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Overview of Multisite

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Agenda

- Creating Multisite Applications
- Creating Multisite Applications - Sharing Resources
- Multisite Support in ATG Products

Learning Objectives

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

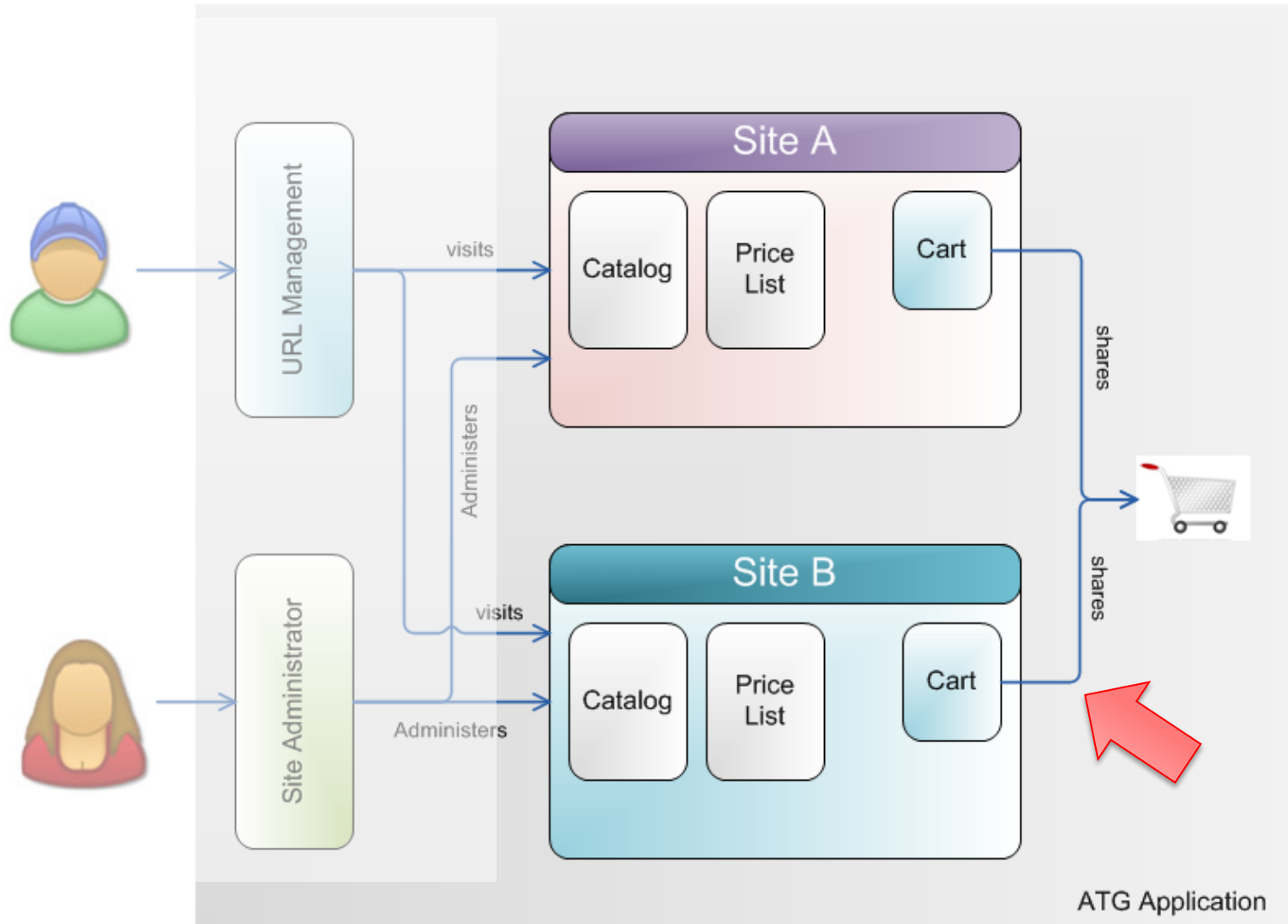
- Learn how a request is processed in a multisite installation
- Share resources between various sites using site specific session scoped components
- Enable site specific behavior using property value overrides
- Use Site membership to designate which items belong to which sites.
- Learn about multisite support in ATG products

