

#### **Introduction to Purchase Flow**

Presenter's Name Presenter's Title



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### **Agenda**

- Form Handlers Modifying Cart
- Form Handlers Checking Out

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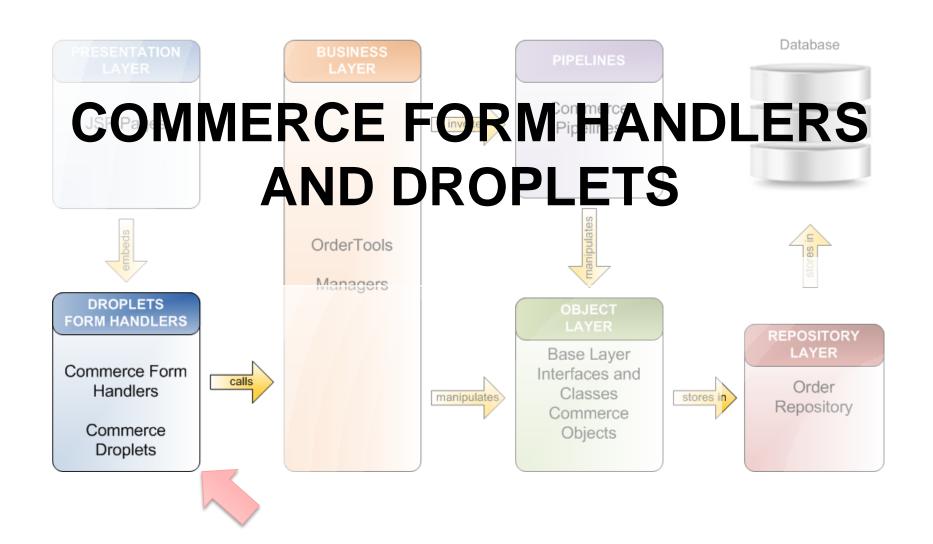
## **Learning Objectives**

At the end of this lesson you should be able to:

- Learn about the various commerce form handlers and droplets
- Use the cart modifier form handler to add items to cart and modify current order
- Use checkout form handler and express checkout form handler to place an order
- Create shipping groups with the Shipping group form handler
- Create payment groups with the Payment group form handler
- Submit, save and cancel and order
- Learn about the Full Shopping Cart form handler to place an order







