



Entity Definition

```
<entitymodel> [Root Element]
<title/> [0..1]
<description/> [0..1]
<copyright/> [0..1]
<author/> [0..1]
<version/> [0..1]
Start Choice [0..*]
<entity/> [1]
<view-entity/> [1]
End Choice
</entitymodel>
<title>string</title>
<description>string</description>
<copyright>string</copyright>
<author>string</author>
<version>string</version>
```

Entity Definition: Entities

```
[Part of Entity Definition]
<entity entity-name="string [r]"
table-name="string [o]"
package-name="string [r]"
default-resource-name="string [o]"
dependent-on="string [o]"
enable-lock="(true|false) [o]"
no-auto-stamp="(true|false) [o]"
never-cache="(true|false) [o]"
auto-clear-cache="(true|false)[o]"
title="s[o]" copyright="s[o]"
author="s[o]" version="s[o]">
<description/> [0..1]
<field/> [1..*] <prim-key/> [0..*]
<relation/> [0..*] <index/> [0..*]
</entity>
<prim-key field="string [r]"/>
<field name="string [r]"
col-name="str [o]" type="str [r]"
encrypt="(true|false) [o]">
<description/>[0..1] <validate/>[0..*]
</field>
<validate name="string [r]"/>
<relation title="string [o]"
rel-entity-name="string [r]"
type="(one|many|one-nofk) [r]"
fk-name="string [o]">
<description/>[0..1] <key-map/>[1..*]
</relation>
<key-map field-name="string [r]"
rel-field-name="string [o]"/>
<index name="string [r]"
unique="(true|false) [o]">
<description/> [0..1]
<index-field/> [1..*]
</index>
<index-field name="string [r]"/>
<extend-entity entity-name="str [r]">
<field/> [0..*]
<relation/> [0..*] <index/> [0..*]
</extend-entity>
```

Entity Definition

```
[from ofbiz/applications/product/entitydef/entitymodel.xml]
<entitymodel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/entitymodel.xsd">
<entity entity-name="ProductKeyword" package-name="org.ofbiz.product.product">
<field name="productId" type="id-ne"></field>
<field name="keyword" type="short-varchar"></field>
<field name="relevancyWeight" type="numeric"></field>
<prim-key field="productId"/> <prim-key field="keyword"/>
<relation type="one" fk-name="PROD_KWD_PROD" rel-entity-name="Product">
<key-map field-name="productId"/>
</relation>
</entity>
<view-entity entity-name="ProductPromoUseCheck" package-name="org.ofbiz.product.promo">
<member-entity entity-alias="PPU" entity-name="ProductPromoUse"/>
<member-entity entity-alias="OH" entity-name="OrderHeader"/>
<alias-all entity-alias="PPU"/> <alias entity-alias="OH" name="statusId"/>
<view-link entity-alias="PPU" rel-entity-alias="OH">
<key-map field-name="orderId"/>
</view-link>
</view-entity>
</entitymodel>
```

Entity Group

```
<entitygroup> [Root Element]
<entity-group/> [0..*]
</entitygroup>
<entity-group group="string [r]"
entity="string [r]"/>
```

Entity Definition: View Entities

```
[Part of Entity Definition]
<view-entity entity-name="string [r]"
package-name="string [r]"
dependent-on="string [o]"
default-resource-name="str[o]"
never-cache="(true|false) [o]"
auto-clear-cache="(true|false)[o]"
title="s[o]" copyright="s[o]"
author="s[o]" version="s[o]">
<description/> [0..1]
<member-entity/> [1..*]
<alias-all/>[0..*] <alias/>[0..*]
<view-link/>[0..*] <relation/>[0..*]
</view-entity>
<member-entity entity-alias="str [r]"
entity-name="string [r]">
<description/> [0..1]
</member-entity>
<alias-all entity-alias="string [r]"
prefix="string [o]">
<description/> [0..1]
<exclude/> [0..*]
</alias-all>
<exclude field="string [r]"/>
<alias entity-alias="string [r]"
name="str [r]" field="str [o]"
col-alias="string [o]"
prim-key="string [o]"
function="(min|max|sum|avg|count|
count-distinct|upper|lower) [o]"
group-by="(true|false) [o]">
<description/> [0..1]
<complex-alias/> [0..1]
</alias>
<complex-alias operator="string [r]">
Start Choice [0..*]
<complex-alias/> [1]
<complex-alias-field/> [1]
End Choice
</complex-alias>
<complex-alias-field
entity-alias="string [r]"
function="(min|max|sum|avg|count|
count-distinct|upper|lower) [o]"
field="string [r]"/>
<view-link entity-alias="string [r]"
rel-entity-alias="string [r]"
rel-optional="(true|false) [o]">
<description/> [0..1]
<key-map/> [1..*]
</view-link>
```

Entity ECA

```
<entity-eca> [Root Element]
<eca/> [1..*]
</entity-eca>
<eca entity="string [r]"
operation="(create|store|remove|find|
create-store|create-remove|store-
remove|create-store-remove|any) [r]"
event="(validate|run|return|cache-
check|cache-put|cache-clear) [r]"
run-on-error="(true|false) [o]">
Start Choice [0..*]
<condition/> [1]
<condition-field/> [1]
End Choice
<action/> [1..*]
</eca>
<condition field-name="string [r]"
operator="(less|greater|less-equals|
greater-equals|equals|not-equals|is-
empty|is-not-empty|contains) [r]"
value="string [o]"
type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [o]"
format="string [o]"/>
<condition-field field-name="str [r]"
operator="(less|greater|less-equals|
greater-equals|equals|not-equals|
contains) [r]"
to-field-name="string [o]"
type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [o]"
format="string [o]"/>
<action service="string [r]"
mode="(sync|async) [r]"
result-to-value="(true|false) [o]"
abort-on-error="(true|false) [o]"
rollback-on-error="(true|false) [o]"
persist="(true|false) [o]"
run-as-user="string [0..1:system]"
value-attr="string [o]"/>
```

Entity Group

```
[based on product/entitydef/entitygroup.xml]
<entitygroup xmlns:xsi="http://www.w3..."
xsi:noNamespace...="...dtds/entitygroup.xsd">
<entity-group group="org.ofbiz"
entity="ProdCatalog" />
<entity-group group="org.ofbiz"
entity="ProdCatalogCategory" />
<entity-group group="ex.datawarehouse"
entity="SomeDataWarehouseEntity" />
</entitygroup>
```

Entity ECA

```
[from product/entitydef/eecas.xml]
<entity-eca xmlns:xsi="http://www.w3..."
xsi:noNamespace...="...dtds/entity-eca.xsd">
<eca entity="Product"
operation="create-store" event="return">
<condition field-name="autoCreateKeywords"
operator="not-equals" value="N"/>
<action service="indexProductKeywords"
mode="sync" value-attr="productInstance"/>
</eca>
<eca entity="ProductFeatureAppl"
operation="create-store" event="return">
<action service="indexProductKeywords"
mode="sync"/>
</eca>
<eca entity="InventoryItemDetail"
operation="create-store-remove"
event="return">
<action
service="updateInventoryItemFromDetail"
mode="sync"/>
</eca>
</entity-eca>
```

Service Definition

```
<services> [Root Element]
<description/> [0..1]
<vendor/> [0..1] <version/> [0..1]
<created/> [0..1] <service/> [1..*]
</services>
<description>string</description>
<vendor>string</vendor>
<version>string</version>
<created>string</created>
<namespace>string</namespace>
<service name="string [r]"
engine="string [r]"
location="str [o]" invoke="str [o]"
auth="(true|false) [o]"
export="(true|false) [o]"
validate="(true|false) [o]"
default-entity-name="str [o]"
use-transaction="(true|false) [o]"
require-new-transaction="(true |
false) [o]"
transaction-timeout="str [o]"
max-retry="string [0..1]"
debug="(true|false) [o]">
<description/> [0..1]
<namespace/> [0..1]
<required-permissions/> [0..*]
<implements/> [0..*]
<auto-attributes/> [0..*]
<attribute/>[0..*] <override/>[0..*]
</service>
<permission-service
service-name="string [r]"
resource-description="string [o]"
main-action="(CREATE|UPDATE|DELETE|
VIEW) [o]">
<required-permissions
join-type="(AND|OR) [r]">
<check-permission/> [0..*]
<check-role-member/> [0..*]
</required-permissions>
<check-permission permission="str [r]"
action="string [o]">
<check-role-member role-type="s [r]">
<implements service="string [r]"
optional="(true|false) [o]">
<auto-attributes entity-name="s[o]"
include="(pk|nonpk|all) [o]"
mode="(IN|OUT|INOUT) [r]"
optional="(true|false) [o]"
form-display="(true|false) [o]">
<exclude/> [0..*]
</auto-attributes>
<exclude field-name="string [r]">
```

Service Definition: Attributes

```
[Part of Service Definition]
<attribute name="string [r]"
type="string [r]"
mode="(IN | OUT | INOUT) [r]"
optional="(true | false) [o]"
form-label="string [o]"
entity-name="string [o]"
field-name="string [o]"
string-map-prefix="str [o]"
string-list-suffix="str [o]"
form-display="(true | false) [o]">
<type-validate/> [0..*]
</attribute>
<override name="string [r]"
type="s[o]" entity-name="s[o]"
field-name="string [o]"
mode="(IN | OUT | INOUT) [o]"
optional="(true | false) [o]"
form-display="(true | false)[o]"
form-label="string [o]">
<type-validate/> [0..*]
</override>
<type-validate method="string [o]"
class="str[0..1:org.ofbiz.base.util.UtilValidate]">
Start Choice [1]
<fail-message/>[1] <fail-property/>[1]
End Choice
</type-validate>
<fail-message message="str [r]">
<fail-property resource="string [r]"
property="string [r]">
```

Service ECA

```
<service-eca> [Root Element]
<eca/> [1..*]
</service-eca>
<eca service="string [r]"
event="(global-commit|global-rollback|auth|in-validate|out-validate|invoke|commit|return) [r]"
run-on-failure="(true|false) [o]"
run-on-error="(true|false) [o]">
Start Choice [0..*]
<condition/>[1] <condition-field/>[1]
<condition-service/>[1] End Choice
Start Choice [1..*]
<action/> [1] <set/> [1] End Choice
</eca>
<condition map-name="string [o]"
field-name="string [r]"
operator="(less|greater|less-equals|greater-equals|equals|not-equals|is-empty|is-not-empty|contains) [r]"
value="string [o]"
type="(PlainString|String|BigDecimal|Double|Float|Long|Integer|Date|Time|Timestamp|Boolean|Object) [o]"
format="string [o]">
<condition-field map-name="str [o]"
field-name="string [r]"
operator="(less | greater | less-equals | greater-equals | equals | not-equals | contains) [r]"
to-map-name="string [o]"
to-field-name="string [o]"
type="(PlainString|String|BigDecimal|Double|Float|Long|Integer|Date|Time|Timestamp|Boolean|Object) [o]"
format="string [o]">
<condition-service
service-name="string [r]">
<action service="string [r]"
mode="(sync|async) [r]"
run-as-user="string [o]"
result-map-name="string [o]"
new-transaction="(true|false) [o]"
result-to-context="(true|false) [o]"
ignore-failure="(true|false) [o]"
ignore-error="(true|false) [o]"
persist="(true|false) [o]">
<set field-name="string [r]"
env-name="str [o]" value="str [o]"
format="(append|to-upper|to-lower|hash-code|long|double|upper-first-char|lower-first-char|db-to-java|java-to-db) [o]">
```