Section 1:

Creating Multisite Applications



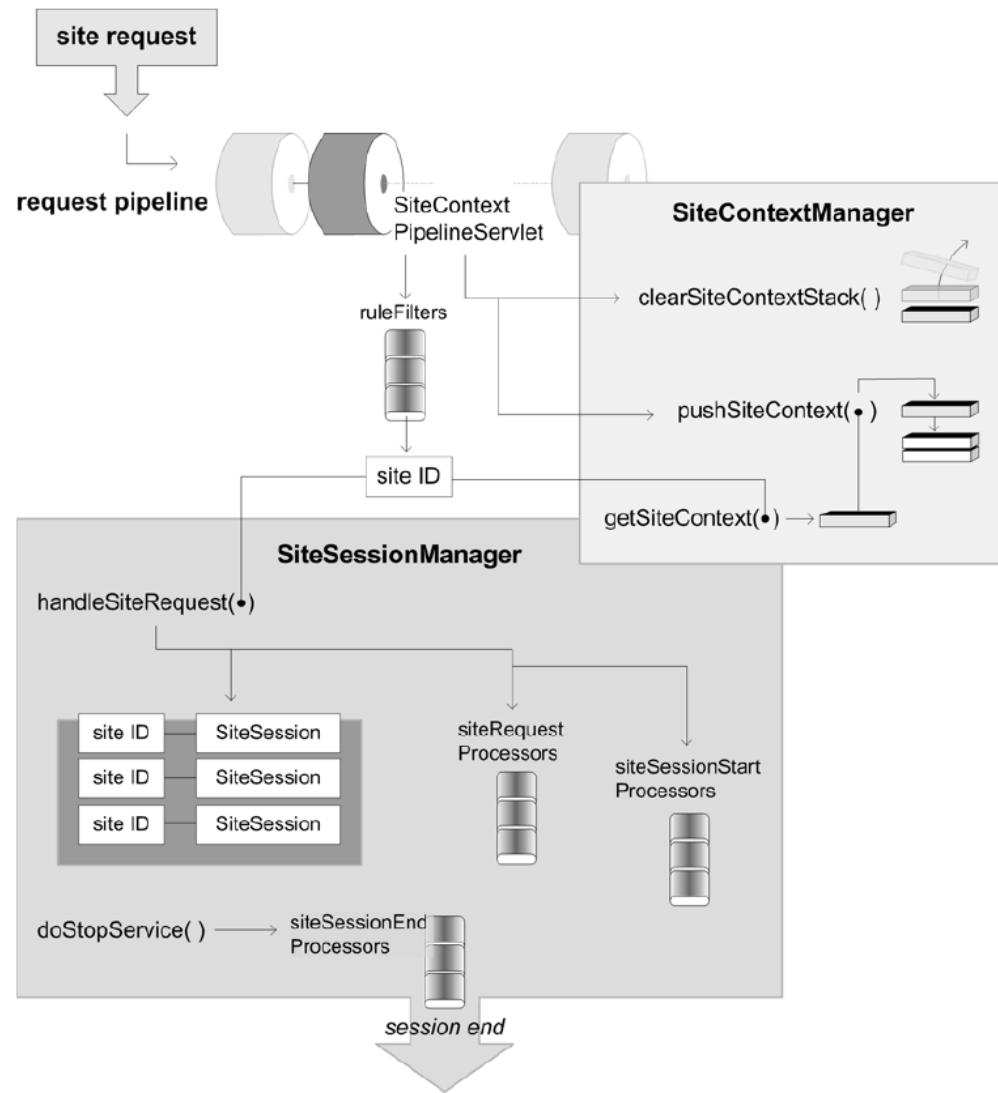
MULTISITE APPLICATIONS



Site Context

- For ATG Platform to ensure correct site-aware behavior, site context needs to be determined and set.
- The **SiteContextPipelineServlet** is a request handling pipeline that examines each incoming request and determines the site to associate the request with.
- A **SiteContext** object tracks information about the site for the current request. **SiteContextManager** manages the SiteContext objects. There may be several SiteContext objects in a single request, but only one is current at any time.
- A **SiteSession** object tracks information about a site for the current session. There can be one or more SiteSession objects for the sites. **SiteSessionManager** component manages the SiteSession objects.

