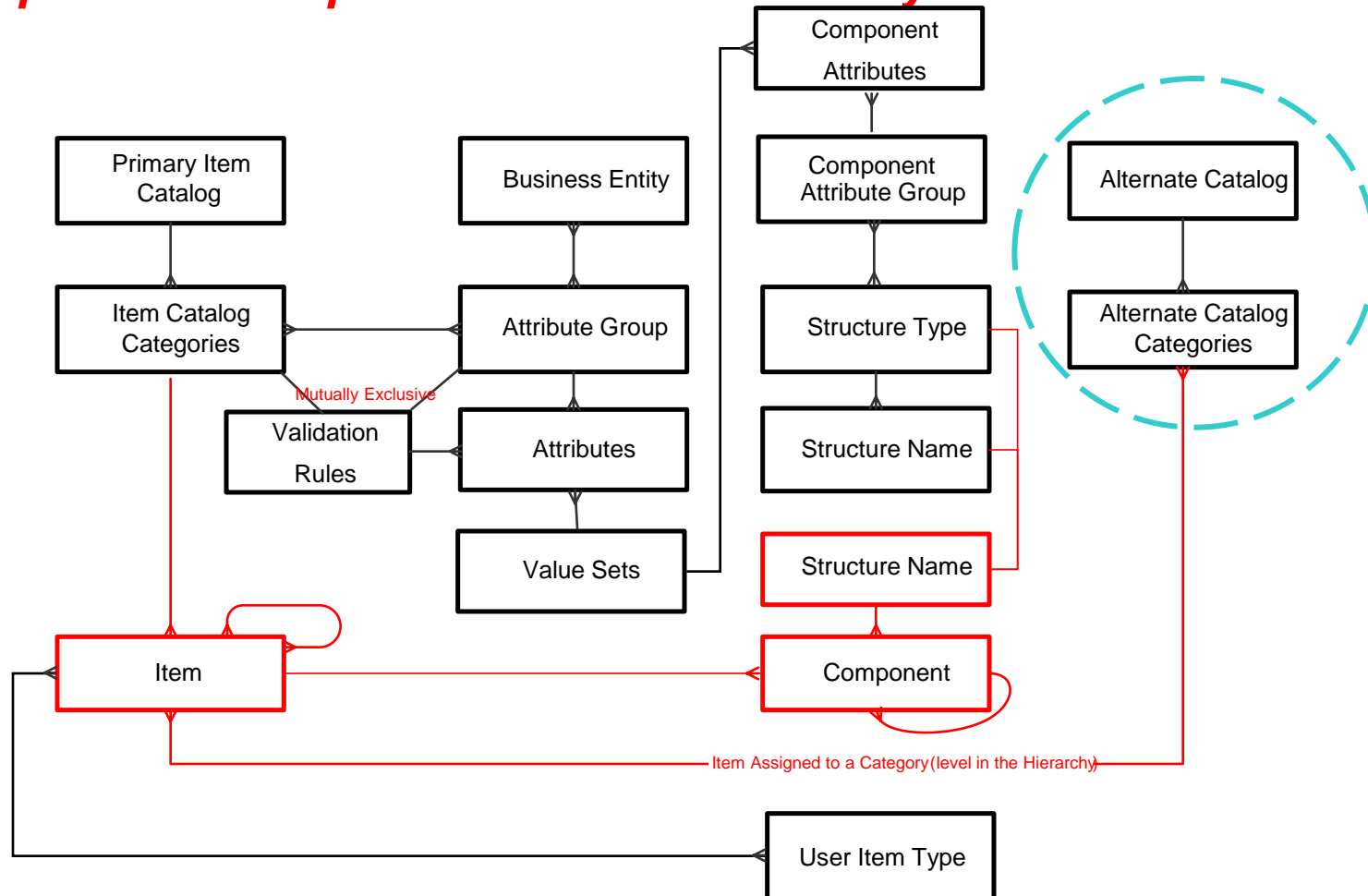
Select Component Item Type:

[Select All](#) | [Select None](#)