Service ECA

```
[based on various servicedef/secas*.xml]
<service-eca xmlns:xsi="http://www.w3..."
xsi:noName...="...dtds/service-eca.xsd">
<eca services="updateShipment"
event="commit">
<condition-field field-name="statusId"
operator="not-equals" to-field-name="oldStatusId"/>
<condition field-name="statusId"
operator="equals" value="SHIPMENT_PACKED"/>
<action mode="sync"
service="createInvoicesFromShipment"/>
</eca>
</service-eca>
```

Service Definition

```
[from ofbiz/applications/product/servicedef/services.xml]
<services xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/services.xsd">
<description>Product Component Services</description>
<vendor>OFBiz</vendor> <version>1.0</version>
<service name="interfaceProduct" default-entity-name="Product" engine="interface" ...>
<auto-attributes include="nonpk" mode="IN" optional="true">
<exclude field-name="createdDate"/> <exclude field-name="createdByUserLogin"/>
<exclude field-name="lastModifiedDate"/> <exclude field-name="lastModifiedByUserLogin"/>
</auto-attributes>
</service>
<service name="createProduct" default-entity-name="Product" auth="true" engine="simple"
location="org/ofbiz/product/product/ProductServices.xml" invoke="createProduct">
<implements service="interfaceProduct"/>
<auto-attributes include="pk" mode="INOUT" optional="true"/>
<override name="productId" optional="false"/>
<override name="internalName" optional="false"/>
</service>
<service name="indexProductKeywords" auth="false" engine="simple"
location="org/ofbiz/product/product/ProductServices.xml" invoke="indexProductKeywords">
<attribute name="productId" type="String" mode="IN" optional="false"/>
<attribute name="productInstance" type="GenericValue" mode="IN" optional="true"/>
</service>
<service name="createProductCategory" default-entity-name="ProductCategory" ...>
<auto-attributes include="pk" mode="INOUT" optional="true"/>
<auto-attributes include="nonpk" mode="IN" optional="true"/>
</service>
<service name="updateProductCategory" default-entity-name="ProductCategory" ...>
<auto-attributes include="pk" mode="IN" optional="false"/>
<auto-attributes include="nonpk" mode="IN" optional="true"/>
</service>
</services>
```

Service Group

```
<service-group> [Root Element]
<group/> [1..*]
</service-group>
<group name="string [r]"
send-mode="(none|all|first-available|random|round-robin) [o]">
<service/> [1..*]
</group>
<invoke name="string [o]"
mode="(sync|async) [o]"
result-to-context="(true|false) [o]"
preserve="(optional|preserve) [o]">
```

Service Group

```
[based on various servicedef/groups*.xml]
<service-group xmlns:xsi="http://www.w3..."
xsi:noName...="...dtds/service-group.xsd">
<group name="distributedClear...">
<service name="sv1Clea..." mode="async"/>
<service name="sv2Clea..." mode="async"/>
</group>
<group name="updateCreditCardAndAddress">
<service name="updatePostalAddress"
mode="sync" result-to-context="true"/>
<service name="updateCreditCard"/>
</group>
</service-group>
```

simple-method

```

<simple-methods> [Root Element]
<simple-method/> [1..*]
</simple-methods>
<simple-method
  method-name="string [r]"
  short-description="string [r]"
  login-required="(true|false) [o]"
  use-transaction="(true|false) [o]"
  default-error-code="str [0..1:error]"
  default-success-code="[0..1:success]"
  parameter-map-name="[0..1:parameter]"
  event-request-object-name="string
[0..1:request]"
  event-response-object-name="string
[0..1:response]"
  event-response-code-name="string
[0..1:response_code]"
  event-error-message-name="string
[0..1:error_message]"
  event-event-message-name="string
[0..1:event_message]"
  service-response-message-name="string
[0..1:responseMessage]"
  service-error-message-name="string
[0..1:errorMessage]"
  service-error-message-list-
name="string [0..1:errorMessageList]"
  service-error-message-map-
name="string [0..1:errorMessageMap]"
  service-success-message-name="string
[0..1:successMessage]"
  service-success-message-list-
name="str [0..1:successMessageList]"
  locale-name="string [0..1:locale]"
  delegator-name="str [0..1:delegator]"
  security-name="str [0..1:security]"
  dispatcher-name="s [0..1:dispatcher]"
  user-login-name="s [0..1:userLogin]">
  Start Group: AllOperations [0..*]
  Start Choice [1]
    <EnvOperations/> [1]
    <EventOperations/> [1]
    <ServiceOperations/> [1]
    <OtherOperations/> [1]
    <IfBasicOperations/> [1]
    <IfOtherOperations/> [1]
    <CallOperations/> [1]
    <CallJavaOperations/> [1]
    <EntityMiscOperations/> [1]
    <EntityFindOperations/> [1]
    <EntityValueOperations/> [1]
    <EntityListOperations/> [1]
    <EntityTxOperations/> [1]
  End Choice
  End Group: AllOperations
</simple-method>
<field field-name="string [r]"
  map-name="string [o]"
  type="string [o]">
<string value="string [o]">
<error-prefix resource="str [o]"
  property="str [o]">
<error-suffix resource="str [o]"
  property="str [o]">
<success-prefix resource="str [o]"
  property="str [o]">
<success-suffix resource="str [o]"
  property="str [o]">
<message-prefix resource="str [o]"
  property="str [o]">
<message-suffix resource="str [o]"
  property="str [o]">
<default-message resource="str [o]"
  property="str [o]">
<fail-message message="str [r]">
<fail-property resource="str [r]"
  property="str [r]">

```

simple-method: General Operations

```

[Part of simple-method]
<EnvOperations>
<set/> <field-to-list/>
<list-to-list/> <map-to-map/>
<first-from-list/> <string-to-list/>
<string-append/> <to-string/>
<clear-field/>
</EnvOperations>
<EventOperations> [Used when method
called as a Control Servlet Event]
<field-to-request/>
<field-to-session/>
<request-to-field/>
<request-parameters-to-list/>
<session-to-field/>
<webapp-property-to-field/>
</EventOperations>
<ServiceOperations> [Used when method
called as an OFBiz Service]
<field-to-result/>
</ServiceOperations>
<OtherOperations>
<log/> <now-timestamp-to-env/>
<now-date-to-env/>
<set-current-user-login/>
<property-to-field/>
<calculate/>
</OtherOperations>

```

simple-method: Call Operations

```

[Part of simple-method]
<CallOperations>
<call-bsh/>
<call-map-processor/>
<call-simple-method/>
<call-class-method/>
<call-object-method/>
<create-object/>
<set-service-fields/>
<call-service/>
<call-service-async/>
</CallOperations>

```

simple-method: Entity Operations

```

[Part of simple-method]
<EntityMiscOperations>
<sequenced-id-to-env/>
<make-next-seq-id/> <entity-data/>
</EntityMiscOperations>
<EntityFindOperations>
<find-by-primary-key/>
<find-by-and/>
<entity-one/> See Shared
<entity-and/> See Shared
<entity-condition/> See Shared
<entity-count/>
<get-related-one/> See Shared
<get-related/> See Shared
<order-value-list/>
<filter-list-by-and/>
<filter-list-by-date/>
</EntityFindOperations>
<EntityValueOperations>
<make-value/> <clone-value/>
<create-value/> <store-value/>
<refresh-value/> <remove-value/>
<remove-related/> <remove-by-and/>
<clear-cache-line/>
<clear-entity-caches/>
<set-pk-fields/> <set-nonpk-fields/>
</EntityValueOperations>
<EntityListOperations>
<store-list/> <remove-list/>
</EntityListOperations>
<EntityTxOperations>
<transaction-begin/>
<transaction-commit/>
<transaction-rollback/>
</EntityTxOperations>

```

simple-method: Control Operations

```

[Part of simple-method]
<ControlOperations>
<iterate/> <iterate-map/> <loop/>
<check-errors/> <add-error/>
<return/>
</ControlOperations>
<IfBasicOperations>
<if-validate-method/>
<if-instance-of/>
<if-compare/> <if-compare-field/>
<if-regexp/> <if-empty/>
<if-has-permission/>
</IfBasicOperations>
<IfOtherOperations>
<if/> <if-not-empty/> <assert/>
<check-permission/> <check-id/>
</IfOtherOperations>

```

simple-method example

```

[Example CRUD methods from framework/example/script/org/ofbiz/example/ExampleServices.xml]
<simple-methods xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/simple-methods.xsd">
  <simple-method method-name="createExample" short-description="...">
    <check-permission permission="EXAMPLE" action="_CREATE">...</check-permission>
    <check-errors/>
    <make-value value-name="newEntity" entity-name="Example"/>
    <sequenced-id-to-env sequence-name="Example" value-name="newEntity.exampleId"/>
    <field-to-result field-name="newEntity.exampleId" result-name="exampleId"/>
    <set-nonpk-fields map-name="parameters" value-name="newEntity"/>
    <create-value value-name="newEntity"/>
    <set-service-fields service-name="createExampleStatus" map-name="newEntity"
      to-map-name="createExampleStatusMap"/>
    <call-service service-name="createExampleStatus" in-map-name="createExampleStatusMap"/>
  </simple-method>
  <simple-method method-name="updateExample" short-description="...">
    <check-permission permission="EXAMPLE" action="_UPDATE">...</check-permission>
    <check-errors/>
    <entity-one entity-name="Example" value-name="lookedUpValue"/>
    <field-to-result field-name="lookedUpValue.statusId" result-name="oldStatusId"/>
    <!-- -SNIP- the rest of the status management code is in ExampleServices.xml -->
    <set-nonpk-fields map-name="parameters" value-name="lookedUpValue"/>
    <store-value value-name="lookedUpValue"/>
  </simple-method>
  <simple-method method-name="deleteExample" short-description="...">
    <check-permission permission="EXAMPLE" action="_DELETE">...</check-permission>
    <check-errors/>
    <entity-one entity-name="Example" value-name="lookedUpValue"/>
    <remove-value value-name="lookedUpValue"/>
  </simple-method>
</simple-methods>