Multisite Request Handling



Site Context Pipeline

- The **SiteContextPipelineServlet** evaluates the request to determine the identity of the associated ATG site.
- It performs the following tasks:
 - Derives the site ID from the request URL.
 - Determines whether site information is accessible for request.
 - Passes the site ID to the **SiteContextManager** and **SiteSessionManager** components.
- To identify the request, the servlet pipeline evaluates a set of rule filters such as:
 - **RequestParamaterRuleFilter** for query parameter-based site ID identification.
 - **URLPatternMatchingRuleFilter** uses pattern matching against URL.
 - **DefaultSiteRuleFilter** if nothing matches.
- Site accessibility is based on flags on the site configuration.

Site Context Management

- SiteContextManager component is used to maintain the context of the site.
- It creates a request scoped SiteContext component, which gives the request thread access to site properties.
- SiteContext also provides a mechanism to store and retrieve transient attributes related to that site.
- After creating the SiteContext, the SiteContextPipeline Servlet calls the following:
 - clearSiteContextStack() clears the site context stack.
 - pushSiteContext() pushes the new SiteContext into the stack.
- This stack is used to context switch to a new site within the same request and get back to the old context if a need arises (such as SiteContextDroplet invocation).

Site Session Management

- The session scoped SiteSessionManager manages SiteSession components.
- Together they coordinate requests for multiple sites within a single session.
- Each SiteSession component maintains information about a site during the current session.
- The SiteSessionManager maintains a map of all SiteSession objects keyed by site IDs.
- The SiteSessionManager creates a new SiteSession if needed and calls:
 - SiteSessionStartProcessor component array if it is a new session.
 - SiteRequestProcessor component array for each request.
- When session expires, the SiteSessionEndProcessor component array is called from doStopService() method.

JMS Events

- Many JMS message classes now have a `siteId` property for specifying the site where an event is fired.
- Event senders use the current site context to set the value of this property.
- Systems that receive these messages can then use this information to affect system behavior.
- For example:
 - Scenario can set the `siteId` to set the site in an action parameter that is triggered by an event.
 - This allows the targeter to be run in the new site context.
- Site information in events can be logged and loaded into data warehouse for use in reporting.

Section 1



Check Your Understanding

What is the primary purpose of the SiteContextPipelineServlet?

Answer:

It intercepts the request and determines the sites. Calls SiteContextManager and SiteSessionManager.

Section 1



Check Your Understanding

How does the SiteContextManager handle multiple contexts in a single session?

Answer:

It uses a stack of SiteContext objects. When a new context is required, it pushes the context into the stack and pops it out when it is done.

Section 1



Check Your Understanding

How does the SiteSessionManager manage different SiteSession objects for each of the multisites?

Answer:

It uses a map with site ID as the key and SiteSession as the value.

Section 1



Check Your Understanding

What are the three processor components that site session manager calls?

Answer:

SiteSessionStartProcessor at the beginning of the session, SiteRequestProcessor for every request, and SiteSessionEndProcessor at the end of session.

Section 1



Check Your Understanding

How are JMS events made site aware?

Answer:

They have a site ID in them.

Summary

- For ATG Platform to ensure correct site-aware behavior, site context needs to be determined and set.
- The SiteContextPipelineServlet evaluates the request to determine the identity of the associated ATG site. It invokes the SiteContextManager and SiteSessionManager.
- SiteContextManager component is used to maintain the context of the site. SiteContext component represents the actual context.
- SiteSessionManager manages sessions through the SiteSession components.
- JMS messages have siteld property to make them site aware.



Section 2:

Creating Multisite Applications-

Sharing Resources



Sharing Resources Overview

- A key aspect of multisite support is the sharing of resources.
- From a developer's viewpoint, the issue not so much sharing as ***restricting*** sharing.
- By default, all resources are shared.
- You code your application in a way that limits the sharing of resources.
- You can let ATG manage the sharing by implementing ShareableType. This gives you multiple individual session scoped components per sharing group.
- Or, you can make the component site aware and code the site specific behavior in yourself.

Types of Site Awareness

- ATG provides a number of mechanisms for making resources site-aware:
 - Site specific session-scoped components (shareable types),
 - Site specific property value overrides,
 - Site specific personalization,
 - Site specific repository data (site membership).