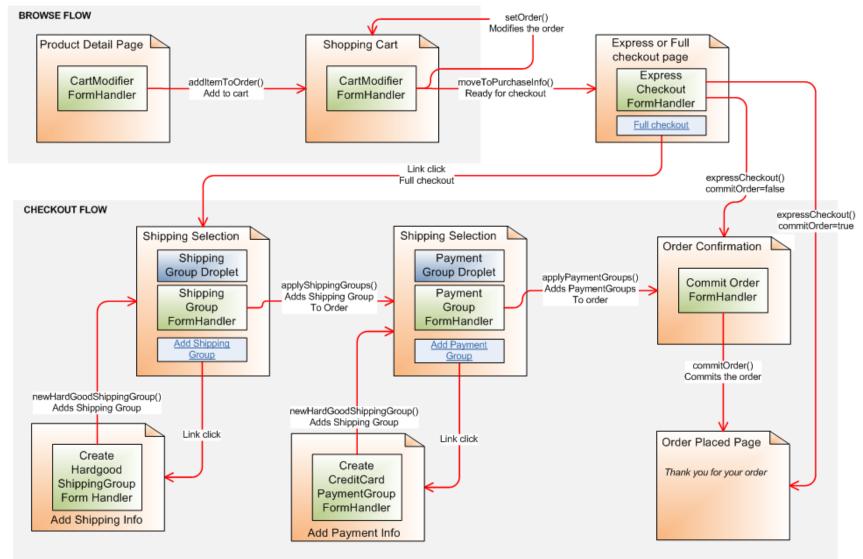


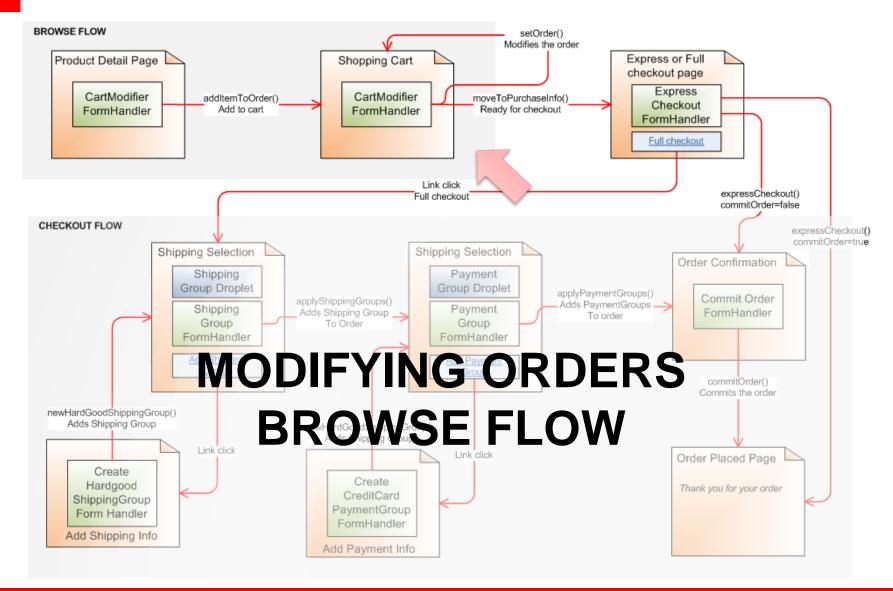
#### **Commerce Form Handlers**

- The commerce form handlers simplify the work of managing commerce objects by exposing management functionality. They call the manager classes internally.
- The following are commerce form handlers:
  - CartModifierFormHandler is used to add to and modify the cart.
  - **ExpressCheckoutFormHandler** is used to express checkout.
  - ShippingGroupFormHandler associates shipping groups with order.
  - PaymentGroupFormHandler associates payment groups with order.
  - CommitOrderFormHandler commits the order and submits it.
  - SaveOrderFormHandler is used to save an order and create a new blank order.
  - CancelOrderFormHandler cancels the order and deletes it.
  - There are other form handlers for creating shipping and payment groups.



### **Commerce Form Handler Actions**





# Understanding the CartModifierFormHandler

- The CartModifierFormHandler provides:
  - Add items to an order,
  - · Remove items from an order,
  - Modify the quantity of items in the order,
  - Prepare the order for the checkout process.
- CartModifierFormHandler is an instance of class atg.commerce.order.purchase.CartModifierFormHandler; it is located in nucleus at /atg/commerce/order/purchase/CartModifierFormHandler.
- It provides many methods to change the order.
- It calls OrderManager.updateOrder() to save the order.

# Add Items to Cart with the CartModifier FormHandler

- Use the handleAddItemToOrder method to add items to the cart.
- This method calls OrderManager.updateOrder() which calls the updateOrder pipeline chain.
- Developers need to pass:
  - addItemToOrderSuccessURL,
  - productld,
  - catalogReflds,
  - Quantity,
  - addItemToOrder in the submit input tag.



### **Example Add Items to Cart**

```
<dsp:form action="display product.jsp" method="post">
  <input name="id" type="hidden"</pre>
       value='<dsp:valueof param="product.repositoryId"/>'>
  <dsp:input bean="CartModifierFormHandler.addItemToOrderSuccessURL"</pre>
                    type="hidden" value="shoppingcart.jsp" />
  <dsp:input bean="CartModifierFormHandler.productId"</pre>
         paramvalue="product.repositoryId" type="hidden"/>
  <dsp:select bean="CartModifierFormHandler.catalogRefIds">
    <dsp:droplet name="/atg/dynamo/droplet/ForEach">
      <dsp:param name="array" param="product.childSKUs"/>
      <dsp:param name="elementName" value="sku"/>
      <dsp:param name="indexName" value="skuIndex"/>
      <dsp:oparam name="output">
         <dsp:option paramvalue="sku.repositoryId"/>
         <dsp:valueof param="sku.displayName"/>
      </dsp:oparam>
    </dsp:droplet>
  </dsp:select>
  Quantity: <dsp:input bean="CartModifierFormHandler.quantity"
                    size="4" type="text" value="1"/><BR>
  <dsp:input bean="CartModifierFormHandler.addItemToOrder"</pre>
                     type="submit" value="Add To Cart"/>
</dsp:form>
```