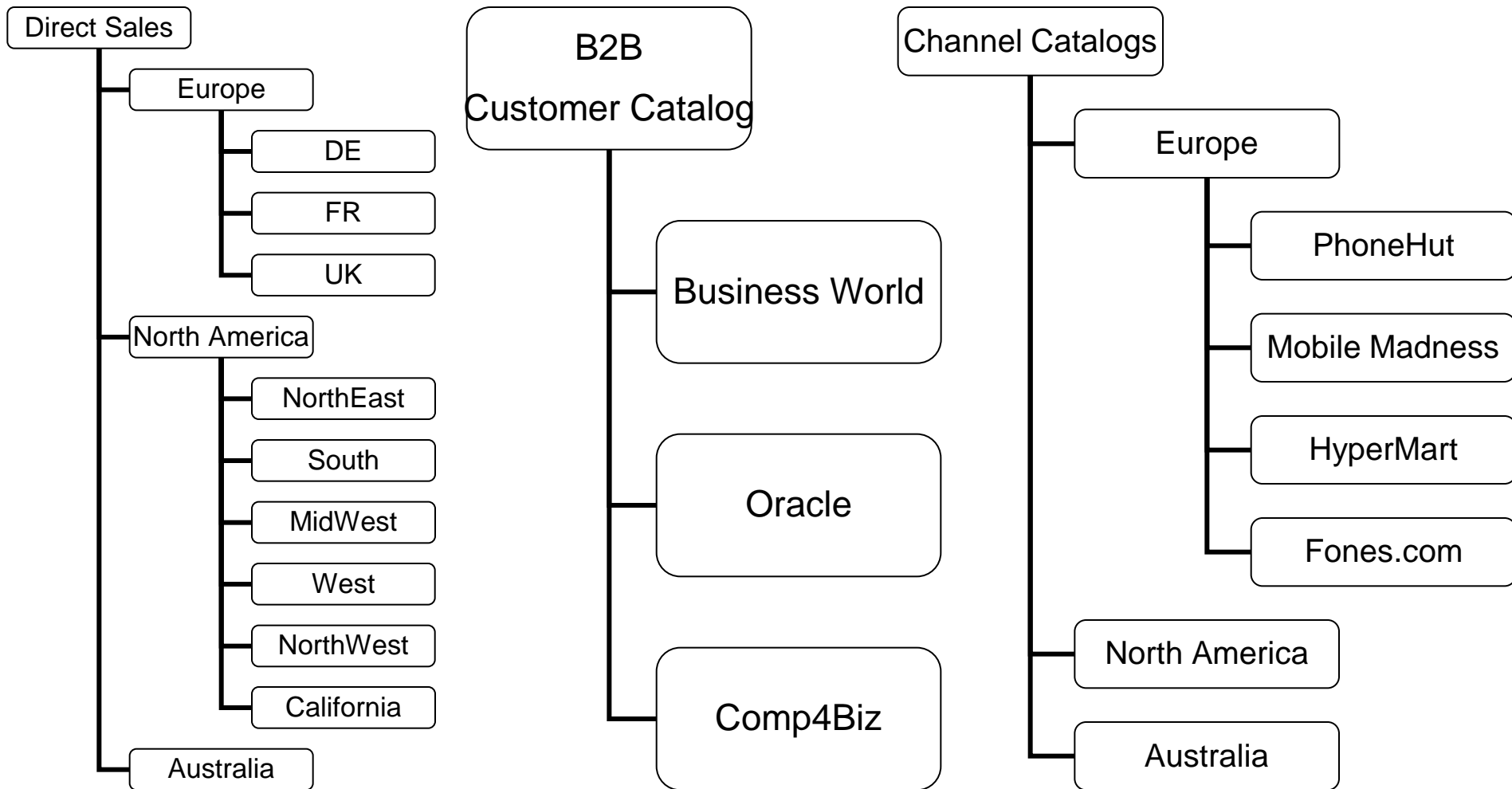
Select	Component Item Type	Description
<input type="checkbox"/>	CompositeProductSpecification	CompositeProductSpecification
<input type="checkbox"/>	AtomicProductSpecification	AtomicProductSpecification
<input type="checkbox"/>	CompoundResourceSpecification	CompoundResourceSpecification
<input type="checkbox"/>	PhysicalResourceSpecAtomic	PhysicalResourceSpecAtomic
<input type="checkbox"/>	PhysicalResourceSpecComposite	PhysicalResourceSpecComposite

Unlimited Alternate Hierarchies (Catalogs)

provide multiple classifications for any item



Alternate Hierarchies Example



As modelled in Product Hub

Direct Sales	Direct Sales
Europe	Europe
DE	DE
FR	FR
UK	UK
North America	North America
North West	North West
South	South
MidWest	MidWest
California	California
Western US	Western US
Australia	Australia
B2B Customer Catalogs	B2B Customer Catalogs
Business World	Business World
Oracle	Oracle
Comp4Biz	Comp4Biz
Retail Channel Catalogs	Retail Channel Catalogs
Europe Channel	Europe Channel
Phone Hut	Phone Hut
Mobile Madness	Mobile Madness
HyperMart	HyperMart
Fones.com	Fones.com
North America Channel	North America Channel
Australia Channel	Australia Channel

Item Mapped to Unlimited Number of Catalogs

ORACLE® Item Catalog
Item: Royal JP Play BB-VoIP-Wireless Revision: A
Description: Royal JP Play BB-VoIP-Wireless
Organization: Vision Operations (V1)

Recent Home Logout Preferences Help Diagnostics

Item Lifecycle Change Management Configuration Transactions






Specifications | Revisions | Attachments | Organizations | People | Associations | Syndication

Overview Search [Advanced Search](#) Shortcuts

Classification and Categories

Item Catalog Category [Communications Class](#) > [Promotion Class](#)

Category Assignments

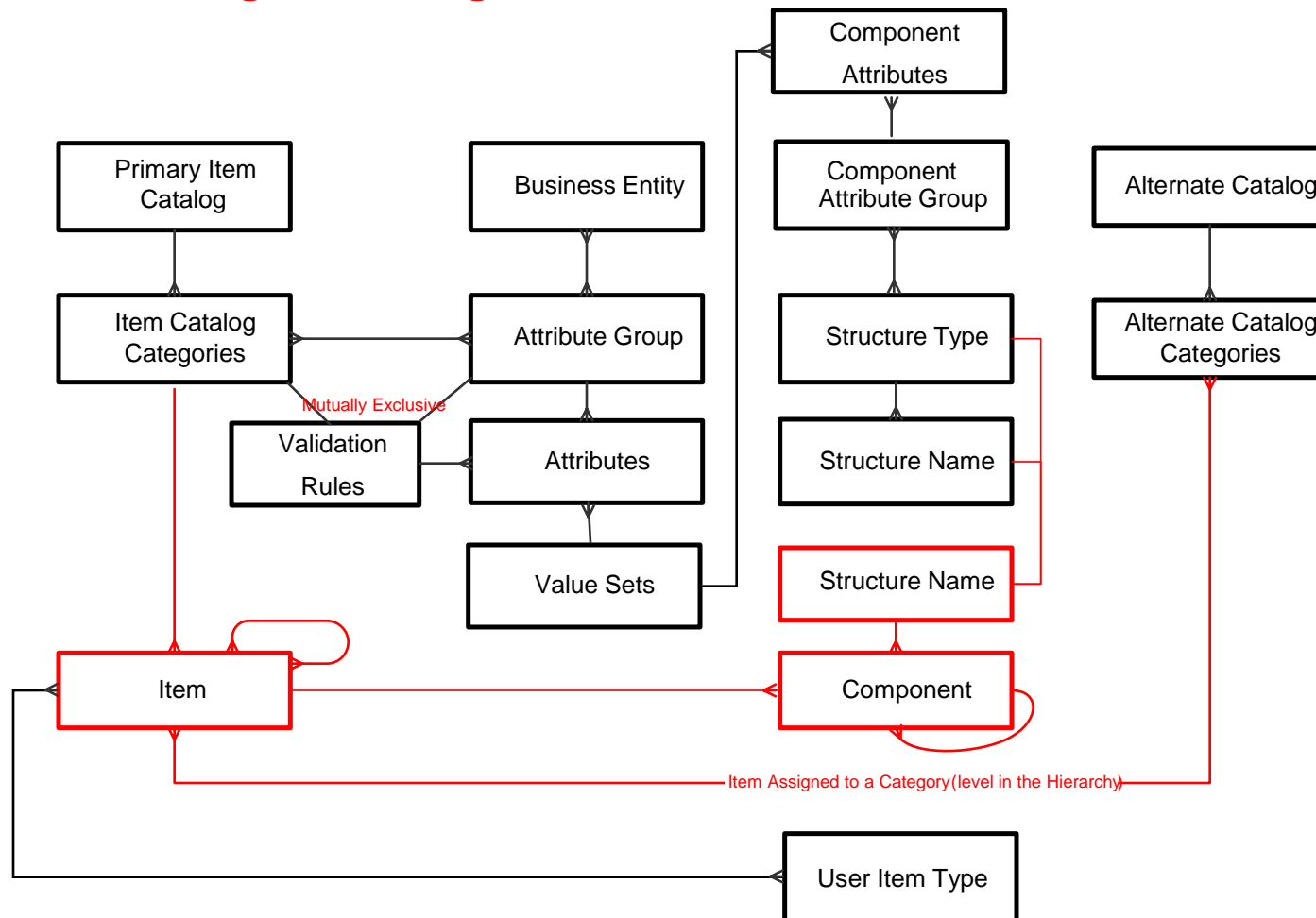
Catalog	Browse	Controlled At	Category	Category Description
Inv.Items		Org Level	Inv.Items > NEW.MISC	Uncategorized
Product		Master Level	Product > 1000000 > 3115	Default
JP Comms		Master Level	JP Comms > Direct Sales > Australia	Australia
JP Comms		Master Level	JP Comms > Direct Sales > Europe > UK	UK
JP Comms		Master Level	JP Comms > Retail Channel Catalogs > Europe Channel > Fones.com	Fones.com