**Site specific
Session
Scoped
Components**

**Site specific
Property
Value
Overrides**

**Site specific
Personalization**

**Site
Membership**



**Site specific
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SITE SPECIFIC SESSION SCOPED COMPONENTS

Site Specific Session Scoped Components

- Shareable types designate resources that are shared within site groups.
- For session scope nucleus components, the application may need multiple instances in a single session, one for each sharing group.
- For instance, if shopping cart is shared between A and C and not with B, you will need two instances: one for A and C and one for B as the user navigates between the sites.
- To simplify site development, switching between instances is designed to happen automatically.
- The underlying services track the site context and use the correct instance, creating them as needed.

Working with Shareable Type Components

- Shareable type components allow you to configure which sharing groups share the components and which do not.
- For example atg.ShoppingCart is a shareable type that is displayed here.

abc-site-group

Site Group

Basics

★ Site Group Name
abc-site-group

Sites in Group

[abcclothing](#)

[zipclothing](#)

Shared Data

☒ Shopping Cart

Selected items will be shared by all members of this group. Registered shareables are available only

ShareableType

- Shareable type components within Site Administration are implementation specific rather than site specific.
- They can contain single or multiple components or no components at all.
- They are dependent on applications and modules that are installed.
- Sharing is enabled through site groups. Each site group specifies the resources that its member sites share.
- Shared resources can be:
 - Nucleus components,
 - Non nucleus Java objects,
 - Other resources (or no resources at all).

ShareableType Components

- A site group can share any resource that are referenced by a ShareableType.
- ShareableType is a globally scoped nucleus component from class `atg.multisite.ShareableType` or extension.
- ATG provides `NucleusComponentShareableType` that is used to share nucleus components.
- All ShareableType components must be registered with the SiteGroupManager global nucleus component to be used in the site administrator.
- Once registered with the SiteGroupManager, you can configure the site groups that will share the ShareableType you have created.

Sharing Nucleus Components

- You designate the nucleus component that can be shared through a `NucleusComponentShareableType` which extends `ShareableType`.
- To designate a nucleus component as available for sharing:
 - Create a component A that uses or extends `NucleusComponentShareableType`.
 - Set the component A path's property to the nucleus component(s) that you wish to be available for sharing.
 - Register the component A with the `SiteGroupManager` through its `shareableType` property.
- ATG Commerce installation exposes `ShoppingCart` as shareable.
- Profiles in ATG are **not** `shareableType`. Users have a **single** profile across all sites.

Steps to Sharing a Nucleus Component

- Create ShoppingCartShareableType component.
- Set path's property to point to the nucleus components you wish to share:

```
$class=atg.multisite.NucleusComponentShareableType  
id=atg.ShoppingCart  
paths=/atg/commerce/ShoppingCart,\  
      /atg/commerce/catalog/comparison/ProductList  
displayNameResource=ShoppingCartShareableTypeName  
resourceBundleName=atg.commerce.order.UserMessages
```

- Register the ShoppingCartShareableType with SiteManager:

```
shareableTypes+=/atg/commerce/ShoppingCartShareableType
```

Considerations for Sharing Nucleus Components

- Note that component's state might depend on other components or data that must be configured correctly for sharing. Otherwise, the component will exhibit erratic behavior.
- In general, the guidelines are:
 - If shared nucleus component depends on other nucleus components for state information, these must also be shared.
 - If shared nucleus component depends on repository data for state information, it must be coded so that only sites sharing this component have access to that same repository data.
- The data dependencies for OOTB nucleus components (such as profile) may be too numerous and unknown to attempt to make them shareable.

Sharing Non Nucleus Resources

- ATG provides the infrastructure to manage sharing of Java objects.
- The process is largely the same except for using an extension of ShareableType class to specify the shared objects.
- SharableType component requires you to write your own code in order to associate with it the objects that are shared within a site group.
- It is also possible to register a ShareableType component that has no objects associated with it.

Defining ShareableType with No Object Sharing

- You can define a ShareableType that has no objects or components associated with it.
- Such a type exists solely for the purpose of creating site groups where membership is based on sharing an abstract condition or quality.
- You can use the ShareableType to define a site group that shares this type.
- Leverage the **SharingSitesDroplet** to determine which sites share the sharing group to some how associate them together.
- For example, Canada and US site could share a concept ShareableType called RelatedRegionalStores.

