



IBM Software Group

WebSphere Commerce Common Promotion Issues and Customizations

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WebSphere Commerce Support
21 August 2014



WebSphere® Support Technical Exchange



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Agenda

- Promotion Configuration Flags
- Manage Promotion Codes
- Common Promotion Code Errors
- Customizations scenarios
- Additional Promotion Setups
- Recommend APARs

Promotion Configuration Flags



Promotion Component Configuration File

- The promotions component configuration file (wc-admin-component.xml) contains properties that are related to configuring promotions features for Management Center.
- Change the properties to suit the business needs of your site.
- This file is stored in the following locations:

WC_eardir\xml\config\com.ibm.commerce.promotion\wc-admin-component.xml

WC_eardir\xml\config\com.ibm.commerce.promotion-fep\template\wc-admin-component.xml

Changing Promotion Component Configuration File

- When modifying, create a custom wc-admin-component.xml file that contains the changed properties only.

WC_eardir\xml\config\com.ibm.commerce.promotion-ext\wc-admin-component.xml

- Within the `<_config:configgrouping name="PromotionRuntime">` element, remove any properties that you have not changed so that only the changed properties remain in the customized file.
 - ▶ + This file will remain as it is when any fix pack, feature pack, or iFix are applied.
 - ▶ + If specified, properties from custom file will get picked up at the runtime.

Common Configuration Properties (Flags)

- **PopulateCodeColumnOfPxPromotionTable**

This property indicates whether the `PX_PROMOTION.CODE` column is to be populated with a list of public promotion codes. The `PX_PROMOTION.CODE` column has a length of 128 characters and might not accommodate many public promotion codes for a promotion. The public promotion codes are saved one per row to the `PX_PROMOCD` table.

The Value parameter can be set to the following values:

false

Disables writing to this database column. If you create a promotion that has many public promotion codes, you are recommended to set this flag to be false.

true

Enables writing to this database column. This value is the default value.

Common Configuration Properties (Flags) cont.

- PromotionUniqueCodeValidation

Controls validation of unique promotion codes in management center. This property indicates whether a validation error message is to be thrown when a public promotion code (manually entered by the user) is reused in another active promotion.

The Value parameter can be set to following values:

false

Validation is not enabled. A business user can assign the same promotion code to more than one active promotion in the same store. This setting is the default setting.

true

Validation is enabled. Prevents business users from assigning the same promotion code to more than one active promotion in the same store. This setting enforces unique promotion codes so that only one associated promotion can apply to a customer's order on the storefront. When a business user activates a promotion, validation takes place. An error message informs the business user that the promotion code is being used.

Common Configuration Properties (Flags) cont.

■ PromotionUniquePriorityValidation

Controls validation of unique promotion priorities. This property indicates whether a validation error message is to be thrown when a promotion priority is reused in another active promotion.

The Value parameter can be set to the following values:

false

Validation is not enabled. Allows business users to assign the same priority to more than one active promotion in the same promotion group in the same store. This setting is the default setting.

true

Validation is enabled. Prevents business users from assigning the same priority to more than one active promotion in the same promotion group in the same store. An error message informs the business user that the same priority is used by active promotion in the same promotion group.

Configuration Properties (Flags) cont.

More information:

- ▶ Additional Properties

http://www-01.ibm.com/support/knowledgecenter/SSZLC2_7.0.0/com.ibm.commerce.management-center

- ▶ Changing properties

http://www-01.ibm.com/support/knowledgecenter/SSZLC2_7.0.0/com.ibm.commerce.management-center

- ▶ Exclude characters from system generated promotion codes

Alphabetic*PatternCharacters

http://www-01.ibm.com/support/knowledgecenter/SSZLC2_7.0.0/com.ibm.commerce.management-center

Manage Promotion Codes



Manage Promotion Codes

- Promotion code Tables
 - PX_PROMOTION
 - PX_CDPOOL
 - PX_CDPROMO (Not used post JR45153)
 - PX_CDUSAGE
- Deleting Promotion code
 - DB clean
 - Cleans the table based on status.

Promotion Code Tables - relation

select * from cldpromo

PX_PROMOTION_ID
10000651
10000652

select * from px_cdpool

PX_CDPOOL_ID	STORE_ID	USAGETYPE	CODE	STATUS	REFERENCE_ID
10001	10001	1	'def'	1	10000652
10002	10001	1	'abc'	1	10000651

select * from px_cdusage

PX_CDUSAGE_ID	PX_CDPOOL_ID	ORDERS_ID	STATUS
10001	10002	11001	4
10002	10001	11001	4

Common Promotion Code Errors



Common Errors – Promotion codes

1. Invalid promotion code at runtime when shopper applies promotion code to the order.

Example: Promotion code “xyz” is invalid

2. Allocating Promotion Code when sending out promotion email.

Example: A promotion code could not be allocated from the promotion with ID <promotion ID>.