```


simple-method: General Operations

```
[Part of simple-method]
<set in EnvOperations
  field="string [r]"
  from-field="string [o]"
  value="string [o]"
  default-value="string [o]"
  type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [o]"
  set-if-null="(true|false) [o]"
  set-if-empty="(true|false) [o]"/>
<field-to-list in EnvOperations
  map-name="s[o]" field-name="s[r]"
  list-name="string [r]"/>
<list-to-list in EnvOperations
  list-name="string [r]"
  to-list-name="string [r]"/>
<map-to-map in EnvOperations
  map-name="string [r]"
  to-map-name="string [o]"/>
<string-append in EnvOperations
  map-name="s[o]" field-name="s[r]"
  string="string [r]"
  arg-list-name="string [o]"
  prefix="string [o]"
  suffix="string [o]"/>
<string-to-list in EnvOperations
  string="str [r]" list-name="str [r]"
  arg-list-name="string [o]"
  message-field-name="string [o]"/>
<to-string in EnvOperations
  map-name="s[o]" field-name="s[r]"
  format="string [o]"
  numeric-padding="string [o]"/>
<clear-field in EnvOperations
  map-name="s[o]" field-name="s[r]"/>
<first-from-list in EnvOperations
  entry-name="string [r]"
  list-name="string [r]"/>
```

simple-method: Other Operations

```
[Part of simple-method]
<log in OtherOperations
  level="(verbose|timing|info|important
|warning|error|fatal|always) [r]"
  message="string [o]"
  Start Choice [0..*]
  <field/>[1] <string/>[1]
  End Choice
</log>
<now-timestamp-to-env OtherOperations
  env-name="string [r]"/>
<now-date-to-env in OtherOperations
  env-name="string [r]"/>
<property-to-field in OtherOperations
  resource="s[r]" property="s[r]"
  map-name="s[o]" field-name="s[r]"
  default="string [o]"
  no-locale="(true | false) [o]"
  arg-list-name="string [o]"/>
<set-current-user-loginOtherOperations
  value-name="string [r]"/>
<calculate in OtherOperations
  map-name="s[o]" field-name="s[r]"
  type="(String | Double | Float | Long
| Integer | BigDecimal) [o]"
  decimal-format="string [o]"
  Start Choice [0..*]
  <calcop/>[1] <number/>[1]
  End Choice
</calculate>
<calcop operator="(get|add|subtract|
multiply|divide|negative) [r]"
  map-name="s[o]" field-name="s[r]"
  Start Choice [0..*]
  <calcop/>[1] <number/>[1]
  End Choice
</calcop>
<number value="string [r]"/>
```

simple-method: Call Operations

```
[Part of simple-method]
<call-map-processor in CallOperations
  xml-resource="string [o]"
  processor-name="string [o]"
  in-map-name="string [r]"
  out-map-name="string [r]"
  error-list-name="s[0..1:error_list]"
  <simple-map-processor/> [0..1]
</call-map-processor>
<call-bsh in CallOperations
  resource="string [o]"
  error-list-name="s[0..1:error_list]"/>
<call-simple-method in CallOperations
  xml-resource="string [o]"
  method-name="string [r]"/>
<call-object-method in CallOperations
  obj-field-name="string [r]"
  obj-map-name="string [o]"
  method-name="string [r]"
  ret-field-name="string [o]"
  ret-map-name="string [o]"
  Start Choice [0..*]
  <string/>[1] <field/>[1]
  End Choice
</call-object-method>
<call-class-method in CallOperations
  class-name="string [r]"
  method-name="string [r]"
  ret-field-name="string [o]"
  ret-map-name="string [o]"
  Start Choice [0..*]
  <string/>[1] <field/>[1]
  End Choice
</call-class-method>
<create-object in CallOperations
  class-name="string [r]"
  field-name="string [o]"
  map-name="string [o]"
  Start Choice [0..*]
  <string/>[1] <field/>[1]
  End Choice
</create-object>
```

simple-method: Event/Service Ops

```
[Part of simple-method]
<field-to-request in EventOperations
  map-name="s[o]" field-name="s[r]"
  request-name="string [o]"/>
<field-to-session in EventOperations
  map-name="s[o]" field-name="s[r]"
  session-name="string [o]"/>
<request-to-field in EventOperations
  map-name="s[o]" field-name="s[r]"
  default="string [o]"
  request-name="string [o]"/>
<request-parameters-to-list in
EventOperations
  request-name="string [r]"
  list-name="string [o]"/>
<session-to-field in EventOperations
  map-name="s[o]" field-name="s[r]"
  default="string [o]"
  session-name="string [o]"/>
<webapp-property-to-field in
EventOperations
  resource="str [r]" property="str [r]"
  default="string [o]"
  field-name="string [r]"
  session-name="string [o]"/>
<field-to-result in ServiceOperations
  map-name="s[o]" field-name="s[r]"
  result-name="string [o]"/>
```

simple-method: Call Service Ops

```
[Part of simple-method]
<set-service-fields in CallOperations
  service-name="string [r]"
  map-name="string [r]"
  to-map-name="string [r]"/>
<call-service-async in CallOperations
  service-name="string [r]"
  in-map-name="string [o]"
  include-user-login="(true | false)
[o]"/>
<call-service in CallOperations
  service-name="string [r]"
  in-map-name="string [o]"
  include-user-login="(true|false) [o]"
  break-on-error="(true|false) [o]"
  error-code="string [0..1:error]"
  success-code="string [0..1:success]"
  <error-prefix/> [0..1]
  <error-suffix/> [0..1]
  <success-prefix/> [0..1]
  <success-suffix/> [0..1]
  <message-prefix/> [0..1]
  <message-suffix/> [0..1]
  <default-message/> [0..1]
  Start Choice [0..*]
  <results-to-map/> [1]
  <result-to-field/> [1]
  <result-to-request/> [1]
  <result-to-session/> [1]
  <result-to-result/> [1]
  End Choice
</call-service>
<results-to-map map-name="str [r]"/>
<result-to-field result-name="str [r]"
  map-name="str [o]"
  field-name="str [o]"/>
<result-to-request result-name="st [r]"
  request-name="str [o]"/>
<result-to-session result-name="st [r]"
  session-name="str [o]"/>
<result-to-result result-name="str [r]"
  service-result-name="string [o]"/>
```

Other Operations Example

```
<!-- log and return example -->
<if-empty
  field-name="shipment.primaryOrderId">
  <log level="info" message="Not running,
primaryOrderId is empty for shipmentId {$
shipment.shipmentId}"/>
  <return response-code="success"/>
</if-empty>
<!-- calculate example for the formula: "a=b
+((c+x+2)*-d)/e)",
or in RPN:
"a=(b,(+((c,x,2),-d),e))" -->
<calculate field-name="a">
  <calcop operator="get" field-name="b"/>
  <calcop operator="divide">
  <calcop operator="multiply">
  <calcop operator="add" field-name="c">
  <calcop operator="get" field-name="x"/>
  <number value="2"/>
  </calcop>
  <calcop operator="negative"
  field-name="d"/>
  </calcop>
  <calcop operator="get" field-name="e"/>
  </calcop>
</calculate>
```

simple-method: Entity Find Ops

```
[Part of simple-method]
<find-by-primary-key in
EntityFindOperations
  entity-name="string [o]"
  map-name="str [r]" value-name="s [r]"
  use-cache="(true | false) [o]"
  fields-to-select-list="string [o]"
  delegator-name="string [o]"/>
<find-by-and in EntityFindOperations
  entity-name="string [r]"
  map-name="string [r]"
  order-by-list-name="string [o]"
  delegator-name="string [o]"
  use-cache="(true | false) [o]"
  use-iterator="(true | false) [o]"
  list-name="string [r]"/>
<entity-count in EntityFindOperations
  entity-name="string [r]"
  delegator-name="string [o]"
  count-name="string [r]">
  Start Choice [1]
  <condition-expr/> [1]
  <condition-list/> [1]
  End Choice
<having-condition-list/> [0..1]
</entity-count>
<order-value-list EntityFindOperations
  list-name="[r]" to-list-name="[o]"
  order-by-list-name="string [r]"/>
<filter-list-by-and in
EntityFindOperations
  list-name="[r]" to-list-name="[o]"
  map-name="string [o]"/>
<filter-list-by-date in
EntityFindOperations
  list-name="[r]" to-list-name="[o]"
  valid-date-name="string [o]"
  from-field-name="str [0..1:fromDate]"
  thru-field-name="str [0..1:thruDate]"
  all-same="(true | false) [o]"/>
```

Entity Misc Operations Example

```
<!-- make-next-seq-id example -->
<make-value value-name="newEntity"
  entity-name="ShipmentItem"/>
<set-pk-fields map-name="parameters"
  value-name="newEntity"/>
<set-nonpk-fields map-name="parameters"
  value-name="newEntity"/>
<!-- if no shipmentItemSeqId, generate one
based on existing items, ie one greater than
the current higher number -->
<make-next-seq-id value-name="newEntity"
  seq-field-name="shipmentItemSeqId"/>
<field-to-result
  field-name="newEntity.shipmentItemSeqId"
  result-name="shipmentItemSeqId"/>
<create-value value-name="newEntity"/>
<!-- sequenced-id-to-env example -->
<make-value value-name="newEntity"
  entity-name="Shipment"/>
<set-nonpk-fields map-name="parameters"
  value-name="newEntity"/>
<sequenced-id-to-env
  sequence-name="Shipment"
  env-name="newEntity.shipmentId"/>
<field-to-result result-name="shipmentId"
  field-name="newEntity.shipmentId"/>
```

simple-method: Entity Misc Ops

```
[Part of simple-method]
<sequenced-id-to-env in
EntityMiscOperations
  sequence-name="string [r]"
  env-name="string [r]"
  get-long-only="(true | false) [o]"
  stagger-max="string [o]"/>
<make-next-seq-id EntityMiscOperations
  value-name="string [r]"
  seq-field-name="string [r]"
  numeric-padding="string [0..1:5]"
  increment-by="string [0..1:1]"/>
<entity-data in EntityMiscOperations
  location="string [r]"
  delegator-name="string [o]"
  timeout="integer [0..1:-1]"
  error-list-name="[0..1:error_list]"
  mode="(assert | load) [o]"/>
<transaction-begin EntityTxOperations
  began-transaction-name="string
[0..1:beganTransaction]"/>
<transaction-commit EntityTxOperations
  began-transaction-name="string
[0..1:beganTransaction]"/>
<transaction-rollback in
EntityTxOperations
  began-transaction-name="string
[0..1:beganTransaction]"/>
```

simple-method: Entity Change Ops

```
[Part of simple-method]
<make-value in EntityValueOperations
  value-name="string [r]"
  entity-name="string [r]"
  map-name="string [o]"/>
<clone-value in EntityValueOperations
  value-name="string [r]"
  new-value-name="string [r]"/>
<create-value in EntityValueOperations
  value-name="string [r]"
  do-cache-clear="(true|false)[o]"/>
<store-value in EntityValueOperations
  value-name="string [r]"
  do-cache-clear="(true|false)[o]"/>
<refresh-value EntityValueOperations
  value-name="string [r]"
  do-cache-clear="(true|false)[o]"/>
<remove-value in EntityValueOperations
  value-name="string [r]"
  do-cache-clear="(true|false)[o]"/>
<remove-related EntityValueOperations
  value-name="string [r]"
  relation-name="string [r]"
  do-cache-clear="(true|false)[o]"/>
<remove-by-and EntityValueOperations
  entity-name="string [r]"
  map-name="string [r]"
  do-cache-clear="(true|false)[o]"/>
<clear-cache-line in
EntityValueOperations
  entity-name="string [r]"
  map-name="string [o]"/>
<clear-entity-caches in
EntityValueOperations/>
<set-pk-fields EntityValueOperations
  value-name="string [r]"
  map-name="string [o]"
  set-if-null="(true | false) [o]"/>
<set-nonpk-fields in
EntityValueOperations
  value-name="string [r]"
  map-name="string [o]"
  set-if-null="(true | false) [o]"/>
<store-list in EntityListOperations
  list-name="string [r]"
  do-cache-clear="(true|false)[o]"/>
<remove-list in EntityListOperations
  list-name="string [r]"
  do-cache-clear="(true|false)[o]"/>
```