Shareable Type Registration Considerations

- Shareable type components can be registered or unregistered.
 - Components that are not registered will be shared across all sites by default (same as any other nucleus components).
 - Components that are registered will be shared only when made part of a site group.
 - Components that are registered but are not member of a site group are unavailable to any site until added to a site group or are unregistered.
- To share across all sites, do not register the component.
- ATG recommends that a shareable type component be registered only when it is necessary to limit the scope of components being shared.

How Does ShareableType Work?

- Sites in a group and outside will require access to the session scoped shared component.
- ATG creates and manages separate instances of these components.
- Nucleus relies on a cglib2-based proxying mechanism and a ProxyCallback map for relaying each instance request to the appropriate instance.
- After checking if the component is registered as shareable, ATG invokes the installed proxy factory to create:
 - A cglib2-based proxy that intercepts all calls to this component.
 - A ProxyCallback object which maps method invocations to the appropriate context specific proxy target component.

**Site specific
Session
Scoped
Components**

**Site specific
Property
Value
Overrides**

**Site specific
Personalization**

**Site
Membership**



SITE SPECIFIC PROPERTY VALUE OVERRIDE

Site Specific Property Value Override

- ATG provides a second mechanism to making components site-aware by allowing you to override property values on a per site basis.
- Developers can use the siteConfiguration item type which includes a number of properties OOTB.
- You can add properties to the siteConfiguration item type that are specific to your environment.
 - For example, you can add a property called siteCSSFile which defines the CSS file for each site in your environment.
- ATG provides a mechanism to override a specific component property with the value of a property of the siteConfiguration repository item.
- This allows the component property to take on a different value for each site.

Implementing the Override

- You can override property values on a per site basis.
- Site-specific overrides are handled through the component path /atg/multisite/ SiteSourcedPropertyGetterSubClasser.
- You achieve this by adding the properties to the component where override is desired.

```
$instanceFactory=\
    /atg/multisite/SiteSourcedPropertyGetterSubClasser
$overridePropertyToValuePropertyMap=\
    property_in_component=property_in_siteConfiguration
```

- Under the site context, the above component's configured value for property_in_component is overridden by property_in_siteConfiguration.
- The mechanism relies on cglib2-based proxying and works for all component scopes.

Example : Site-Specific Property Value Overrides

- To override the value of the amount property of your FixedPriceShippingCalculator component:
 - Add a property named **siteShippingAmount** (for example) to the siteConfiguration item type in the site repository.
 - In the **FixedPriceShippingCalculator.properties** file, add the following special properties:

```
$instanceFactory=\
    /atg/multisite/SiteSourcedPropertyGetterSubClasser
$overridePropertyToValuePropertyMap=\
    amount=siteShippingAmount
amount=10.0
```

- In the site administration utility, set the value of the site's **siteShippingAmount** property to the fixed shipping cost on the site.
- If no configuration is found, the component value (10.0) is used.

**Site specific
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SITE SPECIFIC PERSONALIZATION

Site-Specific Personalization

- Targeters, user segments, and content groups all support site-specific rules.
- Targeters and content groups also make it possible to show on one site content that is associated with other sites.
- Scenario conditions and actions are also site-aware:
 - For example, an action that fills a slot with items from a targeter can specify a site, causing the targeter to execute a site specific rule.
- Due to the relevance of this topic to merchandisers and page developers, it has been covered in detail under the Page Development section of this module.

**Site specific
Session
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SITE MEMBERSHIP

Site Membership (1)

- Site membership is a way to designate which sites an item belongs to, using context membership property.
- It is ATG's mechanism to make catalog repository items site-aware.
- The catalog, category, product, and SKU item types all have a sitelds property that holds an array of the site IDs of the sites that the item is part of.
 - For example: Product A specifies that it applies to site A and C but not B.

Site Membership (2)

- Context membership must be explicitly configured as such in the repository definition.

```
<item-descriptor name="product" sub-type-property="type"  
    context-membership-property="siteIds" >  
    . . .  
</item-descriptor>
```

- Note that other repositories may have sitelds to track which sites an item is associated with, but that is not the same as context membership.
- Context membership is used by internal querying mechanisms of the repository.
 - For example: A query could say “return all products that are included in site A.”