Item Lifecycle Change Management Configuration Transactions Recent Home Logout Preferences Help Diagnostics

About this Page

Summary: Configurable, Flexible, Upgradable

with self-generating user interface



PIM SID Mapping



Product Model and SID Compliance

- Good compliance
 - PIM DH Core Model is very flexible in its support for various types of product modelling
 - With exception of Telco only applications, Oracle delivers “generic” models that can be configured to meet industry specific models
 - UNSPCC
 - NATO
 - SID
 -
 - see next slides
- Some differences in concepts and naming schemes
 - But all major concepts are covered in both models

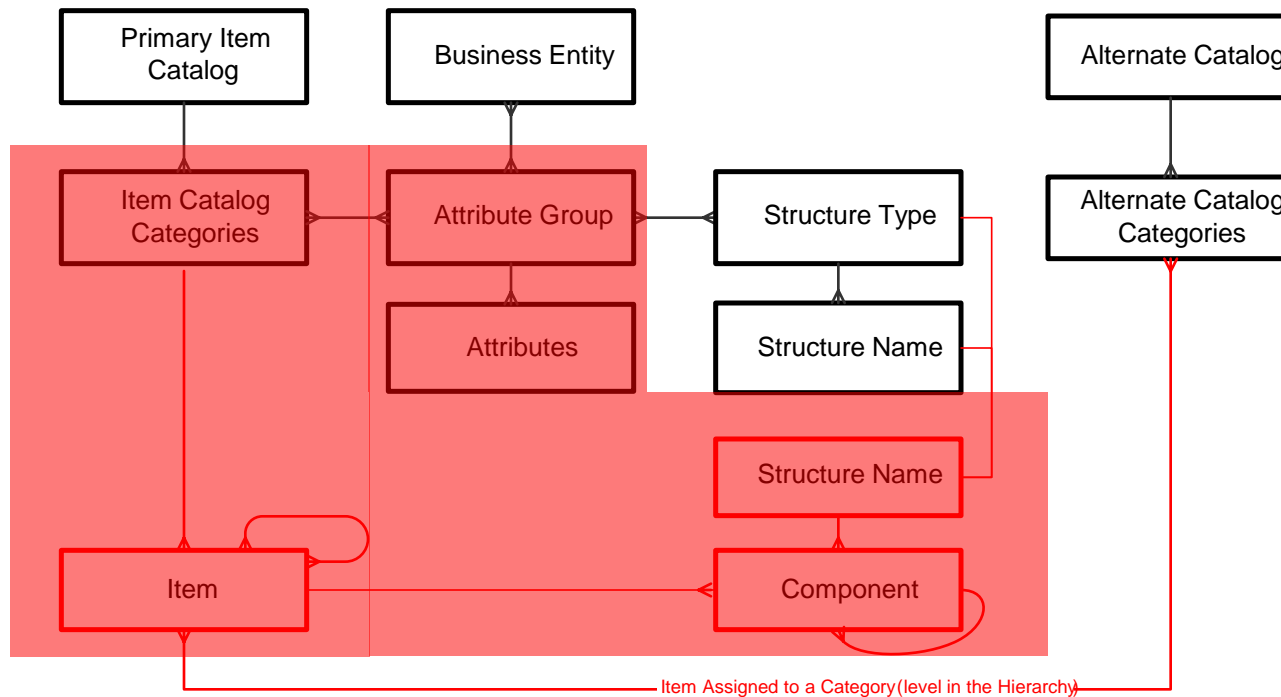
Product / SID Key Term Comparison

Summary Overview

SID	Oracle Product Hub
Product	*
Product Offering	Item with Structure
Product Specification	Item
Product Catalog	Primary and alternate Catalogs
Product Component	Item
Product Spec Characteristic	Item Attribute / Category combination (assigned to appropriate category to distinguish product types)
Product Characteristic	Attribute Value
Product Offering Price	Attribute Group or Item
Bundled Product Offering	Item with Structure
Product Bundle	Item with Structure