Simple Map Processor

```
<simple-map-processors> [Root Element]
<simple-map-processor/> [1..*]
</simple-map-processors>
<simple-map-processor
[Can be used under simple-map-
processors or under simple-methods]
  name="string [r]">
  <make-in-string/> [0..*]
  <process/> [0..*]
</simple-map-processor>
<make-in-string field="string [r]">
  Start Choice [0..*]
  <in-field/> [1] <property/> [1]
  <constant/> [1]
  End Choice
</make-in-string>
<in-field field="string [r]">
  <property resource="string [r]"
  property="string [r]"/>
  <constant>string</constant>
  <process field="string [r]">
  Start Choice [0..*]
  <validate-method/> [1]
  <compare/> [1] <compare-field/> [1]
  <regexp/> [1] <not-empty/> [1]
  <copy/> [1] <convert/> [1]
  End Choice
</process>
<validate-method method="string [r]"
  class="s [0..1:org.ofbiz.base.util.UtilValidate]">
  Start Choice [1]
  <fail-message/>[1] <fail-property/>[1]
  End Choice
</validate-method>
<compare
  value="str [r]" format="str [o]"
  operator="(less|greater|less-equals|
greater-equals|equals|not-equals|
contains) [r]"
  type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [o]">
  Start Choice [1]
  <fail-message/>[1] <fail-property/>[1]
  End Choice
</compare>
<compare-field
  field="str [r]" format="str [o]"
  operator="(less|greater|less-equals|
greater-equals|equals|not-equals|
contains) [r]"
  type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [o]">
  Start Choice [1]
  <fail-message/>[1] <fail-property/>[1]
  End Choice
</compare-field>
<regexp expr="string [r]">
  Start Choice [1]
  <fail-message/>[1] <fail-property/>[1]
  End Choice
</regexp>
<not-empty>
  Start Choice [1]
  <fail-message/>[1] <fail-property/>[1]
  End Choice
</not-empty>
<copy to-field="string [o]"
  replace="(true | false) [o]"
  set-if-null="(true | false) [o]"/>
<convert to-field="string [o]"
  type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [r]">
  replace="(true | false) [o]"
  set-if-null="(true | false) [o]"
  format="string [o]">
  Start Choice [1]
  <fail-message/>[1] <fail-property/>[1]
  End Choice
</convert>
```

Request & View

```

<site-conf> [Root Element]
<description/> [0..1]
<owner/> [0..1]
<errorpage/> [1]
<handler/> [1..*]
<firstvisit/> [0..1]
<preprocessor/> [0..1]
<postprocessor/> [0..1]
<request-map/> [1..*]
<view-map/> [1..*]
</site-conf>
<description>string</description>
<owner>string</owner>
<errorpage>string</errorpage>
<handler name="string [r]"
  type="(view | request) [o]"
  class="string [r]"/>
<firstvisit>
<event/> [0..*]
</firstvisit>
<preprocessor>
<event/> [0..*]
</preprocessor>
<postprocessor>
<event/> [0..*]
</postprocessor>
<after-login>
<event/> [0..*]
</after-login>
<request-map uri="string [r]"
  edit="(true | false) [o]"
  <description/> [0..1]
  <security/> [0..1]
  <event/> [0..1]
  <response/> [1..*]
</request-map>
<security https="(true|false) [o]"
  auth="(true|false) [o]"
  direct-request="(true|false) [o]"
  external-view="(true|false) [o]"/>
<event type="string [r]"
  path="str[o]" invoke="str[o]"/>
<response name="string [r]"
  type="(none | view | request |
  request-redirect | url) [r]"
  value="string [o]"/>
<view-map name="string [r]"
  page="s[o]" type="s[0..1:default]"
  info="str[o]" encoding="str[o]"
  content-type="string [o]"
  <description/> [0..1]
</view-map>

```

Request & View Example

```

[from ofbiz/applications/product/webapp/catalog/WEB-INF/controller.xml]
<site-conf xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/site-conf.xsd">
  <description>Catalog Module Site Configuration File</description>
  <owner>The Open For Business Project (c) 2001-2004</owner>
  <errorpage>/error/error.jsp</errorpage>
  <handler name="java" type="request" class="org.ofbiz.content.webapp.event.JavaEventHandler"/>
  <handler name="soap" type="request" class="org.ofbiz.content.webapp.event.SOAPEventHandler"/>
  <handler name="service" type="request" class="...content.webapp.event.ServiceEventHandler"/>
  <handler name="service-multi" type="request" class="...pp.event.ServiceMultiEventHandler"/>
  <handler name="simple" type="request" class="...content.webapp.event.SimpleEventHandler"/>
  <handler name="bsf" type="request" class="org.ofbiz.content.webapp.event.BsfEventHandler"/>
  <handler name="jpublish" type="view" class="...content.webapp.view.JPublishViewHandler"/>
  <handler name="region" type="view" class="org.ofbiz.content.webapp.view.RegionViewHandler"/>
  <handler name="screen" type="view" class="...content.webapp.view.ScreenWidgetViewHandler"/>
  <handler name="ftl" type="view" class="org.ofbiz.content.webapp.ftl.FreeMarkerViewHandler"/>
  <handler name="jsp" type="view" class="org.ofbiz.content.webapp.view.JspViewHandler"/>
  <handler name="fop" type="view" class="org.ofbiz.content.webapp.view.FopPdfViewHandler"/>
  <handler name="screenfop" type="view" class="...ontent.webapp.view.ScreenFopPdfViewHandler"/>
  <handler name="datavision" type="view" class="...content.webapp.view.DataVisionViewHandler"/>
  <handler name="jasperreportspdf" type="view" class="...pp.view.JasperReportsPdfViewHandler"/>
  <handler name="jasperreportsxml" type="view" class="...pp.view.JasperReportsXmlViewHandler"/>
  <firstvisit/></firstvisit>
  <preprocessor>
    <event type="java" path="...securityext.login.LoginEvents" invoke="checkExternalLoginKey"/>
  </preprocessor>
  <postprocessor/></postprocessor>
  <after-login/></after-login>
  <request-map uri="checkLogin" edit="false">
    <description>Verify a user is logged in.</description>
    <security https="true" auth="false"/>
    <event type="java" path="org.ofbiz.securityext.login.LoginEvents" invoke="checkLogin"/>
    <response name="success" type="view" value="main"/>
    <response name="error" type="view" value="login"/>
  </request-map>
  <request-map uri="login"><security https="true" auth="false"/>
    <event type="java" path="org.ofbiz.securityext.login.LoginEvents" invoke="login"/>
    <response name="success" type="view" value="main"/>
    <response name="error" type="view" value="login"/>
  </request-map>
  <request-map uri="logout"><security https="true" auth="true"/>
    <event type="java" path="org.ofbiz.securityext.login.LoginEvents" invoke="logout"/>
    <response name="success" type="request" value="checkLogin"/>
    <response name="error" type="view" value="main"/>
  </request-map>
  <!-- End of Security Mappings -->
  <request-map uri="main"><security https="true" auth="true"/>
    <response name="success" type="view" value="main"/>
  </request-map>
  <request-map uri="EditProduct"><security https="true" auth="true"/>
    <response name="success" type="view" value="EditProduct"/>
  </request-map>
  <request-map uri="createProduct"><security https="true" auth="true"/>
    <event type="service" path="" invoke="createProduct"/>
    <response name="success" type="view" value="EditProduct"/>
    <response name="error" type="view" value="EditProduct"/>
  </request-map>
  <request-map uri="updateProduct"><security https="true" auth="true"/>
    <event type="service" path="" invoke="updateProduct"/>
    <response name="success" type="view" value="EditProduct"/>
    <response name="error" type="view" value="EditProduct"/>
  </request-map>
  <view-map name="error" page="/error/error.jsp"/>
  <view-map name="main" type="jpublish" page="/main.ftl"/>
  <view-map name="login" type="jpublish" page="/login.ftl"/>
  <view-map name="EditProduct" type="screen"
    page="component://product/widget/catalog/ProductScreens.xml#EditProduct"/>
</site-conf>

```


Screen Widget

```

<screens> [Root Element]
<screen/> [1..*]
</screens>
<screen
name="string [r]">
<section/> [1]
</screen>
<section used in AllWidgets
name="string [o]">
<condition/> See Shared [0..1]
<actions/> See Shared [0..1]
<widgets/> [1]
<fail-widgets/> [0..1]
</section>
<widgets>
<AllWidgets/> [0..*]
</widgets>
<fail-widgets>
<AllWidgets/> [0..*]
</fail-widgets>
<AllWidgets>
<section/>
<container/>
<image/>
<label/>
<link/>
<content/>
<decorator-screen/>
<decorator-section-include/>
<include-form/>
<include-menu/>
<include-screen/>
<include-tree/>
<iterate-section/>
<sub-content/>
<platform-specific/>
</AllWidgets>

```

Screen Widget: Visual Widgets

```

[Part of Screen Widget]
<container used in AllWidgets
id="str [o]" style="str [o]">
<AllWidgets/> [0..*]
</container>
<image used in AllWidgets
src="string [o]" id="str [o]"
style="str [o]" width="str [o]"
height="str [o]" border="s [o]"
url-mode="(ofbiz|content|raw)[o]"/>
<label used in AllWidgets
text="string [o]" id="str [o]"
style="string [o]"/>
<link used in AllWidgets
text="string [o]" id="str [o]"
style="str [o]" target="s [o]"
name="str [o]" prefix="str [o]"
target-window="string [o]"
url-mode="(intra-app | inter-app |
content | plain) [o]"
full-path="(true | false) [o]"
secure="(true | false) [o]"
encode="(true | false) [o]">
<image/> [0..1]
</link>
<content used in AllWidgets
content-id="string [r]"
edit-request="string [o]"
edit-container-style="string
[0..1:editWrapper]"
xml-escape="(true | false) [o]"/>
<sub-content used in AllWidgets
content-id="s [r]" map-key="s [r]"
edit-request="string [o]"
edit-container-style="string
[0..1:editWrapper]"
xml-escape="(true | false) [o]"/>

```

Screen Widget: Include Widgets

```

[Part of Screen Widget]
<decorator-screen used in AllWidgets
name="string [r]"
location="string [o]">
<decorator-section/> [1..*]
</decorator-screen>
<decorator-section
name="string [r]">
<AllWidgets/> [0..*]
</decorator-section>
<decorator-section-include used in
AllWidgets
name="string [r]"/>
<include-form used in AllWidgets
name="string [r]"
location="string [r]"
share-scope="(true | false) [o]"/>
<include-menu used in AllWidgets
name="string [r]"
location="string [r]"/>
<include-screen used in AllWidgets
name="string [r]"
location="string [o]"
share-scope="(true | false) [o]"/>
<include-tree used in AllWidgets
name="string [r]"
location="string [r]"
share-scope="(true | false) [o]"/>
<iterate-section used in AllWidgets
entry-name="string [r]"
list-name="string [r]"
key-name="string [o]"
view-size="string [o]"
paginate-target="string [o]"
paginate="(true | false) [o]">
<section/> [0..*]
</iterate-section>

```

Screen Widget: Platform Specific

```

[Part of Screen Widget]
<platform-specific in AllWidgets>
Start Choice [1]
<html/> [0..1]
<swing/> [0..1]
End Choice
</platform-specific>
<HtmlWidgets>
<html-template/>
<html-template-decorator/>
</HtmlWidgets>
<html>
<HtmlWidgets/> [0..*]
</html>
<html-template in HtmlWidgets
location="string [r]"/>
<html-template-decorator HtmlWidgets
location="string [r]">
<html-template-decorator-section/>
[1..*]
</html-template-decorator>
<html-template-decorator-section
name="string [r]">
<AllWidgets/> [0..*]
</html-template-decorator-section>
<swing/>

