Scenarios and Slots

Presenter's Name
Presenter's Title

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Agenda

- Introduction to Scenarios
- Elements of Scenarios
- Working with Slots

Learning Objectives

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

- Use Scenarios to track user behavior and make relevant responses to users
- Understand how scenarios are stored and processed
- Create scenarios using various scenario elements
- Use slots to display dynamic content on the web site
- Understand the various slot options
- Use a scenario to fill a slot from a targeter

Section 1:

Introduction to Scenarios

An Overview of ATG Scenarios

- Scenarios are choreographed series of interactions with your website visitors.
- Scenario is a channel or pipe through which users flow.
- Various events prevent the user from proceeding in the channel until the event occurs.
- Conditions narrow the subjects passing through the pipe.
- Action elements carry out some actions.
- A fork can be used to split the subjects into multiple paths.
- Scenarios can track users spanning across multiple requests and even multiple sessions over a period of time.

Uses of Scenarios

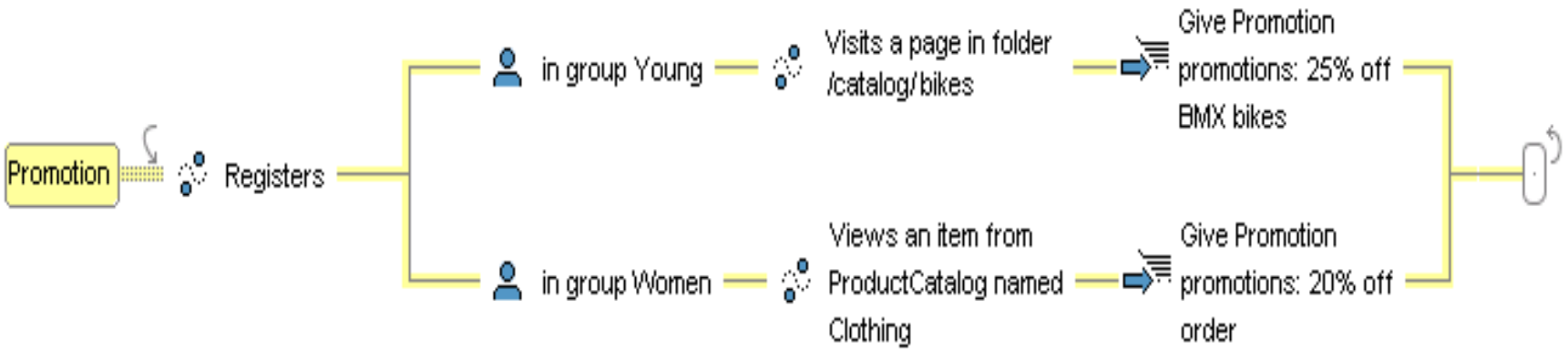
- Can be used to record and track user behavior on the website and trigger and make relevant response to user according to their behavior:
  - Redirect them to a specified page on an event,
  - Put an item in cart if they satisfy a condition,
  - Put a promotion in cart if their profile has some markers,
  - Fill a slot with content if they view a certain category.
- Collect the visitor and site related data that you can use for analysis and display in business reports:
  - Place a marker on profile if they view certain category.

Example of a Scenario

- You would like to:
  - Send a welcome email to all new members 5 minutes after they register.
  - If the user never logs in again within a month, send a new member offer newsletter.
- Note that this scenario tracks the users across a month across multiple sessions and requests.

Another Scenario Example

- This example scenario gives a one-time promotion to newly registered users of a bike store.
- Young people will get 25% off BMX bikes if they visit any bike-related pages in the store.
- Female users will get 20% off their order if they view any clothing items.