Troubleshooting - Promotion Code Invalid

- If a promotion code has been entered and the promotion code has been determined to be invalid, the following would be a sample message seen in the trace file:

```
[10/07/14 17:19:15:198 MST] 000000b7 CommerceSrvr A  
com.ibm.commerce.marketing.commands.PromotionCodeAddRemoveControllerCmdIm  
pl validatePromotionCode Promotion code "WELCOMEBACK" is invalid.
```

- Validation Performs the following tasks:
 - 1) Checks if the code is valid
 - 2) Checks if the promotion identified by this code is active
 - 3) Checks if the promotion identified by this code has reached the redemption limit both overall and for this user in particular
- Not checked are:
 - 1) If the promotion identified by this code is applicable to the current order based on its content
 - 2) If the promotion identified by this code will be eliminated as a result of policy violations.

Troubleshooting - Promotion Code Invalid cont.

- There are 3 potential causes:
 - 1) The promotion code 'WELCOMEBACK' doesn't exist.
 - 2) The promotion code can only be used once, and has already reached that limit.
 - 3) When promotion code entered is invalid, that is, can not be resolved to a promotion based on the store_id and promotion code provided.

Troubleshooting - Promotion Code Invalid cont.

■ Cause 1

Check the database table to check if the promotion and associated promotion code exists

- For public promotion codes:

```
select PX_PROMOTION_ID, NAME, STORE_ID, STATUS, CODE from  
PX_PROMOTION where CODE like '%PROMOCODE%'
```

Check that the status of the promotion is set to 1

- For unique promotion codes:

```
select PX_PROMOTION_ID, NAME, STORE_ID, STATUS, CODE from  
PX_PROMOTION in (select REFERENCE_ID from PX_CDPOOL where CODE  
like '%PROMOCODE%')
```

Check that there is such promotion code in PX_CDPOOL table.

Troubleshooting - Promotion Code Invalid cont.

■ Cause 2

The promotion code can only be used once, and has already reached that limit.

Check runtime XMLPARAM for the promotion

1) select XMLPARAM from PX_PROMOTION where name like '%<your promotion name>%'

2) Check the redemption limit:

<PerOrderLimit>-1</PerOrderLimit>

<PerShopperLimit> 1</PerShopperLimit>

<ApplicationLimit>-1</ApplicationLimit>

-1 = unlimited

positive number= actual limit

In this scenario, if a shopper has already used that promotion, the same shopper will not be able to use it again thus it will appear in the trace file as invalid. Check to make sure that the customer has set the redemption limits per their requirements

Troubleshooting - Promotion Code Invalid cont.

■ Cause 2 cont.

Sample message seen in the trace file would be:

Promotion codes entered: [WELCOMEBACK]

Promotion [B2B, Welcome Back 2014, 1, 0] evaluated in engine

PromotionEngine is <<Qualified>> Promotion Code: WELCOMEBACK

Targets Order Items:

Item (865005, SKU=32002-10, s=0, q=1)

Adjustments:

<Adjustment impl="com.ibm.commerce.marketing.promotion.reward.PercentOffAdjustment">

<Percentage>20</Percentage><AdjustmentType>IndividualAffectedItems</AdjustmentType></Adjustment>

Affects:

Item (865005, SKU=32002-10, s=0, q=1)

Promotion [Welcome Back 2014] has the following effect

Total Adjustment on the price is: 8.250000

Total Adjustment on the taxes is: 0

Total Adjustment on the shipping charge is: 0

Total Adjustment on the shipping tax is: 0

On item [865005]: Price Adjustment=8.250000 Tax Adjustment=0

Shipping Charge Adjustment=0 Shipping Tax Adjustment=0

Promotion [B2B, Fix Jan 2010 10 percent, 1, 0] evaluated in engine

PromotionEngine is <<Eliminated>> due to violate of policy [Product: Enforce the redemption limit] Promotion Code: WELCOMEBACK

Troubleshooting - Promotion Code Invalid cont.

■ Cause 3

When promotion code entered is invalid, that is, can not be resolved to a promotion based on the store_id and promotion code provided.