## **Modifying the Current Order**

- To modify an order, you must supply either a CatalogRefld of a CommerceItem or a ShippingGroupCommerceItemRelationship ID.
- Modify order by CatalogRefld (SKU ID):
  - When you have a simple cart page.
  - When you don't have multiple shipping groups like to support split shipment.
- Modify order by ShippingGroupCommerceItem relationship ID:
  - If you intend to support complex product-SKU relationships.
  - If you need the granularity to delete just a part of a CommerceItem.
  - If you intend to support multiple commerce items with the same catalog Ref ID.



# **Functions Modifying the Current Order**

- To modify order by CatalogRefld, use:
  - handleSetOrder() Performs the actual work necessary to save an Order. This is for Updating orders on the cart page.
  - handleRemoveItemFromOrder() Removes items from the Order by CommerceItem ID.
  - handleMoveToPurchaseInfo() Performs the actual work necessary to save an Order and verifies that the order is ready for checkout.
- To modify order by shipping relationship, use:
  - handleSetOrderByRelationshipId().
  - handleRemoveItemFromOrderByRelationshipId().
  - handleMoveToPurchaseInfoByReIId().
- The ByRelationshipId methods do the same as the regular methods but accept relationship ID instead of catalog Ref ID.

# **Example of Modifying Order (1)**

```
<dsp:form action="shoppingcart.jsp" method="post">
  <dsp:input type="hidden" value="purchase info.jsp"</pre>
    bean="CartModifierFormHandler.moveToPurchaseInfoByRelIdSuccessURL" />
  <dsp:droplet name="ForEach">
    <dsp:param name="array"</pre>
                bean="CartModifierFormHandler.Order.ShippingGroups" />
    <dsp:param name="elementName" value="ShippingGroup"/>
    <dsp:oparam name="output">
      Shipping Group: <dsp:valueof param="ShippingGroup.Id" />
      <dsp:droplet name="ForEach">
        <dsp:param name="array"</pre>
                     param="ShippingGroup.CommerceItemRelationships"/>
      <dsp:param name="elementName" value="CiRelationship"/>
      <dsp:oparam name="output">
          SKU: <dsp:valueof
    param="CiRelationship.commerceItem.auxiliaryData.catalogRef.displayName"/>
          Delete: <dsp:input paramvalue="CiRelationship.Id" type="checkbox"
 bean="CartModifierFormHandler.removalRelationshipIds" checked="<%=false%>"/>
          Quantity: <input name='<dsp:valueof param="CiRelationship.Id"/>'
             size="4" value='<dsp:valueof param="CiRelationship.quantity"/>'>
          \langle hr \rangle
  </dsp:oparam></dsp:droplet><hr><br/></dsp:droplet>
  <dsp:input bean="CartModifierFormHandler.setOrderByRelationshipId"</pre>
               type="submit" value="Recalculate"/>    
  <dsp:input bean="CartModifierFormHandler.moveToPurchaseInfoByRelId"</pre>
               type="submit" value="Checkout"/>
</dsp:form>
```

# **Example of Modifying Order (2)**

- The procedure shown in the last example is:
  - Iterated over shipping groups.
    - For each shipping group, iterated over relationships.
      - For each relationship, you can set:
        - removalRelationshipIds check box for removing, and
        - Input with name as relationship ID and value as quantity.
  - Call setOrderByRelationshipId to recalculate the order, or
  - Call moveToPurchaseInfoByRelId to go to the checkout process.
- moveToPurchaseInfoByRelId iterates over all the shipping group relationships and verifies that they are ready for checkout.
- It then calls OrderManager.updateOrder() which calls the updateOrder pipeline chain.