```

Screen Widget Example

```

[from ofbiz/applications/product/widget/catalog/ProductScreens.xml]
<screens xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/widget-screen.xsd">
<screen name="CommonProductDecorator">
<section>
<actions>
<set field="leftbarScreenName" value="leftbar"/>
<set field="productId" from-field="parameters.productId"/>
<entity-one entity-name="Product" value-name="product"/>
</actions>
<widgets>
<decorator-screen name="main" location="component://product/widget/catalog/CommonScreens.xml">
<decorator-section name="body">
<section>
<condition><if-has-permission permission="CATALOG" action="_VIEW"/></condition>
<widgets>
<platform-specific>
<html><html-template location="component://product/webapp/catalog/product/ProductTabBar.ftl"/></html>
</platform-specific>
<container>
<label>${uiLabelMap.${labelTitleProperty}} ${product.internalName} [${productId}]</label>
</container>
<container>
<link target="EditProduct" text="[${uiLabelMap.ProductNewProduct}]" style="bu..."/>
<link target="/ecommerce/control/product?product_id=${productId}" url-mode="plain"
text="[${uiLabelMap.ProductProductPage}]" style="buttontext"/>
</container>
<decorator-section-include name="body"/>
</widgets>
<fail-widgets><label>${uiLabelMap.ProductCatalogViewPermissionError}</label></fail-widgets>
</section>
</decorator-section>
</decorator-screen>
</widgets>
</section>
</screen>
<screen name="EditProduct">
<section>
<actions><set field="labelTitleProperty" value="ProductProduct"/> ... </actions>
<widgets><decorator-screen name="CommonProductDecorator">
<decorator-section name="body">
<include-form name="EditProduct" location="component://product/webapp/catalog/product/ProductForms.xml"/>
</decorator-section>
</decorator-screen></widgets>
</section>
</screen>
</screens>

```

Form Widget

```

<forms> [Root Element]
</form> [1..*]
</forms>
<form name="string [r]"
  type="(single | list | multi |
upload) [r]"
  target="string [o]"
  target-window="string [o]"
  target-type="(intra-app | inter-app |
content | plain) [o]"
  title="string [o]"
  tooltip="string [o]"
  list-name="string [o]"
  list-entry-name="string [o]"
  default-map-name="string [o]"
  default-entity-name="str [o]"
  default-service-name="str [o]"
  default-title-area-style="str [o]"
  default-widget-area-style="str [o]"
  default-title-style="str [o]"
  default-widget-style="str [o]"
  default-tooltip-style="str [o]"
  default-required-field-style="string
[o]"
  form-title-area-style="str [o]"
  form-widget-area-style="str [o]"
  paginate="(true|false) [o]"
  paginate-target="string [o]"
  paginate-target-anchor="str [o]"
  paginate-size-field="str [o]"
  paginate-index-field="str [o]"
  paginate-previous-label="str [o]"
  paginate-next-label="str [o]"
  paginate-previous-style="str [o]"
  paginate-next-style="str [o]"
  item-index-separator="str [0..1: o]"
  extends="string [o]"
  extends-resource="string [o]"
  separate-columns="(true|false) [o]"
  view-size="string [o]"
  row-count="string [o]"
  use-row-submit="(true|false) [o]"
  skip-start="(true|false) [o]"
  skip-end="(true|false) [o]"
  hide-header="(true|false) [o]"
  odd-row-style="string [o]"
  even-row-style="string [o]"
  header-row-style="string [o]"
  default-table-style="string [o]"
</actions/> See Shared [0..1]
<alt-target/> [0..*]
<auto-fields-service/> [0..*]
<auto-fields-entity/> [0..*]
</field/> [0..*]
<sort-order/> [0..1]
</form>
<alt-target use-when="string [r]"
  target="string [o]" />
<auto-fields-service
  service-name="string [r]"
  map-name="string [o]"
  default-field-type="(edit | find |
display | hidden) [o]" />
<auto-fields-entity
  entity-name="string [r]"
  map-name="string [o]"
  default-field-type="(edit | find |
display | hidden) [o]" />
<sort-order type="(explicit) [o]">
  <sort-field/> [0..*]
</sort-order>
<sort-field name="string [r]" />

```

Form Widget Example

```

[from ofbiz/applications/product/webapp/catalog/product/ProductForms.xml]
<forms xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/widget-form.xsd">
  <form name="AddProductPrice" type="single"
    target="createProductPrice" title="" default-title-style="tableheadtext"
    default-widget-style="inputBox" default-tooltip-style="tabletext">
    <auto-fields-service service-name="createProductPrice" map-name="" />
    <field name="productId"><hidden value="{productId}" /></field>
    <field name="productPriceTypeId">
      <drop-down allow-empty="false">
        <entity-options entity-name="ProductPriceType" description="{description}">
          <entity-order-by field-name="description" />
        </entity-options>
      </drop-down>
    </field>
    <field name="currencyUomId">
      <drop-down allow-empty="false" no-current-selected-key="{defaultCurrencyUomId}">
        <entity-options entity-name="Uom" key-field-name="uomId" description="{description}">
          <entity-constraint name="uomTypeId" value="CURRENCY_MEASURE" />
          <entity-order-by field-name="description" />
        </entity-options>
      </drop-down>
    </field>
    <field name="productStoreGroupId">
      <drop-down allow-empty="false" no-current-selected-key="NA">
        <entity-options entity-name="ProductStoreGroup" description="{productStoreGroupName}">
          <entity-order-by field-name="productStoreGroupName" />
        </entity-options>
      </drop-down>
    </field>
    <field name="submitButton" title="{uiLabelMap.CommonCreate}"
      widget-style="standardSubmit"><submit button-type="button" /></field>
  </form>
  <form name="UpdateProductPrice" type="list" target="updateProductPrice"
    title="" list-name="productPrices" default-title-style="tableheadtext"
    default-widget-style="inputBox" default-tooltip-style="tabletext">
    <auto-fields-service service-name="updateProductPrice" map-name="productPrice" />
    <field name="productId"><hidden/></field>
    <field name="productPriceTypeId" title="{uiLabelMap.ProductPriceType}"
      widget-style="tabletext"><display-entity entity-name="ProductPriceType" /></field>
    <field name="currencyUomId" title="{uiLabelMap.ProductCurrency}" widget-style="tabletext">
      <display-entity entity-name="Uom" key-field-name="uomId"
        description="{description} [{uomId}]" />
    </field>
    <field name="productStoreGroupId" title="{uiLabelMap.ProductProductStoreGroup}"
      widget-style="tabletext">
      <display-entity entity-name="ProductStoreGroup" description="{productStoreGroupName}" />
    </field>
    <field name="fromDate" title="{uiLabelMap.CommonFromDate}"
      widget-style="tabletext"><display/></field>
    <field name="lastUpdatedByText" title="{uiLabelMap.ProductLastModifiedBy}:"
      widget-style="tabletext">
      <display description="{productPrice.lastModifiedByUserLogin}" {uiLabelMap.CommonOn} $
{productPrice.lastModifiedDate}" also-hidden="false" />
    </field>
    <field name="submitButton" title="{uiLabelMap.CommonUpdate}"
      widget-style="standardSubmit"><submit button-type="button" /></field>
    <field name="deleteLink" title="&nbsp;" widget-style="buttonText">
      <hyperlink target="deleteProductPrice?productId={productId}&productPriceTypeId={
productPriceTypeId}&currencyUomId={currencyUomId}&productStoreGroupId={
productStoreGroupId}&fromDate={fromDate}"
        description="{uiLabelMap.CommonDelete}" also-hidden="false" />
    </field>
  </form>
</forms>

```

Form Widget: Fields

```
[Part of Form Widget]
<AllFields>
<check/>
<date-find/>
<date-time/>
<display/>
<display-entity/>
<drop-down/>
<file/>
<hidden/>
<hyperlink/>
<ignored/>
<image/>
<lookup/>
<password/>
<radio/>
<range-find/>
<reset/>
<submit/>
<text/>
<textarea/>
<text-find/>
</AllFields>
<field
name="string [r]"
map-name="string [o]"
entity-name="string [o]"
field-name="string [o]"
service-name="string [o]"
attribute-name="string [o]"
entry-name="string [o]"
parameter-name="string [o]"
title="string [o]"
header-link="string [o]"
header-link-style="string [o]"
tooltip="string [o]"
title-area-style="string [o]"
widget-area-style="string [o]"
title-style="string [o]"
widget-style="string [o]"
tooltip-style="string [o]"
position="posInteger [0..1:1]"
red-when="never | before-now |
after-now | by-name) [o]"
use-when="string [o]"
event="string [o]"
action="string [o]"
id-name="string [o]"
separate-column="(true|false) [o]"
required-field="(true|false) [o]"
required-field-style="string [o]"
</AllFields/> [0..1]
</field>
```

Form Widget: Field Types 1 of 2

```
[Part of Form Widget]
<check used in AllFields/>
<date-find used in AllFields
type="(timestamp|date|time) [o]"
default-value="string [o]"/>
<date-time used in AllFields
type="(timestamp|date|time) [o]"
default-value="string [o]"/>
<display used in AllFields
also-hidden="(true|false) [o]"
description="string [o]"
type="(text|currency) [o]"
currency="string [o]"/>
<display-entity used in AllFields
entity-name="string [r]"
key-field-name="string [o]"
description="str[0..1:1:1]{description}"
also-hidden="(true|false) [o]"
cache="(true|false) [o]"
<sub-hyperlink/> [0..1]
</display-entity>
```

Form Widget: Field Types 2 of 2

```
[Part of Form Widget]
<drop-down used in AllFields
allow-empty="(true|false) [o]"
current="(first-in-list|selected)
[o]"
no-current-selected-key="s[o]"
current-description="str [o]"
Start Choice [0..*]
<entity-options/> [1]
<list-options/> [1]
<option/> [1]
End Choice
<sub-hyperlink/> [0..1]
</drop-down>
<file used in AllFields
size="posInteger [0..1:25]"
maxLength="posInteger [o]"
default-value="string [o]"
<sub-hyperlink/> [0..1]
</file>
<hidden value="string [o]"/>
<hyperlink used in AllFields
also-hidden="(true | false) [o]"
target-type="(intra-app | inter-app |
content | plain) [o]"
target="string [r]"
description="string [o]"
target-window="string [o]"/>
<ignored used in AllFields/>
<image used in AllFields
border="nonNegInteger [0..1:0]"
width="positiveInteger [o]"
height="positiveInteger [o]"
value="string [o]"
default-value="string [o]"
<sub-hyperlink/> [0..1]
</image>
<lookup used in AllFields
target-form-name="string [r]"
size="posInteger [0..1:25]"
maxLength="posInteger [o]"
default-value="string [o]"
<sub-hyperlink/> [0..1]
</lookup>
<password used in AllFields
size="posInteger [0..1:25]"
maxLength="posInteger [o]"
default-value="string [o]"
<sub-hyperlink/> [0..1]
</password>
<radio used in AllFields
no-current-selected-key="s[o]"
Start Choice [0..*]
<entity-options/> [1]
<list-options/> [1]
<option/> [1]
End Choice
</radio>
<range-find used in AllFields
size="positiveInteger [0..1:25]"
maxLength="positiveInteger [o]"
default-value="string [o]"
<sub-hyperlink/> [0..1]
</range-find>
<reset used in AllFields/>
<submit used in AllFields
button-type="(button | text-link |
image) [o]"
image-location="string [o]"/>
<text used in AllFields
size="posInteger [0..1:25]"
maxLength="posInteger [o]"
default-value="string [o]"
<sub-hyperlink/> [0..1]
</text>
<textarea used in AllFields
cols="positiveInteger [0..1:60]"
rows="positiveInteger [0..1:3]"
default-value="string [o]"/>
<text-find used in AllFields
size="posInteger [0..1:25]"
maxLength="posInteger [o]"
default-value="string [o]"
<sub-hyperlink/> [0..1]
</text-find>
```