- 1) Check the store in the runtime XML file or the PX_PROMOTION table that the promotion is defined for

Note: If an e-site store is trying to make use of the common promotion, check the STOREREL table to check the promotion store relationship (-23) is correctly defined. If it is not, then this would explain why you are unable to resolve the promotion code to the promotion.

- 2) Run following queries to validate above:

- I. `select * from store where store_id in (STORE_ID, RELATEDSTORE_ID)`
- II. `select * from storerel where store_id in (STORE_ID, RELATEDSTORE_ID) and streltyp_id = -23`

Troubleshooting - promotionCodeNotAllocated

- As a action of email activity, while sending out email with promotion code, SendEmailActivity scheduler job runs into following error, the following would be a sample message seen in the log file:

```
[8/11/14 16:03:01:295 EST] 0000014b tag      E  
com.ibm.commerce.emarketing.emailtemplate.tag.TagPromotionCode.getTagValue exception:
```

Correlation Identity: 1b20321e:147c42933ea:1295

Additional Data:

null

Current exception:

Message:

promotionCodeNotAllocated

Stack trace:

com.ibm.commerce.exception.**ECApplicationException: A promotion code could not be allocated from the promotion with ID 10010001.**

at

com.ibm.commerce.emarketing.emailtemplate.tag.TagPromotionCode.getTagValue(TagPromotionCode.java:139)

Troubleshooting – promotionCodeNotAllocated cont.

- Potential Cause: PX_CDPRIMO table is empty, or there are not enough promotion code in PX_CDPOOL table to allocate all members belonging to targeted customer segment.
- Following queries can be use to validate if promotion code is available for allocation.
 - ▶ With APAR JR45153, PX_CDPRIMO is left empty for performance reasons as a result below query returns no result and code fails to allocate promotion code.

```
SELECT PX_CDPOOL.PX_CDPOOL_ID, PX_CDPOOL.CODE FROM PX_PROMOTION
PX_PROMOTION, PX_CDPOOL PX_CDPOOL, PX_CDPRIMO PX_CDPRIMO WHERE
PX_PROMOTION.PX_PROMOTION_ID = <promotion Id> AND PX_PROMOTION.STATUS =
1 AND PX_PROMOTION.PX_PROMOTION_ID = PX_CDPRIMO.PX_PROMOTION_ID AND
PX_CDPRIMO.PX_CDPOOL_ID = PX_CDPOOL.PX_CDPOOL_ID AND
PX_CDPOOL.USAGETYPE = 0 AND not exists(select 1 from PX_CDUSAGE PX_CDUSAGE
where PX_CDUSAGE.PX_CDPOOL_ID = PX_CDPOOL.PX_CDPOOL_ID)
```

- ▶ Apply JR46643 to resolve the issue. This APAR is included in fix pack 8.

<http://www-01.ibm.com/support/docview.wss?uid=swg24037075>

Customization Scenarios



Customization Scenario #1 - Handle promotion codes that don't effect order total

- ▶ Scenario: There are 2 promotions with promotion codes:
 - \$20 off
 - \$10 off

These promos are **not stackable**, but commerce accepts both promotion codes with no error, but the order total is not adjusted when the second promotion code is entered. However, the second promotion code is still displayed in the shopping cart:

Promotional code	<input type="text"/>	<input type="button" value="Apply"/>	Order Subtotal:	\$175.00
<input type="button" value="x Remove abc"/>	<input type="button" value="i Details"/>		<input type="button" value="i Discount: (\$20.00)"/>	
<input type="button" value="x Remove def"/>	<input type="button" value="i Details"/>		Order Total:	\$155.00

Customization Scenario #1 - Handle promotion codes that don't effect order total

- ▶ The following is **sample code** that should be added to PromotionCodeDisplay.jsp to display a message if the code is not currently applicable to the order

```
<wbase:useBean id="sampOrderBean" classname="com.ibm.commerce.order.beans.OrderDataBean" scope="page" >
  <c:set property="orderId" value="\${orderId}" target="\${sampOrderBean}" />
</wbase:useBean>

<c:set var="codeUsed" value="false" />
<c:forEach var="sampOrderItemBean" items="\${sampOrderBean.orderItemDataBeans}">
  <c:if test="\${codeUsed eq 'false'}">
    <c:forEach var="sampOrderItemAdjustmentDB" items="\${sampOrderItemBean.orderItemAdjustmentDataBeans}">
      <c:if test="\${codeUsed eq 'false' && !empty sampOrderItemAdjustmentDB.calculationCodeDataBean
        && !empty sampOrderItemAdjustmentDB.calculationCodeDataBean.promotionCodeDataBean}">
        <c:if test="\${promotionCode.code eq sampOrderItemAdjustmentDB.calculationCodeDataBean.promotionCode}">
          <c:set var="codeUsed" value="true" />
        </c:if>
      </c:if>
    </c:forEach>
  </c:if>
</c:forEach>

<c:if test="\${codeUsed eq 'false'}">
  Promotion code "<c:out value="\${promotionCode.code}"/>" is currently not applicable for this order
</c:if>
<br/>
```