Name some methods of CartModifierFormHandler.

#### **Answer:**

addItemsToOrder(), setOrder(), removeItemFromOrder(), and moveToPurchaseInfo(), etc.

Why would a developer need to modify by relationship ID instead of by catalogRefID (SKU ID)?

#### **Answer:**

If they support split shipping or complex product-SKU relationships.

When you are updating a user's cart based on modification to quantity, which method in the CartModifierFormHander should you call?

#### **Answer:**

handleSetOrder() method.

Name a few commerce form handlers.

#### **Answer:**

CartModifierFormHandler, ExpressCheckoutFormHandler, ShippingGroupFormHandler, etc.

What are the four functions of the CartModifierFormHandler?

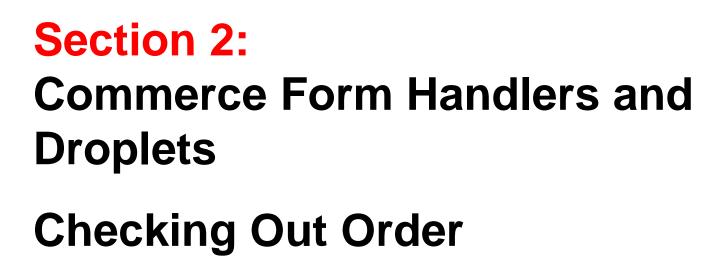
#### **Answer:**

Add, remove, modify items in order, and prepare for checkout process.

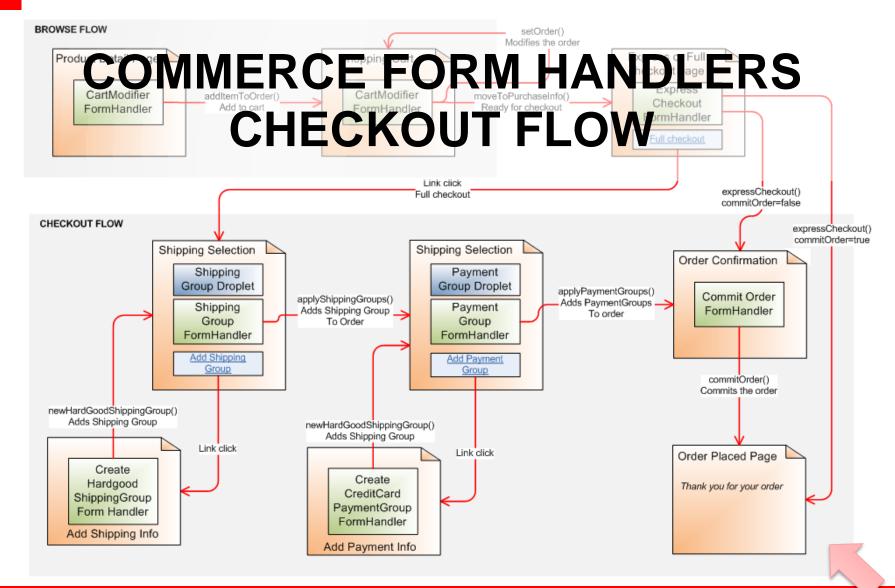
### **Summary**

- The commerce form handlers simplify the work of managing commerce objects by exposing management functionality. They call the manager classes internally.
- The CartModifierFormHandler provides capability to add, remove, modify items in cart, and can prepare the order for checkout.
- You can manipulate items by CatalogRefID(SKU ID) or by relationship ID.
- Developers can use addItemToOrder to add to the cart.
- setOrder(), removeItemFromOrder(), and moveToPurchaseInfo() are other useful methods.
- There are equivalent methods to execute by RelationshipID.