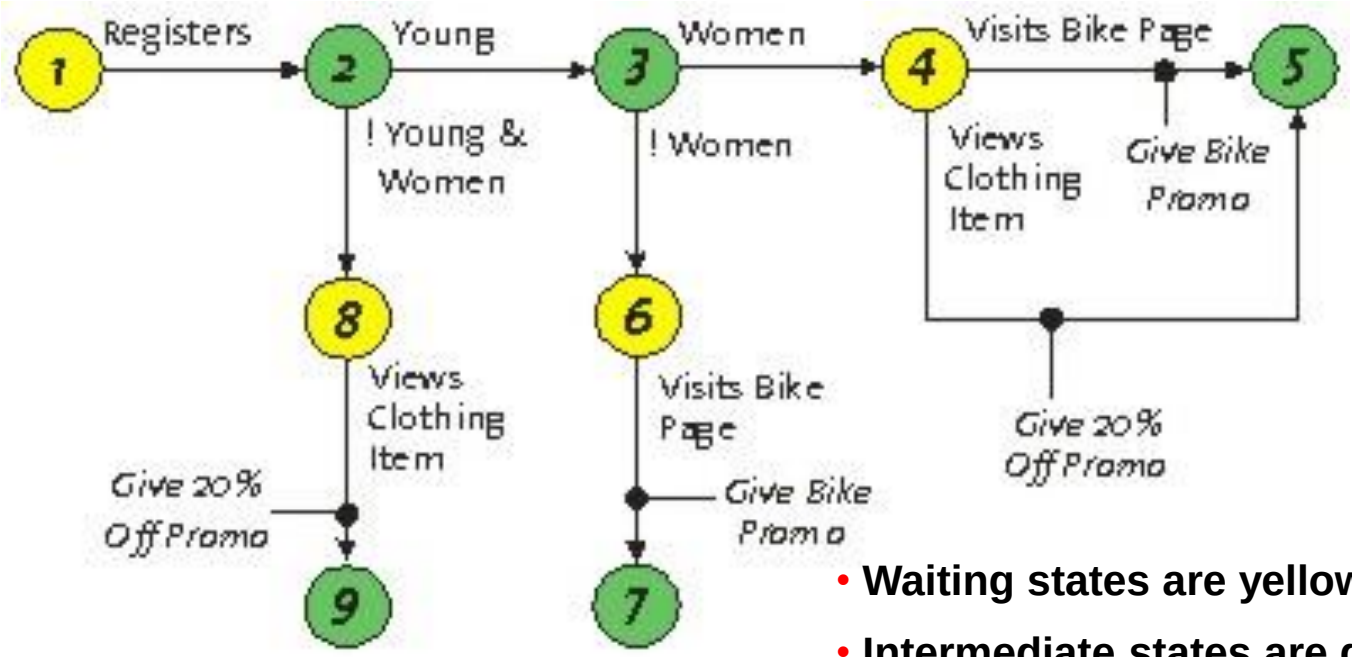


How Does it Happen?

- To simplify processing, the scenario server turns the scenario into an equivalent scenario state machine (SSM).
- Each user is exactly in one SSM state and progresses through a strictly linear sequence of states even if the main scenario contains forks.
- The state machine has two kind of states:
  - Waiting for an event,
  - Intermediate used to channel users to different paths.

Sample Scenario Process States

- Each scenario is transformed into an equivalent scenario state machine (SSM).
- The SSM for the promotion scenario is shown here.



- **Waiting states are yellow.**
- **Intermediate states are green.**

The Scenario Definition File

- When a scenario is created or modified in ACC, its definition file is saved in the scenario registry as well as a file with an .sdl extension.
- Scenarios are defined using XML based Process Definition Language (PDL).
- The PDL DTD describes the formal syntax of the language.
- You can copy this .sdl file to your project config path so it gets deployed with your project.
- SDL files are rarely edited by hand or XML editor.

Section 1 
Check Your Understanding

What are action elements in a scenario?

Answer: Action elements carry out some actions.

Section 1 
Check Your Understanding

What mechanism is available to track users across multiple sessions over a period of time?

Answer: Scenarios can track users spanning across multiple requests and even multiple sessions over a period of time.

Section 1 
Check Your Understanding

What is a Scenario State Machine (SSM)?