- NOTE: PromotionCodeDisplay.jsp is located at <WC_eardir>\Stores.war\<StoreDir>\Snippets\Marketing\Promotions

Customization Scenario #1 - Handle promotion codes that don't effect order total

- ▶ The following is **sample code** that should be added to PromotionCodeDisplay.jsp to display a message if the code is not currently applicable to the order

```
<wcbase:useBean id="sampOrderBean" classname="com.ibm.commerce.order.beans.OrderDataBean" scope="page" >
  <c:set property="orderId" value="{orderId}" target="{sampOrderBean}" />
</wcbase:useBean>

<c:set var="codeUsed" value="false" />
<c:forEach var="sampOrderItemBean" items="{sampOrderBean.orderItemDataBeans}">
  <c:if test="{codeUsed eq 'false'}">
    <c:forEach var="sampOrderItemAdjustmentDB" items="{sampOrderItemBean.orderItemAdjustmentDataBeans}">
      <c:if test="{codeUsed eq 'false' && !empty sampOrderItemAdjustmentDB.calculationCodeDataBean
        && !empty sampOrderItemAdjustmentDB.calculationCodeDataBean.promotionCodeDataBean}">
        <c:if test="{promotionCode.code eq sampOrderItemAdjustmentDB.calculationCodeDataBean.promotionCodeDataBean.promotionCode}">
          <c:set var="codeUsed" value="true" />
        </c:if>
      </c:if>
    </c:forEach>
  </c:if>
</c:forEach>



<c:if test="{codeUsed eq 'false'}">
  Promotion code "<c:out value="{promotionCode.code}"/>" is currently not applicable for this order
</c:if>
<br/>
```



- NOTE: PromotionCodeDisplay.jsp is located at <WC_eardir>\Stores.war\<StoreDir>\Snippets\Marketing\Promotions


Customization Scenario #1 - Handle promotion codes that don't effect order total

- ▶ After adding the above sample code the promotion codes that don't effect the order total will be displayed as follows in the shopping cart:

Promotional code

 Remove abc  Details
Promotion code "abc" is currently not applicable for this order

 Remove def  Details

Order Subtotal:	\$175.00
 Discount:	(\$20.00)
Order Total:	\$155.00

Customization Scenario # 2 – Display Promotional Price on Product Display page.

- ▶ There are 2 types of Data Beans used to display promotional data on PDP:
 - CalculationCodeListDataBean - displays the Product level promotions and descriptions, takes into account attributes.
 - PromotionalPriceDataBean - displays the discounted price for any product provided.
- ▶ The CalculationCodeListDataBean bean creates a simulated virtual order containing one quantity of the particular catalog entry prior and then invokes the promotion engine to see which promotions are applicable.
- ▶ The CalculationCodeListDataBean can be also leveraged to display promotion details in checkout and order history pages.
- ▶ We are aware of the performance impact the CalculationCodeListDataBean introduces
 - on Fix Pack 6 or with APAR JR42205 - flags added to CalculationCodeListDataBean to disable the targeting of member groups and checks for non-Management Center promotions.

Customization Scenario # 3 – Add Whole Order to CMC UI


- ▶ There are 3 adjustment types:
 - wholeOrder
 - IndividualAffectedItem
 - AllAffectedItems
- ▶ Not all promotion type have the “whole Order” charge method displayed in CMC. For example, “Applies to the total shipping charge for the order if any catalog entries use the target shipping method”

Purchase Condition and Reward

Currency: US Dollar

*Minimum order purchase:

*Fixed shipping charge:

*Charge method  Applies to the shipping charge for each catalog entry that uses the target shipping method.
 Applies to the total shipping charge for all catalog entries that use the target shipping method.
 Applies to the total shipping charge for the order if any catalog entries use the target shipping method.