Form Widget: Field Sub-elements

```
[Part of Form Widget]
<entity-constraint
name="string [r]"
operator="(less|greater|less-equals |
greater-equals |equals|not-equals|in|
between|like) [o]"
ignore-if-null="(true|false) [o]"
ignore-if-empty="(true|false) [o]"
env-name="string [o]"
value="string [o]"/>
<entity-options
entity-name="string [r]"
key-field-name="string [o]"
description="string [r]"
cache="(true | false) [o]"
filter-by-date="(true|false|by-name)
[o]">
<entity-constraint/> [0..*]
<entity-order-by/> [0..*]
</entity-options>
<entity-order-by
field-name="string [r]"/>
<list-options
list-name="string [r]"
list-entry-name="string [o]"
key-name="string [r]"
description="string [o]"/>
<option
key="string [r]"
description="string [o]"/>
<sub-hyperlink
use-when="string [o]"
link-style="string [o]"
target-type="(intra-app | inter-app |
content | plain) [o]"
target="string [r]"
description="string [o]"
target-window="string [o]"/>
```

Menu Widget

```

<menus> [Root Element]
<menu/> [1..*]
</menus>
<menu
  name="string [r]"
  type="(simple | cascade) [o]"
  title="string [o]"
  tooltip="string [o]"
  default-entity-name="string [o]"
  default-title-style="string
[0..1:tabButton]"
  default-widget-style="string [o]"
  default-tooltip-style="string [o]"
  default-selected-style="str
[0..1:tabButtonSelected]"
  orientation="(vertical | horizontal)
[o]"
  extends="string [o]"
  extends-resource="string [o]"
  default-menu-item-name="str [o]"
  default-associated-content-id="string
[o]"
  default-hide-if-selected="(true |
false) [o]"
  menu-width="string [o]"
  default-cell-width="string [o]"
  default-disabled-title-style="string
[o]"
  selected-menuitem-context-field-
name="string [0..1:currentMenuItemName]"
  menu-container-style="string
[0..1:tabContainer]">
  default-align="(right | left) [o]"
  fill-style="string [o]"
  default-permission-operation="string
[o]"
  default-permission-entity-
action="string [o]"
  <actions/> See Shared [0..1]
  <menu-item/> [0..*]
</menu>
<menu-item
  name="str [r]" title="str [o]"
  tooltip="string [o]"
  title-style="string [o]"
  widget-style="string [o]"
  align-style="string [o]"
  tooltip-style="string [o]"
  selected-style="string [o]"
  position="string [0..1:1]"
  associated-content-id="string [o]"
  hide-if-selected="string [o]"
  cell-width="string [o]"
  disable-if-empty="string [o]"
  disabled-title-style="string [o]"
  target-window="string [o]"
  sub-menu="string [o]">
  default-align="(right | left) [o]"
  <condition/> See Shared [0..1]
  <actions/> See Shared [0..1]
  <link/> See Shared [0..1]
  <menu-item/> [0..*]
</menu-item>
<condition [Exception from Shared]
  pass-style="string [o]"
  disabled-style="string [o]">
  <AllConditionals/> [1]
</condition>
<AllActions> [Exception from Shared]
  <property-map/>
  <property-to-field/>
  <script/>
  <set/>
</AllActions>

```

Tree Widget

```

<trees> [Root Element]
<tree/> [1..*]
</trees>
<tree name="string [r]"
  root-node-name="string [r]"
  default-render-style="(simple |
follow-trail | show-peers | expand-
collapse) [o]"
  default-wrap-style="string [o]"
  expand-collapse-request="str [o]"
  trail-name="string [o]"
  open-depth="string [0..1:0]"
  post-trail-open-depth="str [0..1:0]"
  force-child-check="(true|false)[o]"
  entity-name="string [o]">
  <node/> [1..*]
</tree>
<include-screen name="string [r]"
  location="string [r]"
  share-scope="(true | false) [o]">
  <label text="string [o]"
  id="str [o]" style="str [o]">

```

Tree Widget: Node

```

<node name="string [r]"
  wrap-style="string [o]"
  render-style="(simple | follow-trail
| show-peers | expand-collapse)[o]"
  entry-name="string [o]"
  entity-name="string [o]"
  join-field-name="string [o]">
  <condition/> See Shared [0..1]
  Start Choice [0..1]
  <entity-one/> See Shared [1]
  <service/> See Shared [1]
  End Choice
  Start Choice [0..1]
  <include-screen/> [1]
  <label/> [1]
  <link/> See Shared [1]
  End Choice
  <sub-node/> [0..*]
</node>
<sub-node node-name="string [r]">
  Start Choice [1]
  <entity-and/> See Shared [1]
  <entity-condition/> See Shared [1]
  <service/> See Shared [1]
  End Choice
  <out-field-map/> [0..*]
</sub-node>

```

Menu Widget Example

```

[from ofbiz/applications/content/webapp/content/content/ContentMenus.xml]
<menus xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/widget-menu.xsd">
  <menu name="content" type="simple" title="" default-title-style="tabButton"
    default-widget-style="tabButton" default-tooltip-style="tabletext"
    default-selected-style="tabButtonSelected" default-menu-item-name="content"
    orientation="horizontal" menu-width="100%"
    default-permission-operation="HAS_AUTHOR_ROLE|CONTENT_ADMIN"
    default-permission-entity-action="ADMIN"
    default-associated-content-id="{userLogin.userLoginId}"
    selected-menuitem-context-field-name="currentMenuItemName">
    <menu-item name="FindContent" title="Find">
      <link target="FindContent"/>
    </menu-item>
    <menu-item name="EditContent" title="Content">
      <condition><not><if-empty field-name="contentId"/></not></condition>
      <link target="EditContent?contentId={contentId}"/>
    </menu-item>
    <menu-item name="AddContent" title="Content">
      <condition><if-empty field-name="contentId"/></condition>
      <link target="AddContent"/>
    </menu-item>
    <menu-item name="contentassoc" title="Association">
      <condition disabled-style="buttontextdisabled">
        <not><if-empty field-name="contentId"/></not>
      </condition>
      <link target="EditContentAssoc?contentId={contentId}"/>
    </menu-item>
  </menu>
</menus>

```

Tree Widget Example

```

[from ofbiz/applications/accounting/widget/AccountingTrees.xml]
<trees xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/widget-tree.xsd">
  <tree name="GLAccountTree" entity-name="GLAccount" root-node-name="node-root"
    render-style="expand-collapse" default-wrap-style="accountItem">
    <node name="node-root">
      <sub-node node-name="node-body">
        <entity-and entity-name="GLAccount">
          <field-map field-name="parentGLAccountId" env-name="NA"/>
        </entity-and>
      </sub-node>
    </node>
    <node name="node-body" wrap-style="treewrapper">
      <link style="treeitem"
        target="GLAccountNavigate?glAccountId={glAccountId}&trail={currentNodeTrailPiped}"
        text="{glAccountId} {accountName} {postedBalance}"/>
      <sub-node node-name="node-body">
        <entity-and entity-name="GLAccount">
          <field-map field-name="parentGLAccountId" env-name="glAccountId"/>
        </entity-and>
      </sub-node>
    </node>
  </tree>
</trees>

```

Conditions

```

<AllConditionals>
<and/> <xor/> <or/> <not/>
<if-has-permission/>
<if-entity-permission/>
<if-validate-method/>
<if-compare/> <if-compare-field/>
<if-regexp/> <if-empty/>
</AllConditionals>
<condition>
<AllConditionals/> [1]
</condition>
<and used in AllConditionals>
<AllConditionals/> [1..*]
</and>
<xor used in AllConditionals>
<AllConditionals/> [1..*]
</xor>
<or used in AllConditionals>
<AllConditionals/> [1..*]
</or>
<not used in AllConditionals>
<AllConditionals/> [1]
</not>
<if-has-permission in AllConditionals
permission="string [r]"
action="string [o]"/>
<if-entity-permission AllConditionals
entity-name="string [r]"
entity-id="string [r]"
target-operation="string [r]"/>
<if-validate-method in AllConditionals
field-name="string [r]"
method="string [r]"
class="string
[0..1:org.ofbiz.base.util.UtilValidate]"/>
<if-compare used in AllConditionals
field-name="string [r]"
operator="(<less|greater|less-equals|
greater-equals|equals|not-equals|
contains) [r]"
value="string [r]"
type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [o]"
format="string [o]"/>
<if-compare-field in AllConditionals
field-name="string [r]"
operator="(<less|greater|less-equals|
greater-equals|equals|not-equals|
contains) [r]"
to-field-name="string [o]"
type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [o]"
format="string [o]"/>
<if-regexp used in AllConditionals
field-name="string [r]"
expr="string [r]"/>
<if-empty used in AllConditionals
field-name="string [r]"/>

```

Actions - General

```

<AllActions>
<get-related-one/>
<get-related/>
<property-map/>
<property-to-field/>
<script/>
<service/>
<set/>
<entity-and/>
<entity-condition/>
<entity-one/>
</AllActions>
<actions>
<AllActions/> [0..*]
</actions>
<get-related-one used in AllActions
value-name="string [r]"
relation-name="string [r]"
use-cache="(true | false) [o]"
to-value-name="string [r]"/>
<get-related used in AllActions
value-name="string [r]"
relation-name="string [r]"
map-name="string [o]"
order-by-list-name="string [o]"
use-cache="(true | false) [o]"
list-name="string [r]"/>
<property-map used in AllActions
resource="string [r]"
map-name="string [r]"
global="(true | false) [o]"/>
<property-to-field used in AllActions
resource="string [r]"
property="string [r]"
field="string [r]"
default="string [o]"
no-locale="(true | false) [o]"
arg-list-name="string [o]"/>
<script used in AllActions
location="string [r]"/>
<service used in AllActions
service-name="string [r]"
result-map-name="string [o]"
auto-field-map="(true|false) [o]"
result-map-list-name="string [o]"/>
<field-map/> [0..*]
</service>
<set used in AllActions
field="string [r]"
from-field="string [o]"
value="string [o]"
default-value="string [o]"
global="(true|false) [o]"
from-scope="(screen | user |
application) [o]" [Screen Widget Only]
to-scope="(screen | user |
application) [o]" [Screen Widget Only]
type="(PlainString|String|BigDecimal|
Double|Float|Long|Integer|Date|Time|
Timestamp|Boolean|Object) [o]"/>