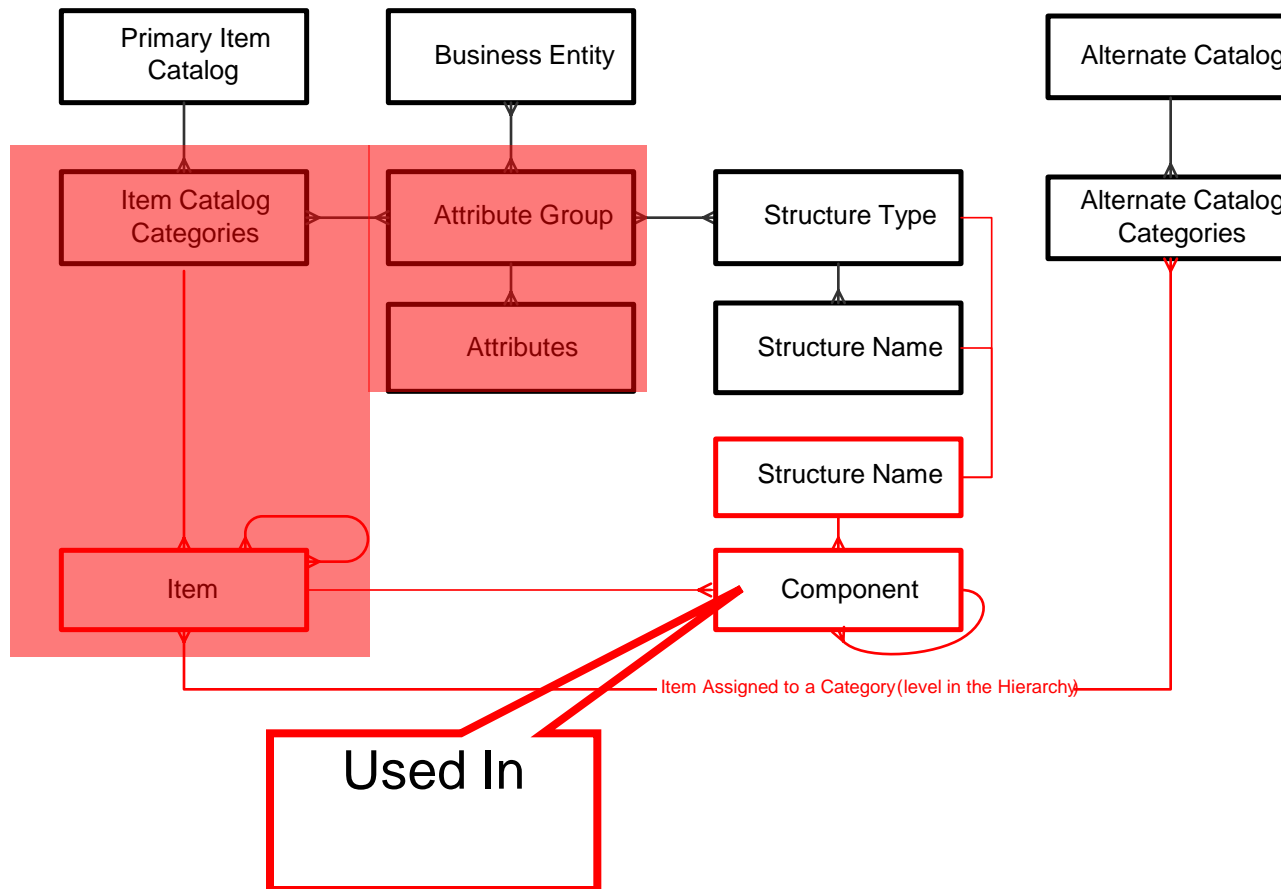
SID Mapping

Product Offering, Bundled Product Offering, Product Bundle



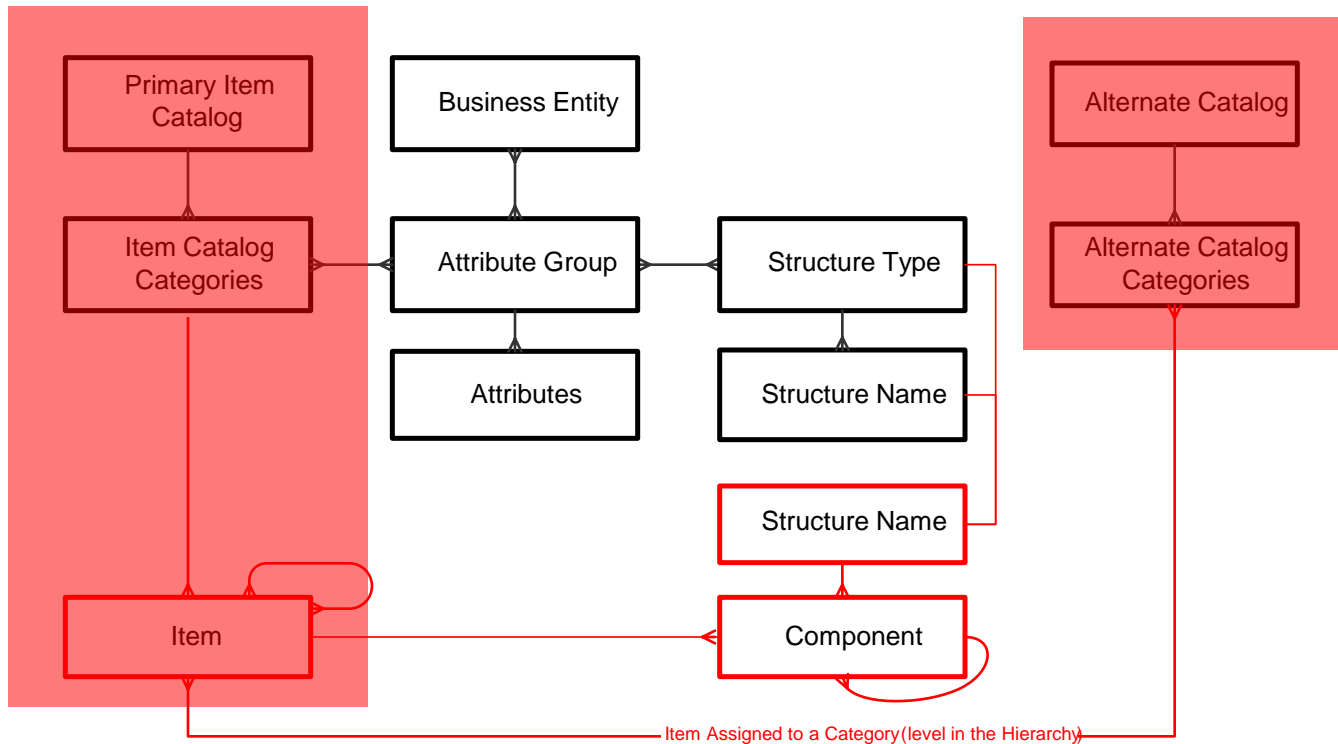
SID Mapping

Product Specification, Product Component



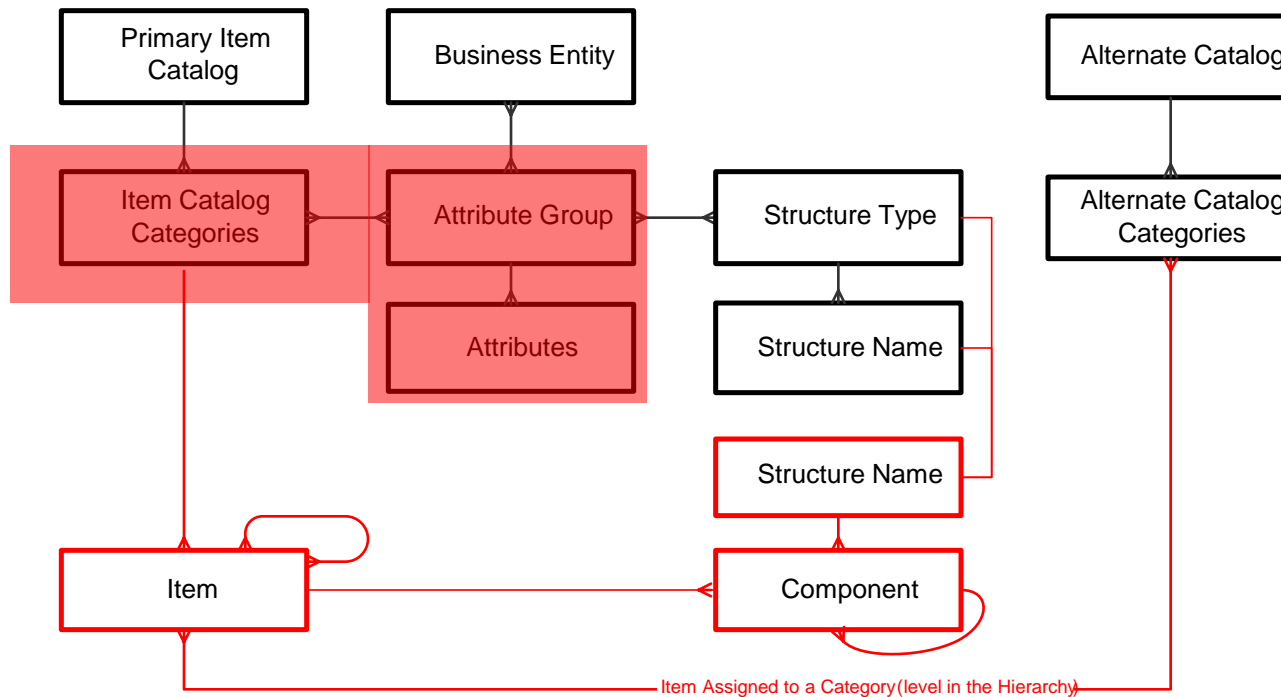
SID Mapping

Product Catalog



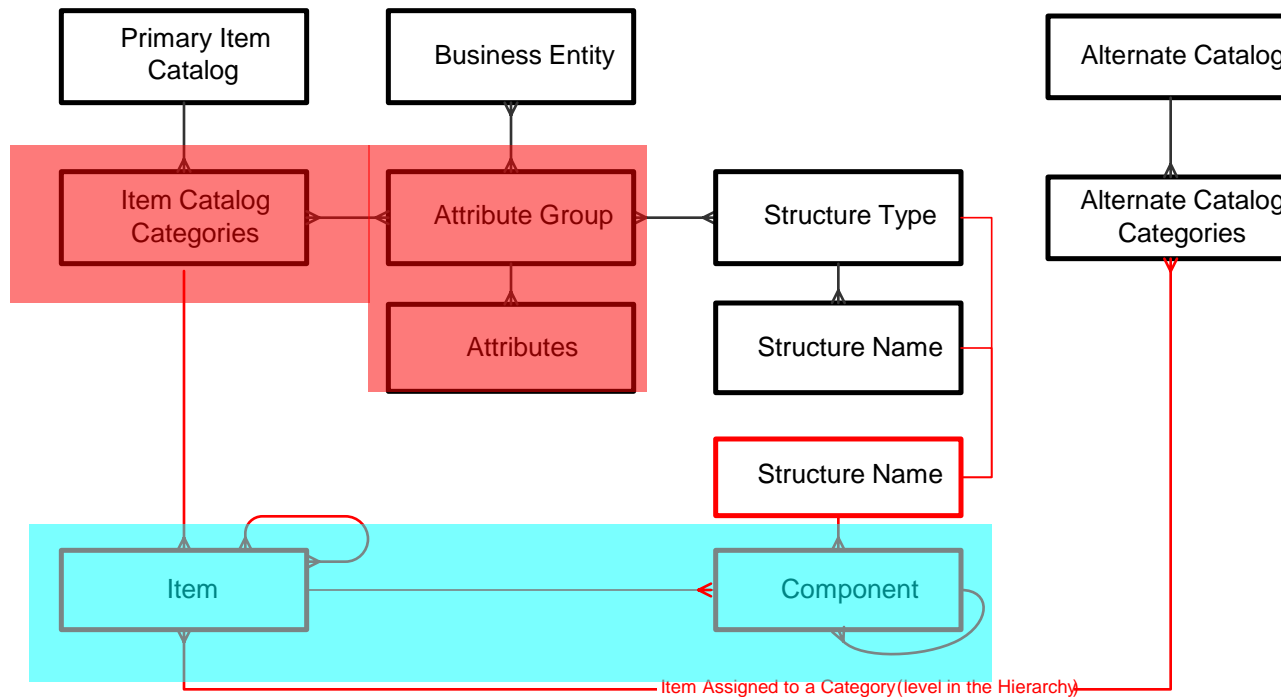
SID Mapping

Product Specification Characteristic



SID Mapping

Product Offering Price – Alternate Possibilities



PIM Pricing Models

Billing and Pricing “Items”

reusable objects

Component	Description	Category
[-] Wireless Service Plan	Wireless Service Plan	Product Specification Class
[-] Wireless Voice Srv Features	Wireless Voice Service Features	Product Specification Class
Wireless Voice Mail Recuring	Wireless Voice Mail Recuring	Wireless Service Feature...
Wireless Caller ID Recuring	Wireless Caller ID Recuring	Wireless Service Feature...
Call Waiting RC Disc	Call Waiting Recuring Discount	Discount Class
Call Waiting Recuring	Call Waiting Recuring	Wireless Service Feature...
Call Forwarding RC Disc	Call Forwarding Recuring Disc...	Discount Class
Call Forwarding Recuring	Call Forwarding Recuring	Wireless Service Feature...
[-] Wireless Voice Service	Wireless Voice Service	Product Specification Class
Wireless Service Options	Wireless Service Options	Wireless Service Class
Premium Wireless 800	Premium Wireless 800	Wireless Service Class
Basic Wireless 550	Basic Wireless 550	Wireless Service Class
Wireless Service Disc Options	Wireless Service Discount Opti...	Discount Class