Customization Scenario # 3 – Add Whole Order to CMC UI

- ▶ To add the wholeOrder option for example for a promotion type: *'Buy catalog entry X, get shipping at a fixed price'* you would need to append the following highlighted line under the element PropertyDefinition for the adjustment type of shipping charges. ProductLevelFixedShippingDiscountPurchaseConditionObjectDefinition.def

```
<!-- Used to define the shipping charge adjustment to apply for "IndividualAffectedItems", "AllAffectedItems" or "wholeOrder". -->  
<PropertyDefinition displayName="${promotionResources.promotion_shipping_Charge_method}"  
propertyName="AdjustmentType" required="true">  
  
<PropertyValue displayName="${promotionResources.promotion_shipping_catalogEntry_AdjustmentType_IndividualAffectedItems}" value="IndividualAffectedItems"/>  
<PropertyValue displayName="${promotionResources.promotion_shipping_catalogEntry_AdjustmentType_AllAffectedItems}" value="AllAffectedItems"/>  
<PropertyValue displayName="${promotionResources.promotion_shipping_AdjustmentType_WholeOrder}" value="wholeOrder"/>  
  
</PropertyDefinition>
```

Customization Scenario #4: Consider all promotions that were valid when the order was placed.

- ***OOB, only current active promotions are evaluated against an order.***
- When CSR modifies order, a promotion that has an end date in the past won't apply since its not active during order re-calculation. There may be a need to apply promotions which were valid at the time the order was placed.
- ❖ Customize **CSROrderItemUpdateCmd** to re-consider whichever promotions that were originally applied to the order. Such information can be retrieved from the PX_PROMOARG table under the column DETAIL using the previous order id. The CSROrderItemUpdateCmd would have to be customized to use the new set of promotions instead of the current promotions.

Additional Promotion Setups



Additional Promotion Setups:

❖ Buy 2X, get additional X at 50% off

- Buy X --> no discount
- Buy 2X --> no discount
- Buy 3X --> 50% off 3rd X
- Buy 4X --> 50% off 3rd and 4th X

- Setup a promotion in CMC 'Buy catalog entry X, get additional X at a percentage off' and implement the following changes:

```
<PurchaseCondition impl="com.ibm.commerce.marketing.promotion.condition.PurchaseCondition">
<Pattern impl="com.ibm.commerce.marketing.promotion.condition.Pattern">
<UniqueConstraints>false</UniqueConstraints>
<Constraint impl="com.ibm.commerce.marketing.promotion.condition.Constraint">
<WeightedRange impl="com.ibm.commerce.marketing.promotion.condition.WeightedRange">
<LowerBound>3</LowerBound>
<UpperBound>-1</UpperBound>
<Weight>1</Weight>
</WeightedRange>
```

```
<RewardChoice>
<Reward impl="com.ibm.commerce.marketing.promotion.reward.DefaultReward">
<AdjustmentFunction impl="com.ibm.commerce.marketing.promotion.reward.AdjustmentFunction">
<FilterChain impl="com.ibm.commerce.marketing.promotion.condition.FilterChain">
<Filter impl="com.ibm.commerce.marketing.promotion.condition.OrderedQuantityFilter">
<Type>lowest</Type>
<FilterCriteria>rest</FilterCriteria>
<NoOfItems>2</NoOfItems>
</Filter>
</FilterChain>
```

Additional Promotion Setups:

- ❖ Buy 2X from Category A and get additional X for free from Category A, where Y is the lowest price item
- ❖ **Example:** The cart has 3 items from Category A:
X - \$15
Y - \$10
Z - \$12
- ❖ **Requirement:** Item Y should get the discount = 100% = free.

- ❖ **Solution:** Add the following filter in the Purchase Condition section:

```
<Filter impl="com.ibm.commerce.marketing.promotion.condition.ItemSortingFilter">  
  <SortingMethod>PriceHighToLow</SortingMethod>  
  <SplitMethod>SplitEndToStart</SplitMethod>  
</Filter>
```

- ❖ And the following filter in the reward section:

```
<Filter impl="com.ibm.commerce.marketing.promotion.condition.ItemSortingFilter">  
  <SortingMethod>PriceLowToHigh</SortingMethod>  
</Filter>
```

- ❖ To allow picking the lowest price item with the above configuration APAR JR41101 is required.

Recommended APARs



Recommended Promotion Performance APARs:

- **APAR JR46643** - The performance of sending marketing e-mail to a large number of customers can be very slow when the e-mail template contains a PromotionCode tag which references a promotion leveraging unique promotion codes.
- **APAR JR41929** - Addresses a problem that occurs when you generate or import several million unique promotion codes. The generating or importing of this many records can cause degradation of performance, possible scheduled job failures, and increased chances of database deadlocks.
- **APAR SE49279** - Improves performance related to create/update of the PX_PROMOARG database table.
- **APAR JR39864** - Improve the performance of populating a large numbers of promotion codes.

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