### **Checking Out Orders**

- The order checkout process can vary depending on the requirements and complexities involved.
- ATG supports two types of checkout:
  - Express checkout only supports single shipping group and single payment group.
  - Complex checkout supports any number or type of shipping groups and/or payment groups.
- A site might implement both checkouts giving users the choice at the time of check out.
- Express checkout is sometimes referred to as 'One Click checkout.'
- Typically, an express checkout is only available to registered users with shipping and payment method defaults already set in their profile.

# **Preparing a Simple Order for Checkout**

- ExpressCheckoutFormHandler supports the use of only a single HardgoodShippingGroup and a single CreditCard for a given order.
- It can be used to manage and expedite the precheckout process for orders.
- The ShippingGroup and PaymentMethod should come from the user profile.
- The important methods and properties:
  - handleExpressCheckout is the main method.
  - paymentGroupNeeded if false will allow the user to supply a payment method from the profile.
  - shippingGroupNeeded if false will allow the user to supply shipping group information.
  - commitOrder if false can be used to not commit the order and display a order confirmation page.

# Usage of Express Checkout FormHandler

- Typical sites will set commitOrder property to false.
- This allows for an order confirmation page to be displayed.
- The user credit card's CCV2 number, not typically stored, can be collected at this stage.
- Use the commitOrderFormHandler or the ExpressCheckoutFormHandler to commit the order.

# Why Use Complex Order Checkout

- Complex checkout process supports the use of any number of type of shipping groups and payment groups.
- You would use complex order checkout:
  - If your customer does not have a profile (not a registered user).
  - If your customer does not want to use shipping and payment options already saved in the profile.
  - If you want to support split shipping (shipping to multiple addresses).
  - If you want to support split payment (paying with multiple payment methods).
  - If your payment method or shipping method requires front end integration (Paypal, Google Checkout).
- Most typical sites will implement complex checkout. It is also common to implement express checkout in parallel.

# Preparing a Complex Order for Checkout

- ATG Commerce provides several form handlers to support a checkout process that uses any number or type of shipping groups and payment groups.
- The following are the difference sub processes in the preparation of an order for checkout:
  - Creating shipping groups,
  - Associating shipping groups with an order and its items,
  - Creating payment groups,
  - Associating payment groups with an order and its items.
- There are form handlers each of the above tasks.
- The order will then be ready to commit.

## **Creating Shipping Groups**

- CreateShippingGroupFormHandler is an interface to support form driven creation of hardgood and electronic groups.
- The two default implementations of this interface are:
  - CreateHardgoodShippingGroupFormHandler,
  - CreateElectronicShippingGroupFormHandler.
- Once created, you can use the following to handle shipping address changes:
  - UpdateHardgoodShippingGroupFormHandler,
  - UpdateElectronicShippingGroupFormHandler.

# **Example of Create Hardgood ShippingGroup FormHandler**

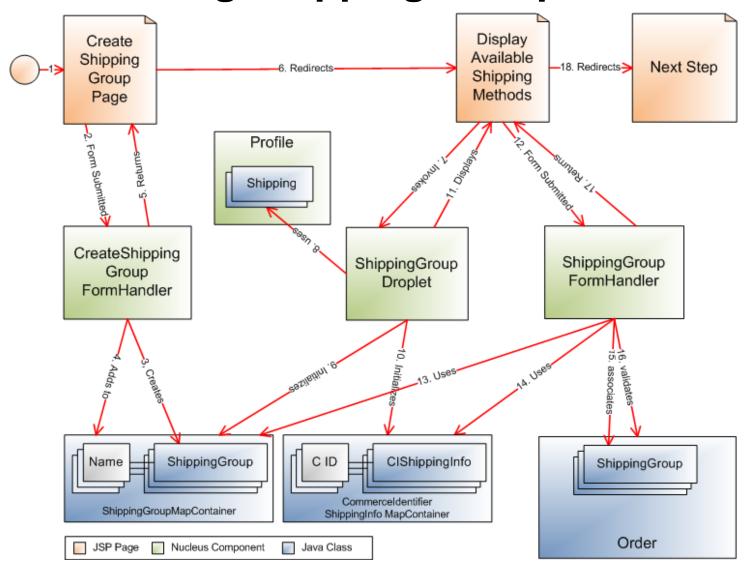
- The handleNewHardgoodShippingGroup method creates the shipping groups.
- In addition to the shown properties, you must also provide address2, city, state, postalCode and country.