Section 2



Check Your Understanding

By default, what is the behavior of all nucleus components and resources?

Answer:

They are all shared between all instances of the multisite. Developers should restrict access.

Section 2



Check Your Understanding

What are the four mechanisms of sharing resources in ATG multisite?

Answer:

Site specific session scoped components, property value overrides, site specific personalization, and site membership.

Section 2



Check Your Understanding

What class do you implement as a component to designate a nucleus component as shareable?

Answer:

NucleusComponentShareableType.

Section 2



Check Your Understanding

How does ATG achieve ShareableType session scoped components?

Answer:

ATG uses CGLIB2 style wrapper classes to proxy the call to the correct instance.

Section 2



Check Your Understanding

What is the instance factory set to to implement site specific property value override?

Answer:

To SiteSourcedPropertyGetterSubClasser.

Section 2

Check Your Understanding

Which repository items implement site membership?

Answer:

Catalog, category, product, SKU, etc.

Summary

- A key aspect of multisite support is the sharing of resources, but for developers the more important aspect is restricting sharing.
- Site specific session scoped components implement ShareableType interface. They can be configured to be shareable or not in the Site Administrator UI.
- You can make nucleus components, Java objects, or a concept with no objects shareable between sites.
- Site specific property value overrides use SiteConfiguration object to provide override values for specific nucleus components.
- Site specific personalization refers to configuring targeters, content groups, and user segments in a site-aware manner.
- Site membership is a way to designate which sites a repository item belongs to, using context membership property.



Section 3:

Multisite Support in ATG Products



Multisite Support in ATG Products

- Every product in ATG Commerce suite supports multiple sites.
 - ATG Commerce,
 - ATG Search and Search Merchandising,
 - ATG Service:
 - ATG Commerce Service Center,
 - ATG Knowledge and ATG Self Service.
- This section will cover key multisite features in each product.

ATG Commerce - Product Catalog

- The Product Catalog repository allows you to associate specific catalog items with specific sites.
- Each of the items has a sitelds property that lists the sites the item is associated with.
- If an item is not associated with a specific site, it does not appear in that site's catalog hierarchy.
- ATG Merchandising allows merchandisers to set up catalogs and associate them with sites.
- Catalog Maintenance System (CMS) populates the sitelds properties of products and SKUs, based on the categories they are associated with.

User's Catalog and Price Lists

- ATG Commerce includes logic for setting a user's catalog and price lists on a given site.
- CatalogProfilePropertySetter and PriceListProfilePropertySetter components are added to the profilePropertySetters property of the ProfilePropertyServlet component in the DAF pipeline.

```
profilePropertySetters+=\  
    /atg/userprofiling/CatalogProfilePropertySetter,\  
    /atg/userprofiling/PriceListProfilePropertySetter
```

- This component assigns the current site's catalog and price list to the user.
- If not specified, catalogTools defaultCatalog is used.

Shopping Cart

- ATG Commerce includes a ShareableType component ShoppingCartShareableType.
- This component is configured to manage the sharing of the shopping cart and the product comparisons list.

```
paths=/atg/commerce/ShoppingCart,\  
      /atg/commerce/catalog/comparison/ProductList
```

- By default the id atg.shoppingCart shares both of the above.
- To share them independently, create a new ShareableType component.

Orders

- When you add a CommerceItem to an order, CartModifierFormHandler sets the value of the item's siteld property, typically to the current site ID.
- In some cases, though, it may be a different site, e.g., when you add a cross sell item from other site.
- Order items in the order repository have two properties for tracking the sites they are associated with:
 - creationSiteld is the siteld of the first commerceItem added to cart.
 - siteld is the siteld of the last commerceItem added to cart if INCOMPLETE or the site of checkout if order is submitted.
- The OrderLookup, ScheduledOrderLookup, and ApprovalRequiredDroplet servlet beans have sitelds and siteScope input parameters to determine which sites to look up orders for.