Wireless First Month Discount	Wireless First Month Discount	Discount Class
Prem Wireless RC 10% Disc	Premium Wireless Recuring 1...	Time Based Offering Class
Prem Wless First 3 Mths Disc	Premium Wireless First 3 Mont...	Discount Class
Minutes Usage Discount	Minutes Usage Discount	Discount Class
[-] Text Messaging Service	Text Messaging Service	Product Specification Class
Text Messaging Usage	Text Messaging Usage	Text Messaging Class
Text Messaging Options	Text Messaging Options	Text Messaging Class
SMS Usage Discount	SMS Usage Discount	Discount Class
50 Msgs free First 3 Mths Disc	50 Text Messages free for First	Discount Class
[-] Special Rating Product Options	Special Rating Product Options	Special Rating Class
Friends	Friends	Special Rating Class
Family	Family	Special Rating Class
Colleagues	Colleagues	Special Rating Class
[-] Wireless Srv Device Options	Wireless Service Device Options	Mobile Handset Class
[-] Wireless Proximity Service	Wireless Proximity Service	Product Specification Class
Proximity Service Usage	Proximity Service Usage	Proximity Service Class
Proximity Service Recuring Di...	Proximity Service Recuring Di...	Time Based Offering Class
Proximity Service Recuring	Proximity Service Recuring	Proximity Service Class
Unlimited Mobile Internet	Unlimited Mobile Internet	Data Service Class
Mobile content product	Mobile content product	Data Service Class
Bluetooth Headset	Bluetooth Headset	Wireless Device Accessory

Pricing/Billing Attributes Example

utilizing “MultiRow” attribute groups

Details	
Priority	1