# **Associating Shipping Groups**

- ShippingGroupFormHandler can be used to create and manage the associations between the ShippingGroups and the items in the order.
- This form handler works in conjunction with ShippingGroupDroplet to manipulate the relationships between CommerceItems and ShippingGroups in the order.
- The form handler uses the following containers:
  - ShippingGroupMapContainer defines a map of user-assigned ShippingGroup names to ShippingGroups.
  - CommerceItemShippingInfoContainer defines a map of CommerceItems to CommerceItemShippingInfo Lists.



# **Associating Shipping Groups Flow**



# **Associating Shipping Groups Steps (1)**

- User visits the page to create shipping info (address and method).
- User enters information to create shipping group such as address and shipping method and submits the form to the CreateShippingGroupFormHandler implementation (such as CreateHardgoodShippingGroupFormHandler).
- 3. 4., and 5. It creates the ShippingGroup and optionally associates with ShippingGroupMapContainer and returns.
- 6. The user is redirected to a page where the user can pick the shipping group. Rendering starts.
- 7. During rendering, the ShippingGroupDroplet is invoked.
- The ShippingGroupDroplet accesses the payment methods stored on the profile.

# **Associating Shipping Groups Steps (2)**

- Intializers initialize the shipment groups and add them to ShipmentGroupMapContainer of the order.
- It initializes the Commerldentifier ShippingInfoMapContainer.
- 11. It finally displays the available shipping groups as output params and options to the user.
- 12. User selects the shippingGroup and submits the form.
- 13. and 14. ShippingGroupFormHandler is invoked. It uses the input and the two maps to identify the shippinggroup.
- 15. and 16. It then associates the shipping group to the order and its components creating the relationships as needed, and validates the order.
- 17. and 18. The form handler returns and request is forwarded to the next step.

## ShippingGroupFormHandler

- With the help of the containers and helper classes, ShippingGroupFormHandler:
  - Establishes the relationships to the CommerceItems,
  - Performs validation and updates the order.
- The following methods are available:
  - handleApplyShippingGroups adds the ShippingGroups to the order. It is used to proceed to the next checkout phase.
  - handleSpecifyDefaultShippingGroup method is used to let the user specify a default ShippingGroup to use for shipping.
  - handleSplitShippingInfos method splits the quantities of CommerceItems across several CommerItemShippingInfos.



## ShippingGroupDroplet

- ShippingGroupDroplet is used to display ShippingGroups to the user and allows the user to select them.
- ShippingGroupDroplet is used to initialize CommerceItemShippingInfo objects and add them to the CommerItemShippingInfoContainer.

# **Example of Associating Shipping Groups**

```
<dsp:droplet name="ShippingGroupDroplet">
  <dsp:param name="clear" param="init"/>
  <dsp:param name="shippingGroupTypes" value="hardgoodShippingGroup"/>
  <dsp:param name="initShippingGroups" param="init"/>
                                        param="init"/>
  <dsp:param name="initShippingInfos"</pre>
  <dsp:oparam name="output">
  <dsp:form action="shipping.jsp" method="post">
     <dsp:input type="hidden" value="billing.jsp?init=true"</pre>
       bean="ShippingGroupFormHandler.applyShippingGroupsSuccessURL" />
     <dsp:input type="hidden" value="complex shipping.jsp?init=true"</pre>
bean="ShippingGroupFormHandler.specifyDefaultShippingGroupSuccessURL" />
     <dsp:input type="hidden" value="true"</pre>
       bean="ShippingGroupFormHandler.applyDefaultShippingGroup" />
       <br/>
<br/>
d>Associate ShippingGroup</b><br/>
BR>
       <dsp:droplet name="ForEach">
         <dsp:param name="array" param="shippingGroups"/>
         <dsp:oparam name="output">
            <br><dsp:input paramvalue="key" type="radio"</pre>
 bean="ShippingGroupDroplet.ShippingGroupMapContainer.
defaultShippingGroupName" />
             <dsp:valueof param="key"/>
          </dsp:oparam>
        </dsp:droplet>
      <dsp:input bean="ShippingGroupFormHandler.applyShippingGroups"</pre>
          type="submit" value="Ship Entire Order to this Address"/>
  </dsp:form></dsp:oparam>
</dsp:droplet>
```