```

Actions - Entity

```

<entity-and used in AllActions
entity-name="string [r]"
use-cache="(true | false) [o]"
filter-by-date="(true|false|by-name)
[o]"
result-set-type="(forward|scroll)
[o]"
list-name="string [r]">
<field-map/> [1..*]
<select-field/>[0..*]<order-by/>[0..*]
Start Choice [0..1]
<limit-range/> [1] <limit-view/> [1]
<use-iterator/> [1]
End Choice
</entity-and>
<entity-condition used in AllActions
entity-name="string [r]"
use-cache="(true | false) [o]"
filter-by-date="(true|false|by-name)
[o]"
distinct="(true|false) [o]"
delegator-name="string [o]"
result-set-type="(forward|scroll)
[o]"
list-name="string [r]">
Start Choice [0..1]
<condition-expr/> [1]
<condition-list/> [1]
<condition-object/> [1]
End Choice
<having-condition-list/> [0..1]
<select-field/>[0..*]<order-by/>[0..*]
Start Choice [0..1]
<limit-range/> [1] <limit-view/> [1]
<use-iterator/> [1]
End Choice
</entity-condition>
<entity-one used in AllActions
entity-name="string [r]"
value-name="string [o]"
use-cache="(true|false) [o]"
auto-field-map="(true|false) [o]">
<field-map/>[0..*]
<select-field/>[0..*]
</entity-one>
<condition-expr field-name="str [r]"
operator="(<less|greater|less-equals|
greater-equals|equals|not-equals|in|
between|like) [o]"
ignore-if-null="(true|false) [o]"
ignore-if-empty="(true|false) [o]"
env-name="string [o]"
value="string [o]"/>
<condition-list
combine="(and|or) [o]">
Start Choice [1..*]
<condition-expr/> [1]
<condition-list/> [1]
<condition-object/> [1]
End Choice
</condition-list>
<condition-object field-name="s[r]"/>
<field-map field-name="string [r]"
env-name="string [o]"/>
<having-condition-list
combine="(and|or) [o]">
Start Choice [1..*]
<condition-expr/> [1]
<condition-list/> [1]
<condition-object/> [1]
End Choice
</having-condition-list>
<limit-range
start="nonNegativeInteger [r]"
size="nonNegativeInteger [r]"/>
<limit-view
view-index="nonNegativeInteger [r]"
view-size="nonNegativeInteger [r]"/>
<use-iterator/>
<order-by field-name="string [r]"/>
<select-field field-name="str [r]"/>

```

Link/Image

```

<link
text="str [o]" id="str [o]"
style="str [o]" name="str [o]"
target="str[o]" prefix="str[o]"
target-window="string [o]"
url-mode="(intra-app | inter-app |
content | plain) [o]"
full-path="(true | false) [o]"
secure="(true | false) [o]"
encode="(true | false) [o]">
<image/> [0..1]
</link>
<image
src="str [o]" style="str [o]"
width="str[o]" height="str[o]"
border="string [o]"
url-mode="(ofbiz|content|raw) [o]"
id="string [o]"/>

```

Flexible Syntax

Used in values and variable names.

- "\${}" Used to insert the value of a variable: `value="${productId}"`
- "." Used to access a sub-value, or a value in a Map: `product.productId`
- "[]" Used to access a member of a List: `products[0]`; for put replaces the value, unless you use a + before the number: `products[+0]` is before 0, beginning of List; to put at end of List leave empty: `products[;]`
- `env-name="product.productId"`
- `value="${product.productId}"`
- `products[${curIdx}].${curKey}"`

Entity Field Type

```
<fieldtypemodel>
<field-type-def/> [0..*]
</fieldtypemodel>
<field-type-def type="string [r]"
sql-type="string [r]"
sql-type-alias="string [o]"
java-type="string [r]">
<validate/> [0..*]
</field-type-def>
<validate method="string [r]"
class="string
[0..1:org.ofbiz.base.util.UtilValidate]">
```

Entity Field Type Example

```
[ofbiz/framework/entity/fieldtype/*.xml]
<fieldtypemodel xmlns:xsi="http://www..."
xsi:noName..="..dtds/fieldtypemodel.xsd">
<field-type-def type="email"
sql-type="VARCHAR2(255)"
java-type="String">
<validate method="isEmail"/>
</field-type-def>
</fieldtypemodel>
```

Entity Config 1 of 3

```
<entity-config>
<resource-loader/> [1..*]
<transaction-factory/> [1]
<delegator/> [1..*]
<entity-model-reader/> [1..*]
<entity-group-reader/> [1..*]
<entity-eca-reader/> [0..*]
<entity-data-reader/> [0..*]
<field-type/> [1..*]
<datasource/> [1..*]
</entity-config>
<resource-loader name="string [r]"
class="string [r]"
prepend-env="string [o]"
prefix="string [o]"/>
<resource loader="string [r]"
location="string [r]"/>
```

Entity Config Example

```
[ofbiz/framework/entity/config/entityengine.xml]
<entity-config xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/entity-config.xsd">
<resource-loader name="fieldfile" class="org.ofbiz.base.config.FileLoader"
prepend-env="ofbiz.home" prefix="/framework/entity/fieldtype/">
<transaction-factory class="org.ofbiz.entity.transaction.JNDIFactory">
<user-transaction-jndi jndi-server-name="default" jndi-name="java:comp/UserTransaction"/>
<transaction-manager-jndi jndi-server-name="default" jndi-name="java:comp/UserTransaction"/>
</transaction-factory>
<delegator name="default" field-type-name="string" entity-model-reader="main" entity-group-reader="main"
entity-eca-reader="main" distributed-cache-clear-enabled="false">
<group-map group-name="org.ofbiz" datasource-name="localderby"/>[<--change datasource here]
</delegator>
<entity-model-reader name="main"/> <entity-group-reader name="main"/>
<entity-eca-reader name="main"/> <entity-data-reader name="seed"/>
<entity-data-reader name="demo"/> <entity-data-reader name="ext"/>
<field-type name="hsqldb" loader="fieldfile" location="fieldtypehsqldb.xml"/>
<field-type name="derby" loader="fieldfile" location="fieldtypederby.xml"/>
<datasource name="localderby" helper-class="org.ofbiz.entity.datasource.GenericHelperDAO"
schema-name="OFBIZ" field-type-name="derby"
check-on-start="true" add-missing-on-start="true" use-pk-constraint-names="false">
<read-data reader-name="seed"/><read-data reader-name="ext"/>
<inline-jdbc jdbc-driver="org.apache.derby.jdbc.EmbeddedDriver"
jdbc-uri="jdbc:derby:ofbiz;create=true" jdbc-user-name="ofbiz" jdbc-password="ofbiz"
isolation-level="ReadCommitted" pool-minsize="2" pool-maxsize="20"/>
<!-- <jndi-jdbc jndi-server-name="localjndi" jndi-name="java:DerbyDataSource" isolation-
level="ReadCommitted"/> -->
</datasource>
</entity-config>
```

Entity Config 2 of 3

```
<transaction-factory class="str [r]">
<user-transaction-jndi/> [0..1]
<transaction-manager-jndi/> [0..1]
</transaction-factory>
<user-transaction-jndi
jndi-server-name="string [r]"
jndi-name="string [r]"/>
<transaction-manager-jndi
jndi-server-name="string [r]"
jndi-name="string [r]"/>
<delegator name="string [r]"
entity-model-reader="string [r]"
entity-group-reader="string [r]"
entity-eca-reader="string [o]"
distributed-cache-clear-
enabled=" (true | false) [o]"
distributed-cache-clear-class-
name="string
[0..1:org.ofbiz.entityext.cache.EntityCacheServices]"
distributed-cache-clear-user-login-
id="string [0..1:system]"
sequenced-id-prefix="string [o]">
<group-map/> [1..*]
</delegator>
<group-map group-name="string [r]"
datasource-name="string [r]"/>
<entity-model-reader name="str [r]">
<resource/> [0..*]
</entity-model-reader>
<entity-eca-reader name="str [r]">
<resource/> [0..*]
</entity-eca-reader>
<entity-group-reader name="str [r]"
loader="string [o]"
location="string [o]">
<resource/> [0..*]
</entity-group-reader>
<entity-data-reader name="str [r]">
<resource/> [0..*]
</entity-data-reader>
<field-type name="string [r]"
loader="str [r]" location="str [r]"/>
```

Entity Config 3 of 3

```
<datasource name="string [r]"
helper-class="string [r]"
field-type-name="string [r]"
use-schemas="(true|false) [o]"
schema-name="string [o]"
check-on-start="(true|false) [o]"
add-missing-on-start="(true | false)
[o]"
use-pk-constraint-names="(true |
false) [o]"
constraint-name-clip-length="
nonNegativeInteger [0..1:30]"
use-proxy-cursor="(true|false) [o]"
proxy-cursor-name="str[0..1:p_cursor]"
result-fetch-size="nonNegInt[0..1:0]"
use-foreign-keys="(true|false) [o]"
use-foreign-key-indices="(true |
false) [o]"
check-fks-on-start="(true | false)
[o]"
check-fk-indices-on-start="(true |
false) [o]"
fk-style="(name_constraint | name_fk)
[o]"
use-fk-initially-deferred="(true |
false) [o]"
use-indices="(true | false) [o]"
check-indices-on-start="(true |
false) [o]"
join-style="(ansi | ansi-no-
parenthesis | theta-oracle | theta-
mssql) [o]"
alias-view-columns="(true | false)
[o]"
always-use-constraint-keyword="(true
| false) [o]">
<sql-load-path/> [0..*]
<read-data/> [0..*]
Start Choice [1]
<jndi-jdbc/>[0..1]<inline-jdbc/>[0..1]
<tyrex-datasource/> [0..1]
End Choice
</datasource>
<sql-load-path path="string [r]"
prepend-env="string [o]"/>
<read-data reader-name="string [r]"/>
<inline-jdbc jdbc-driver="string [r]"
jdbc-uri="s[r]" jdbc-username="s[r]"
jdbc-password="string [r]"
isolation-level="(None|
ReadCommitted|ReadUncommitted|
RepeatableRead|Serializable) [o]"
pool-maxsize="nonNegInt [0..1:50]"
pool-minsize="nonNegInt [0..1:2]"
pool-sleeptime="nNI [0..1:30000]"
pool-lifetime="nNI [0..1:60000]"
pool-deadlock-maxwait="[0..1:30000]"
pool-deadlock-retrywait="[0..1:10000]"
pool-jdbc-test-stmt="string [o]"
pool-xa-wrapper-class="str
[0..1:org.enhydra.jdbc.standard.StandardXADataSource]">
<jndi-jdbc jndi-name="string [r]"
jndi-server-name="string [r]"
isolation-level="(None|
ReadCommitted|ReadUncommitted|
RepeatableRead|Serializable) [o]"/>
<tyrex-datasource
datasource-name="string [r]"
isolation-level="(None|
ReadCommitted|ReadUncommitted|
RepeatableRead|Serializable) [o]"/>
```

Service Config

```

<service-config>
<authorization/> [1]
<thread-pool/> [1] <engine/> [0..*]
<service-location/> [0..*]
<startup-service/> [0..*]
<resource-loader/> [0..*]
<global-services/> [0..*]
<service-groups/> [0..*]
<service-ecas/> [0..*]
<jms-service/> [0..*]
</service-config>
<authorization service-name="str[r]"/>
<thread-pool send-to-pool="str [r]"
  purge-job-days="nonNegInt [0..1:30]"
  failed-retry-min="nonNegInt[0..1:30]"
  ttl="nonNegativeInteger [r]"
  wait-millis="nonNegativeInteger [r]"
  jobs="nonNegativeInteger [r]"
  min-threads="nonNegativeInteger [r]"
  max-threads="nonNegativeInteger [r]"
  poll-enabled="(true | false) [o]"
  poll-db-millis="nonNegInteger [r]">
<run-from-pool/> [0..*]
</thread-pool>
<run-from-pool name="string [r]"/>
<engine name="str[r]" class="str[r]"/>
<startup-service name="string [r]"
  runtime-data-id="string [o]"
  runtime-delay="nonNegInt [0..1:0]"
  run-in-pool="string [o]"/>
<service-location name="string [r]"
  location="string [r]"/>
<resource-loader name="string [r]"
  class="string [r]"
  prepend-env="string [o]"
  prefix="string [o]"/>
<global-services loader="string [r]"
  location="string [r]"/>
<service-groups loader="string [r]"
  location="string [r]"/>
<service-ecas loader="string [r]"
  location="string [r]"/>
<jms-service name="string [r]"
  send-mode="(none | all | first-
available | random | round-robin |
least-load) [o]">
<server/> [1..*]
</jms-service>
<server jndi-name="string [r]"
  jndi-server-name="string [r]"
  topic-queue="string [r]"
  type="(topic | queue) [r]"
  username="string [o]"
  password="string [o]"
  client-id="string [o]"
  listen="(true | false) [o]"
  listener-class="string [o]"/>