Product Type	Subscription
Applies To	
Multi-RUM Support	No

ID	Name	Tax When	Advance Bill	Charge Cycle Fees in advance of billing cycle	Unit	Advance cycle fee on billing date
ALDF_ACT_6524	ALDF Activation	No Taxes	No			No
ALDF_MRC_6524	ALDF Subscription	No Taxes	No			No
ALDF_USG_6524	ALDF Usage	No Taxes	No			No

Rate Data						
ID	Name	Overrides Credit Limit	Discount Bracket Based On	Resource Balance ID		

Event Map			
Event	Measured By	Rate Plan Structure	Rate Plan ID
/event/billing/product/purchase	Occurrence	Single Rate Plan	ALDF_ACT_6524
/event/billing/product/fee/cycle/cycle_forward_monthly	Occurrence	Single Rate Plan	ALDF_MRC_6524
/event/delayed/session/telco	Occurrence	Single Rate Plan	ALDF_USG_6524

Balance Impacts																						
		Rate Data ID	Rate Data Min	Resource Max ID	Impact GLID	ERA Category ID	Traffic Direction	Contract Type						Fixed Amount	Scaled Amount	Price List Name	Promotional Price	Pricing Commit Type	Dynamic Discount Method	Units	Start	End
1	ALDF_ACT_6524			840		Loyalty			No	No	No	No			10						08-May-2009	
2	ALDF_ACT_6524			840		No_Loyalty			No	No	No	No			300						08-May-2009	
3	ALDF_MRC_6524			840			BG		No	No	No	No			2						08-May-2009	
4	ALDF_MRC_6524			840					No	No	No	No			65						08-May-2009	
8	ALDF_USG_6524			840			F2Mobile		No	No	No	No			0.33						08-May-2009	
6	ALDF_USG_6524			840			BG F2GSM		No	No	No	No			0.34						08-May-2009	
7	ALDF_USG_6524			840			F2Fixed		No	No	No	No			0.1						08-May-2009	
5	ALDF_USG_6524			840			BG F2Fixed		No	No	No	No			0.1						08-May-2009	