## **Creating Payment Groups**

- CreatePaymentGroupFormHandler interface supports form driven creation of credit card and invoice payment groups.
- There are two implementations:
  - CreateCreditCardFormHandler is a form handler used to create CreditCard payment group.
  - CreateInvoiceRequestFormHandler is used for B2B to create an InvoiceRequest payment group.
- Once created, the payment group can be updated using:
  - UpdateCreditCardFormHandler.
- Once created, the payment groups can be added to PaymentGroupMapContainer.
- The user can then select from among the PaymentGroups in it.



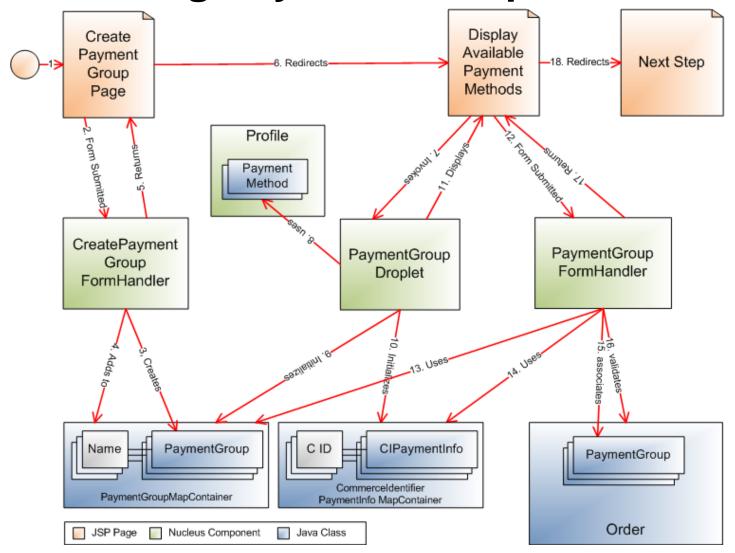
## **Example of CreateCreditFormHandler**

- The handleNewCreditCard method of the form handler accepts user's input and creates the CreditCardPaymentGroup.
- User has to provide:
  - Credit Card information,
  - Billing Address.

## **Associating Payment Groups**

- PaymentGroupFormHandlers create and manage the associations between user supplied paymentGroups and the various parts of the order.
- PaymentGroupFormHandler:
  - Adds the PaymentGroups to the order,
  - Adds the CommerceItems, ShippingGroups, tax, cost amount, and cost remaining to the PaymentGroups,
  - Validates the PaymentGroup information,
  - Saves the order to the order repository.
- The PaymentGroupMapContainer contains a map of user assigned PaymentGroup names to the PaymentGroups.
- CommerceIdentifierPaymentInfoContainer defines a map of CommerceIdentifiers to CommerceIdentifierPaymentInfo Lists.

# **Associating Payment Groups Flow**



# **Submitting an Order for Checkout**

- The CommitOrderFormHandler submits the user's current order for checkout.
- The handleCommitOrder() commits the order.
  - Method checks the ID of the order to ensure that the user is not double submitting the order.
  - It calls OrderManager.processOrder() which executes the processOrder pipeline.
- If successful, it sets the submitted order as the user's last order and constructs a new, empty order which is set as the users current order.