```

Service Config Example

```

[ofbiz/framework/service/config/serviceengine.xml]
<service-config xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/service-config.xsd">
<authorization service-name="userLogin"/>
<thread-pool send-to-pool="pool" purge-job-days="4" failed-retry-min="3"
  ttl="18000000" wait-millis="750" jobs="10" min-threads="5" max-threads="15"
  poll-enabled="true" poll-db-millis="20000">
  <run-from-pool name="pool"/>
</thread-pool>
<engine name="bsh" class="org.ofbiz.service.engine.BeanShellEngine"/>
<engine name="group" class="org.ofbiz.service.group.ServiceGroupEngine"/>
<engine name="http" class="org.ofbiz.service.engine.HttpEngine"/>
<engine name="interface" class="org.ofbiz.service.engine.InterfaceEngine"/>
<engine name="jacl" class="org.ofbiz.service.engine.BSFEngine"/>
<engine name="java" class="org.ofbiz.service.engine.StandardJavaEngine"/>
<engine name="javascript" class="org.ofbiz.service.engine.BSFEngine"/>
<engine name="jms" class="org.ofbiz.service.jms.JmsServiceEngine"/>
<engine name="jpython" class="org.ofbiz.service.engine.BSFEngine"/>
<engine name="route" class="org.ofbiz.service.engine.RouteEngine"/>
<engine name="rmi" class="org.ofbiz.service.rmi.RmiServiceEngine"/>
<engine name="simple" class="org.ofbiz.minilang.SimpleServiceEngine"/>
<engine name="soap" class="org.ofbiz.service.engine.SOAPClientEngine"/>
<engine name="ofbiz-workflow" class="org.ofbiz.workflow.WorkflowEngine"/>
<engine name="workflow" class="org.ofbiz.shark.service.SharkServiceEngine"/>
<service-location name="main-rmi" location="rmi://localhost:1099/RMIDispatcher"/>
<service-location name="main-http"
  location="http://localhost:8080/webtools/control/httpService"/>
<service-location name="entity-sync-rmi" location="rmi://localhost:1099/RMIDispatcher"/>
<service-location name="entity-sync-http"
  location="http://localhost:8080/webtools/control/httpService"/>
<service-location name="rita-rmi" location="rmi://localhost:1099/RMIDispatcher"/>
<service-location name="eecdcc-test"
  location="http://localhost:8080/webtools/control/httpService"/>
<startup-service name="testScv" runtime-data-id="9900" runtime-delay="0" run-in-pool="pool"/>
<jms-service name="serviceMessenger" send-mode="all">
  <server jndi-server-name="default" jndi-name="jms/TopicConnectionFactory"
    topic-queue="jms/OFBTopic" type="topic" username="admin" password="admin" listen="true"/>
</jms-service>
</service-config>

```

Containers Example - javamail

```

[ofbiz/framework/base/config/ofbiz-containers.xml]
<container name="javamail-container" class="org.ofbiz.service.mail.JavaMailContainer">
  <property name="delegator-name" value="default"/>
  <property name="dispatcher-name" value="JavaMailDispatcher"/>
  <property name="run-as-user" value="system"/> <property name="poll-delay" value="300000"/>
  <!-- if true, will delete messages after fetching; otherwise will mark as seen -->
  <property name="delete-mail" value="false"/>
  <property name="default-listener" value="store-listener">
    <!-- imap & pop3 supported, pop3 can't mark messages seen, you need to delete them -->
    <property name="mail.store.protocol" value="imap"/>
    <property name="mail.host" value="{host}"/> <property name="mail.user" value="{user}"/>
    <property name="mail.pass" value="{pass}"/> <property name="mail.debug" value="true"/>
  </property>
</container>

```

Mail-CA (MCA) Rules

```

<service-mca> [Root Element]
<mca/> [1..*]
</service-mca>
<mca mail-rule-name="string [r]">
  Start Choice [0..*]
  <condition-field/>[1]
  <condition-header/>[1]
  <condition-service/>[1]
  End Choice
  <action/> [1..*]
</mca>
<condition-field
  field-name="string [r]"
  operator="(empty | not-empty |
matches | not-matches | equals | not-
equals) [r]"
  value="string [o]"/>
<condition-header header-name="str[r]"
  operator="(empty | not-empty |
matches | not-matches | equals | not-
equals) [r]"
  value="string [o]"/>
<condition-service
  service-name="string [r]"/>
<action service="string [r]"
  mode="(sync|async) [r]"
  runAsUser="string [o]"
  persist="(true|false) [o]"/>

```

JNDI Servers

```
<jndi-config>
<jndi-server/> [0..*]
</jndi-config>
<jndi-server
name="string [r]"
context-provider-url="string [o]"
initial-context-factory="str [o]"
url-pkg-prefixes="string [o]"
security-principal="string [o]"
security-credentials="str [o]">
```

JNDI Servers Example

```
<jndi-config xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://www.ofbiz.org/dtds/jndi-config.xsd">
<jndi-server name="default"/>
<jndi-server name="localjndi" context-provider-url="rmi://127.0.0.1:1099"
initial-context-factory="com.sun.jndi.rmi.registry.RegistryContextFactory"
url-pkg-prefixes="java.naming.rmi.security.manager"
security-principal="username" security-credentials="password"/>
</jndi-config>
```

Cache Properties

```
cache.file.store=data/utlcache
default.maxSize=0
default.expireTime=0
default.useSoftReference=false
# in milliseconds, 0 means no limit
# 30 min = 1800000
my.cache.name.maxSize=1800000
```

URL Properties

```
port.https.enabled=Y
port.https=8443
force.https.host=dynamic.ofbiz.org
port.http=8080
force.http.host=dynamic.ofbiz.org
content.url.prefix.secure=https://akamai...
content.url.prefix.standard=http://akamai...
cookie.domain=ofbiz.org
```

Debug Properties

```
# Using Avalon Exception Util
pack.exception=true
# These top level switches are used before
calling Log4J, or if Log4J is not used
print.verbose=true
print.timing=true
print.info=true
print.important=true
print.warning=true
print.error=true
print.fatal=true
# From here out standard log4j settings, see
log4j documentation for more information
log4j.rootLogger=ALL, stdout, file
# Options: ALL, INFO, WARN, ERROR
log4j.logger.NoModule=ALL
log4j.logger.org.ofbiz=ALL
log4j.logger.org.ofbiz.minerva=WARN
```

Security XML

```
<security-config>
<security name="default"/>
<security name="myCustom"
class="com.mycompany.security.MySecurity"/>
</security-config>
```

Security Properties

```
security.context=default
password.length.min=5
max.failed.logins=3
# if 0, then indefinite
login.disable.minutes=30
login.disable.global.logout=false
store.login.history=true
store.login.history.on.service.auth=false
store.login.history.incorrect.password=true
password.encrypt=true
# options: SHA, MD5, etc
password.encrypt.hash.type=SHA
password.accept.encrypted.and.plain=false
username.lowercase=false
password.lowercase=false
```

Component Load

```
<component-loader>
Start Choice [0..*]
<load-component/> [1]
<load-components/> [1]
End Choice
</component-loader>
<load-component
component-name="string [o]"
component-location="string [r]">
<load-components
parent-directory="string [r]">
```

Component Load Example

```
[/framework/base/config/component-load.xml]
<component-loader xmlns:xsi="http://www..."
xsi:noName...="...component-loader.xsd">
<load-component component-location="$
{ofbiz.home}/components/party"/>
<load-components parent-directory="$
{ofbiz.home}/hot-deploy"/>
</component-loader>
```

Containers

```
<ofbiz-containers>
<container/> [1..*]
</ofbiz-containers>
<container name="string [r]"
class="string [r]">
<property/> [0..*]
</container>
<property name="string [r]"
value="string [o]">
<property/> [0..*]
<property-value/> [0..1]
</property>
<property-value>Mixed</property-value>
```

Containers Example

```
[ofbiz/framework/base/config/ofbiz-containers.xml]
<ofbiz-containers xmlns:xsi="http://www.w3..." xsi:noName...="...dtds/ofbiz-containers.xsd">
<container name="component-container" class="org.ofbiz.base.container.ComponentContainer"/>
<container name="classloader-container" class="org.ofbiz.base.container.ClassLoaderCo..."/>
<container name="jotm-container" class="org.ofbiz.jotm.container.JotmContainer"/>
<container name="beanshell-container" class="org.ofbiz.base.container.BeanShellContainer">
<property name="telnet-port" value="9990"/> <property name="app-name" value="OFBiz"/>
</container>
</ofbiz-containers>
```

OFBiz Component Example

```
[ofbiz/applications/product/ofbiz-containers.xml]
<ofbiz-component name="product" xmlns:xsi="http://..." xsi:noName...="...ofbiz-component.xsd">
<resource-loader name="main" type="component"/> <classpath type="dir" location="config"/>
<classpath type="dir" location="script"/> <classpath type="jar" location="build/lib/*"/>
<entity-resource type="model" reader-name="main" loader="main"
location="entitydef/entitymodel.xml"/>
<entity-resource type="group" reader-name="main" loader="main"
location="entitydef/entitygroup.xml"/>
<entity-resource type="eca" reader-name="main" loader="main" location="entitydef/ecas.xml"/>
<entity-resource type="data" reader-name="seed" loader="main"
location="data/ProductTypeData.xml"/>
<service-resource type="model" loader="main" location="servicedef/services.xml"/>
<service-resource type="eca" loader="main" location="servicedef/secas.xml"/>
<service-resource type="group" loader="main" location="servicedef/groups_shipment.xml"/>
<webapp name="catalog" title="Catalog" server="default-server" location="webapp/catalog"
base-permission="CATALOG" mount-point="/catalog"/>
</ofbiz-component>
```

OFBiz Component

```
<ofbiz-component
name="string [r]">
<depends-on/> [0..*]
<resource-loader/> [0..*]
<classpath/> [0..*]
<entity-resource/> [0..*]
<service-resource/> [0..*]
<webapp/> [0..*]
</ofbiz-component>
<depends-on component-name="str [r]">
<resource-loader name="string [r]"
type="(component | file | classpath |
url) [o]"
prepend-env="string [o]"
prefix="string [o]">
<classpath type="(jar | dir) [r]"
location="string [r]">
<entity-resource reader-name="str [r]"
loader="str [r]" location="str [r]"
type="(model|group|eca|data) [r]">
<service-resource loader="string [r]"
location="string [r]"
type="(model|group|eca) [r]">
<test-suite loader="string [r]"
location="string [r]">
<webapp name="string [r]"
title="str [o]" server="str [r]"
location="string [r]"
mount-point="string [o]"
app-bar-display="(true|false) [o]"
base-permission="string [o]">
<virtual-host/> [0..*]
<init-param/> [0..*]
</webapp>
<virtual-host host-name="string [r]">
<init-param name="string [r]"
value="string [r]">
```