1	ALDF_ACT_6524			840	Loyalty					No	No	No	No		10						08-May-2009	
2	ALDF_ACT_6524			840	No_Loyalty					No	No	No	No		300						08-May-2009	
3	ALDF_MRC_6524			840			BG			No	No	No	No		2						08-May-2009	
4	ALDF_MRC_6524			840						No	No	No	No		65						08-May-2009	
8	ALDF_USG_6524			840				F2Mobile		No	No	No	No		0.33						08-May-2009	
6	ALDF_USG_6524			840			BG	F2GSM		No	No	No	No		0.34						08-May-2009	
7	ALDF_USG_6524			840				F2Fixed		No	No	No	No		0.1						08-May-2009	
5	ALDF_USG_6524			840			BG	F2Fixed		No	No	No	No		0.1						08-May-2009	

Price Overrides

Component	Adjustment Type	Start Date	End Date	Adjustment Value	Maximum Price	Minimum Price
[-] Prem Internet Package for SB						
[-] High Spd Internet Plan for SB						
[-] Email Account Options						
20 Email Accounts						
[-] High Spd Internet Srv for SB						
[-] H Spd Inet Srv for SB Options						
Prem High Spd Internet for SB	Promotion			20	25	15
[-] Web Storage Options						
Web Storage 50 GB						
H Spd Inet First Mth Free Disc						
H Spd Inet Activation Discount						

Values stored in “Prem Internet Package for SB” ONLY..

“Prem High Spd Internet for SB” can have different overrides for every occurrence in a ProductOffering

PIM Rules



Rules Overview

- **Commercial Eligibility Rules – Example**
sales channel, customer type, billing type etc ..
- **Functional Compatibility & Incompatibility Rules**
- **Global / Local cardinality rules – min / max / default**
- **Attribute based pricing – Example**
Long distance, local, zip code, time of day, event type, billing type etc.
- **Up sell / Cross sell rules**
- **Substitutability rules**
- **More ...**

Eligibility Example

ORACLE® Item Catalog
Item: Prem Internet Package for SB Revision: A
Description: Premium Internet Package for Small Busin
Organization: Vision Operations (V1)

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Item Lifecycle Change Management Configuration Transactions

Specifications Revisions Attachments Organizations People Associations Syndication

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Overview
Classification and Categories
Transaction Attributes
Comms Attributes - Item Level
Comms Attributes - Item Rev Level
Eligibility Rules
Compatibility Rules
Promotion Upgrade Rules
Physical Attributes
Sales and Order Management
Planning
Purchasing
Inventory/WMS
Manufacturing
Service
Descriptive Attributes

Eligibility Rules Item Revisions A - A

Serial Number	Matrix Name	Rule Type	Account Type	City	State	Country	Effective Start	Effective End	Postal Code
1	Eligibility Group	Available	Business		CA	USA			
2	Eligibility Group	Available	Business		NY	USA			
3	Eligibility Group	Available	Business		TX	USA			

Compatibility Example

ORACLE® Item Catalog
Item: Prem High Spd Internet for SB Revision: A
Description: Premium High Speed Internet for Small Bu
Organization: Vision Operations (V1)

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Item Lifecycle Change Management Configuration Transactions

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Compatibility Rules Item Revisions A - A

Subject Compatibility Rules

[Show All Details](#) | [Hide All Details](#)

Details	Serial Number	Subject Product	Rule Type	Object Product	Object Product Line
<input type="checkbox"/> Hide	1	Prem High Spd Internet for SB	Not Available	Prem Internet Package for SB	WEB sales catalog
		Object Product Class	Promotion Class	Start Date	Matrix Name
		End Date			

Promotion Upgrade Example

ORACLE Item Catalog
Item: Prem Internet Package for SB Revision: A
Description: Premium Internet Package for Small Busin
Organization: Vision Operations (V1)

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Item Lifecycle Change Management Configuration Transactions

Specifications Revisions Attachments Organizations People Associations Syndication

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Classification and Categories
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Comms Attributes - Item Rev Level
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Compatibility Rules
Promotion Upgrade Rules
Physical Attributes
Sales and Order Management
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Purchasing
Inventory/WMS
Manufacturing
Service
Descriptive Attributes

Search Item [Advanced Search](#) Shortcuts Create Document

Promotion Upgrade Rules Item Revisions A - A

Promotion:Upgrade					
Serial Number	Original Promotion	Commitment Start	Duration	Penalty	Currency
1	Basic Internet Package for Small Business	Original Start	Original Duration	112	USD

stored in “target” product

Offer Migration				
<div> < Previous 1-5 of 6 ▾ Next > </div>				
Source	Scope	Fee	Currency	Public
OFF1000050	All Customers	30	PLN	Yes
OFF1000051	All Customers	30	PLN	Yes
OFF1000053	All Customers	30	PLN	Yes
OFF1000054	All Customers	15	PLN	Yes
OFF1000056	All Customers	0	PLN	Yes

Expressive Rules

- Rules Catalog Category for 'Rule Objects' and 'RuleSet'
- RuleSet combine other Rule Groups and Rule Objects
- Rule Object contain information like this based on attributes (using some language construct)

rule ::= LHS <operator> RHS

LHS ::= expression

RHS ::= expression

operator ::= ('INCOMP' | 'PREREQ' | 'COMES WITH' | 'REIES_ON' | 'RELIES_FROM' | COMMERCIAL_RO...)

expression ::= orExpression

*orExpression ::= andExpression ('OR' andExpression)**

*andExpression ::= atom ('AND' atom)**

Dates Validated
for <> and
incomplete data

Lookup
Constrained
to Products
Only

Lookup
Constrained
to Attributes
Only

Rule
Evaluation
Condition

Dates

Start Date: 12-Jan-2009 (example: 13-Mar-2009) End Date: 23-Sep-2009

Rule Details

Severity: Error
Exception Message Text: The sample eligibility rule has been broken - please correct the configuration

Rule Conditions Source

Source: Equals Name: Store

Rule Conditions Sub Sources

Sub Source Qualifier	Sub Source	Delete
Is In List	Partner 2	<input type="checkbox"/>
Is In List	Partner 1	<input type="checkbox"/>