# Re-pricing an Order

- The CartModifierFormHandler and ExpressCheckoutFormHandler automatically re-price an order when submitted.
- The ShippingFormHandler and PaymentFormHandler do not re-price an Order.
- You can use the RepriceOrderDroplet servlet bean to re-price an order.
  - When a custom promotion depends on the chosen shipping or payment method, you need to re-price the order.
- The RepriceOrderDroplet servlet bean will execute repriceAndUpdateOrder pipeline to re-price the order:

```
<dsp:droplet name="RepriceOrderDroplet">
     <dsp:param name="pricingOp" value="ORDER_SUBTOTAL" />
     </dsp:droplet>
```

# **Saving Orders**

- The SaveOrderFormHandler saves the user's current order and adds the order to the ShoppingCart's list of saved orders.
- Additionally, it constructs a new, empty order and sets it as the user's current order.
- ATG ships with a nucleus component located at /atg/commerce/order/purchase/SaveOrderFormHandler.
- The following are the important methods:
  - handleSaveOrder saves the order and creates a new empty order.
  - The order is saved based on description or date and time, if no description is provided.



# **Canceling Orders**

- The CancelOrderFormHandler cancels the user's current order.
- If the order is in a state that can be deleted as configured in the deleteStates property, it is deleted. Otherwise, it is preserved.
- Component location is /atg/commerce/order/purchase/CancelOrderFormHandler.
- The important method in CancelOrderFormHandler is:
  - handleCancelOrder either deletes or preserves the Order based on its current state. The user is provided with a new, empty order.



# **ShoppingCartFormHandler**

- The ShoppingCartFormHandler is used to control many aspects of the user purchase process. It provides:
  - Cart Management (adding, removing, adjusting quantity).
  - Checkout Process (shipping, billing, committing).
- This form handler provides an easier interface for order editing and checkout process than the form handlers already discussed.
- Functionality is exposed via various handleXXX methods.
- To extend the functionality, each handleXXX has a preXXX and postXXX.

## **FullShoppingCartFormHandler**

- The FullShoppingCartFormHandler extends the functionality of ShoppingCartFormHandler and adds:
  - Handling multiple payment methods (gift certs, credit cards).
  - Split shipping.
  - Express checkout.
  - Adding an item to a person's gift list.
- It follows the same handleXXX, preXXX, and postXXX format of the ShoppingCartFormHandler.
- FullShoppingCartFormHandler can be an alternative to a simpler checkout implementation for some sites requiring more complex features.

### **Next Steps in the Order**

- Order processing occurs when a customer has supplied all the necessary information for the order and has submitted it for checkout.
- The OrderManager calls the processOrder pipeline.
- The processOrder first validates the order and then processes it.
- It runs a set of pipeline processors.

What are the two types of checkouts ATG supports?

#### **Answer:**

ATG supports: express checkout and complex checkout.

What parts of the order checkout process can ShoppingCartFormHandler and FullShoppingCartFormHandler help with?

#### **Answer:**

All parts of the checkout process including add to cart, shipping, billing, and committing.

What form handler can be used to create credit card payment groups?

#### **Answer:**

CreateCreditCardFormHandler and UpdateCreditCardFormHandler

What droplet is used for recalculating pricing information?

**Answer:** 

RepriceOrderDroplet.

What happens to the order when you use a SaveOrderFormHandler?

#### **Answer:**

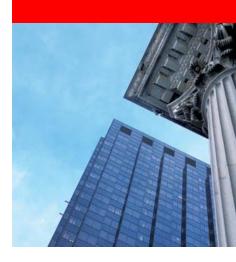
It is added to the list of user's saved orders. A new blank one is created.

### **Summary**

- The order checkout process can vary depending on the requirements and complexities involved.
- ATG supports: express checkout and complex checkout.
- ShippingGroupDroplet and ShippingGroup FormHandler are used to associate shipping groups with the order.
- PaymentGroupDroplet and PaymentGroup FormHandler are used to associate payment groups with the order.
- Form handlers are provided to create and update shipping and payment groups.
- CommitOrder FormHandler is used to commit an order to the system.



# Q&A





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