Promotions and Coupons

- Promotions and coupons are site-aware.
- Site-awareness can be part of the condition or the offer.
- Coupons can include site constraints that control which sites the coupons can be claimed on.
- Coupon site constraints do not affect where the associated promotions are valid.
- Example:
 - A customer who buys \$100 on site A receives free shipping. Not applicable on site B.
 - A customer who buys \$100 from site A receives 15% discount on a related site B.

Gift Lists

- The GiftlistManager component has a siteScope property that controls how gift lists are shared between sites.
- Each gift list is associated with a single site, and items from other sites can be added to a gift list if that site is compatible, based on the value of siteScope.
- The /CollectionFilters/GiftlistSiteFilter component provides site-based filtering of gift and wish lists and the items in these lists.
- Note that profiles are not ShareableType and all users have a single profile across all sites.
- Since customers have only one wish list, filtering is needed to restrict the items shown by site.

Search

- Search results can be returned from all available sites.
- They can also be limited to items from specific sites.
- Indexing and querying are site-aware.
 - Structured content (repository data) such as product catalog is made site-aware using sitelds property of the repository item.
 - Unstructured content (files) can be made site-aware using index-only metadata tags.
 - Content sets are associated with sites in Site Administration utility. If the content sets contains site-specific data, the index for that content set does not include data for the sites not associated with that content set.
 - QueryRequest object has properties to limit results from all sites or restrict to only specific sites.

Search Merchandising

- Facets, search configuration, and search tests are site-aware:
 - Facets can be applied across all sites, within a site, or within a category.
 - Search configuration supports site as a dimension.
 - Site property is defined within result prioritization allowing users to assign weight to a given site.
 - While performing search test, users can select a site to determine the site context.
- The flexibility of restricting results by site or applicable to all sites, is available both with ATG's basic search capability and with ATG Search.

ATG Service

- ATG Commerce Service Center (CSC) supports all of the multisite features in ATG Commerce.
- In addition, CSC includes multisite features such as:
 - Ability to configure a default tab applicable for the Commerce tab.
 - A site picker that allows an agent to specify the current site.
 - Ability to specify site as a criteria for constraining catalog browsing and searching.
 - Inclusion of site ID in Click to Call requests. When a request is received, CSC changes the site context to the specified site.
- ATG Self Service uses multisite support configured through the Site Administrator.

Section 3



Check Your Understanding

When a Click to Call request is received, what is the default behavior in CSC?

Answer:

To change the site context to the site in the request.

Section 3



Check Your Understanding

What is the facet sharing behavior in a multisite environment?

Answer:

Facets can be shared across all sites, within a site, or within a category.

Section 3



Check Your Understanding

Since a common profile exists across all users, how does a developer separate the wishlist items into sites?

Answer:

Use the GiftlistSiteFilter component to filter the items.

Section 3



Check Your Understanding

How is the value of the siteld property in the order object?

Answer:

If INCOMPLETE, it is the siteld of the last item added to order. If not, it is the site of the checkout.

Section 3



Check Your Understanding

What are the components that must be used to set catalog and price lists in a multisite installation?

Answer:

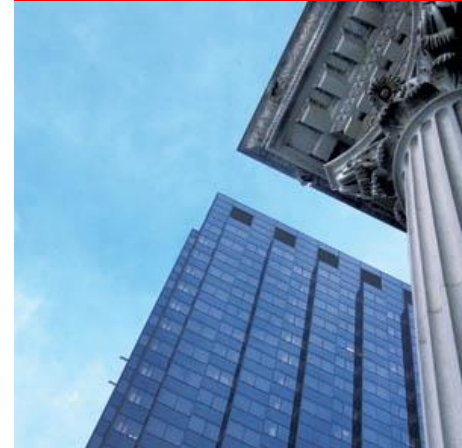
**CatalogProfilePropertySetter and
PriceListProfilePropertySetter.**

Summary

- Every product in ATG Commerce suite supports multiple sites.
- The Product Catalog repository allows you to associate specific catalog items with specific sites.
- ATG Commerce includes logic for setting a user's catalog and price lists on a given multisite.
- Shopping Cart and Product Comparisons are ShareableType and can be configured to be shared or not.
- Commerce form handlers maintain multisite state on the commerce objects.
- Promotions and coupons are site-aware.
- ATG Search includes several features for filtering search and associating content sets with sites.
- ATG CSC includes multisite features.



Q&A





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