Add Another Row

Terms

Term Name	Qualifier	Expected Value	Delete
Country	Equals	Poland	<input type="checkbox"/>

Add Another Row

Product Actions

Product ID	Product Non Eligible	Hide Product	Product No Add	Product No Remove	Product No Reparent	Delete
PROD1000006	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Add Another Row

Attribute Actions

Product ID: PROD1000010 Market: COM

Attributes

Attribute Name	Hide Attribute	Disable Attribute	Delete
ATTR1000002	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Add Another Row

Cancel Apply

Item Lifecycle Change Management Configuration Transactions Recent Home Logout Preferences Help Diagnostics
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Rule 1 – Example from customer

Rule Description	
Rule Description	Single Tariff Relies on one, and only one Post Paid Mobile Line

Dates	
Start Date	23-Apr-2009
End Date	31-Dec-2009

Left Hand Products				
Product ID	Description	Status	Minimal Qty	Maximum Qty
FC1000004	Single Tariff Plan	New, Active	1	1

Rule Type	
Type	Relies On

Right Hand Side Groups		
Group ID	Group Name	Description
R1	RHG1000002	Group 1

Rule Sentence	
Right Hand Side	R1

Group Definition	
Group Description	Group 1
Minimum Group Quantity	1
Maximum Group Quantity	1

Right Hand Products					
Product ID	Description	Status	Scope	Minimal Qty	Maximum Qty
FC1000006	Post Paid Mobile Line	New, Active	None	1	1

Rule 2 – Example from customer

Rule Description

Rule Description **A Shared Tariff Plan relies on at least 2 lines (either Post-paid Mobile Lines or VoIP Lines Functional Products)**

Dates

Start Date **01-Apr-2009**

End Date **31-Dec-2009**

Left Hand Products

Product ID	Description	Status	Minimal Qty	Maximum Qty
FC1000005	Shared Tariff Plan	New, Active	1	1

Rule Type

Type **Relies On**

Right Hand Side Groups

Group ID	Group Name	Description
R1	RHG1000002	Group 2

Rule Sentence

Right Hand Side **R1**

Group Definition

Group Description **Group 2**
Minimum Group Quantity **2**
Maximum Group Quantity

Right Hand Products

Product ID	Description	Status	Scope	Minimal Qty	Maximum Qty
FC1000006	Post Paid Mobile Line	New, Active	None	0	
FC1000007	VOIP Line	New, Active	None	0	

Rule 3 – Example from customer

Rule Description

Rule Description **Post-Paid Mobile Line relies from one and only one Tariff Plan Functional Product (either a Shared Tariff Plan or a Single Tariff Plan)**

Dates

Start Date **01-Apr-2009**

End Date **31-Dec-2009**

Left Hand Products

Product ID	Description	Status	Minimal Qty	Maximum Qty
FC1000006	Post Paid Mobile Line	New, Active	1	1

Rule Type

Type **Relies From**

Right Hand Side Groups

Group ID	Group Name	Description
R1	RHG1000004	Group 3

Rule Sentence

Right Hand Side **R1**

Group Definition

Group Description **Group 3**
Minimum Group Quantity **1**
Maximum Group Quantity **1**

Right Hand Products

Product ID	Description	Status	Scope	Minimal Qty	Maximum Qty
FC1000004	Single Tariff Plan	New, Active	None	0	1
FC1000005	Shared Tariff Plan	New, Active	None	0	1

Rule 4 – Example from customer

Rule Description				
Rule Description Shared Tariff Plan Offer limited from 3 to 5 Lines (Either Post-Paid or VoIP Lines). min VoIP Line and one Mobile Line belonging to the same Customer				

Dates	
Start Date 01-Apr-2009	End Date 31-Dec-2009

Left Hand Products				
Product ID	Description	Status	Minimal Qty	Maximum Qty
PROD4000019	Shared Tariff Plan Offer	New, Active	1	1

Rule Type	
Type	Commercial RO

Right Hand Side Groups		
Group ID	Group Name	Description
R1	..RHG1000005	Group 4

Rule Sentence	
Right Hand Side	R1

Group Definition						
Group Description Group 4						
Minimum Group Quantity 3						
Maximum Group Quantity 5						

Right Hand Products						
Product ID	Description	Status	Scope	Minimal Qty	Maximum Qty	
PROD4000020	Post Paid Mobile Line Offer	New, Active	Same Customer	1	1	
PROD4000020	Post Paid Mobile Line Offer	New, Active	None	0	2	
PROD4000021	VOIP Line Offer	New, Active	None	1	4	

Making Rules Work ...

- **Restrictive language definition that consuming systems can 'transform'**

```
rule ::= LHS <operator> RHS
LHS ::= expression
RHS ::= expression
operator ::= ('INCOMP' | 'PREREQ' | 'COMES WITH' | 'REIES_ON' | 'RELIES_FROM' | COMMERCIAL_RO...)
expression ::= orExpression
orExpression ::= andExpression ('OR' andExpression)*
andExpression ::= atom ('AND' atom)*
```

- **Transforming references to native reference ids in destination system (and understanding the scope of entities)**
- **Transforming generic language construct to native language construct**

For example (A or B or C) Compatible (D or E or F or G) will translate to 3x4 = 12 compatibility rules in Siebel
- **The ability to consume Rules is not a PIM issue – but it is a general rule engine issue**
- **Executing Rules via custom publish to a rule engine which returns valid / invalid results**

Business Rule Definition

Canonical Representation is a Myth


If any ‘SMS Class Product’ then you have to pick ‘Basic News Product’ OR ‘Call Waiting’

- No standard to adhere to – as expressive as the language
- Transformation of entities in the expression (x-references)
- No practical implementation that will work for more than one sophisticated configurator
Siebel and EBS and Clarify and ...
 - For example (A or B or C) Compatible (D or E or F or G) will translate to $3 \times 4 = 12$ compatibility rules in Siebel

“However, if we define a constrained rules, then it is possible to express them in simple language and transform them - PIM can present such rule expression storage and delivery”



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