Answer: To simplify processing, all scenarios are converted into an equivalent SSM.

Section 1 
Check Your Understanding

How are scenarios stored?

Answer: Scenarios are stored in am XML based Process Definition Language (PDL) file.

Section 1 
Check Your Understanding

What is the extension of a scenario definition file?

Answer: The scenario definition file has a .sdl extension.

Summary

- Scenarios are choreographed series of interactions with your website visitors.
- Various event prevent the user from proceeding in the channel until the event occurs.
- Conditions narrow the subjects passing through the pipe.
- Action elements carry out some actions.
- A fork can be used to split the subjects into multiple paths.
- The scenario server turns the scenario into an equivalent scenario state machine (SSM).
- Scenarios are defined using XML based Process Definition Language (PDL).

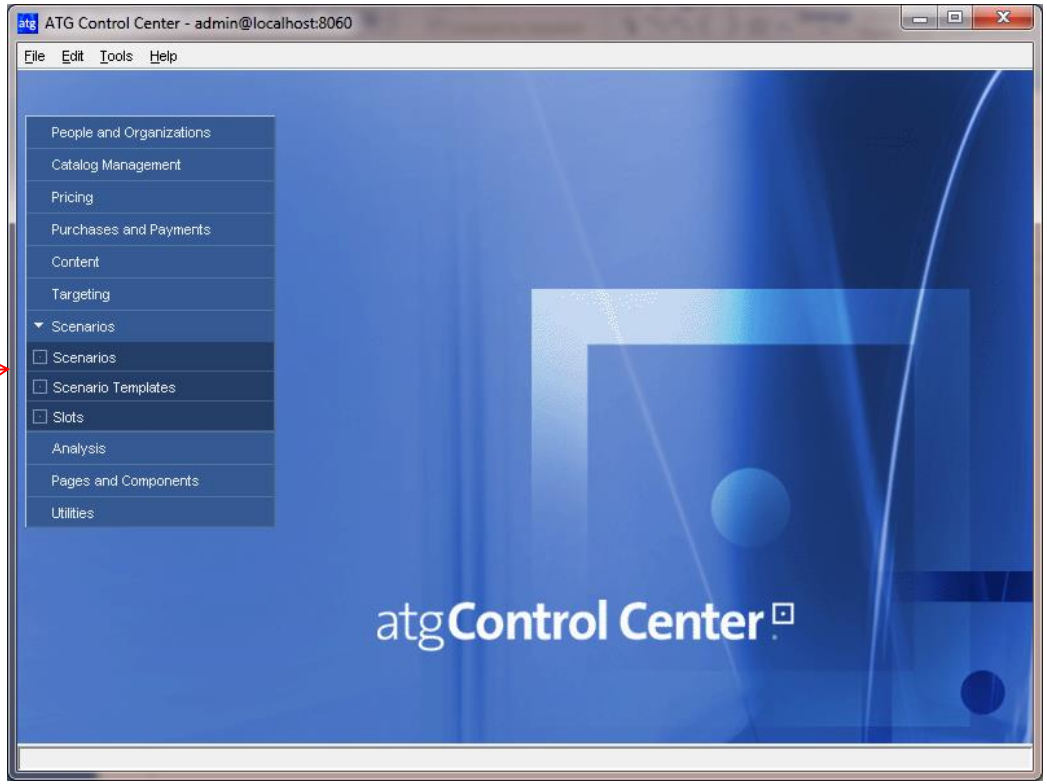
Section 2:

Elements of Scenarios

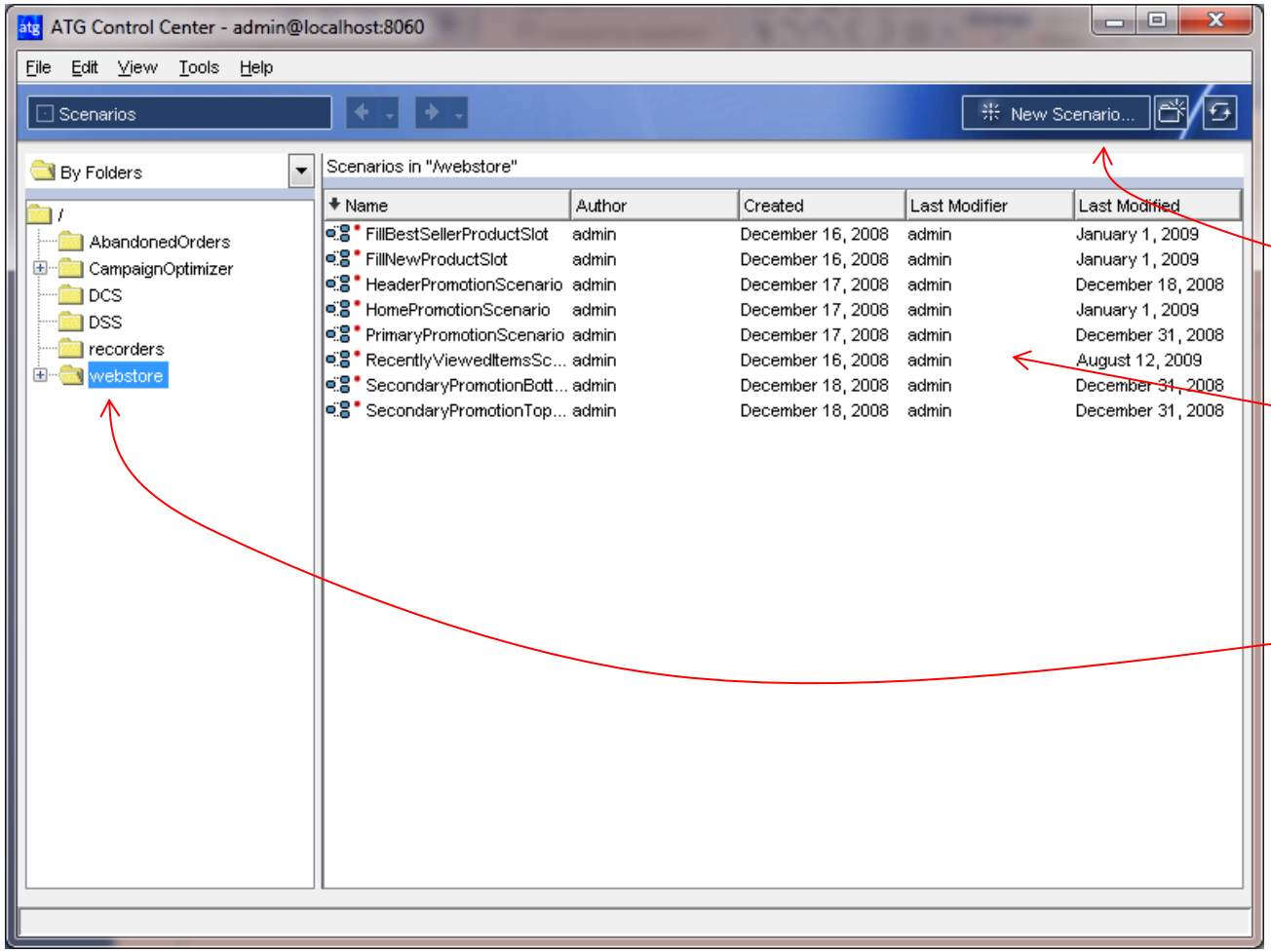
Accessing Scenarios in ACC

Scenarios

Create New Scenarios



Listing of Scenarios

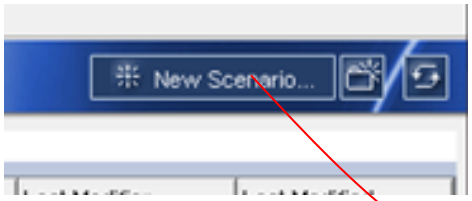


Create New Scenarios

List of Scenarios

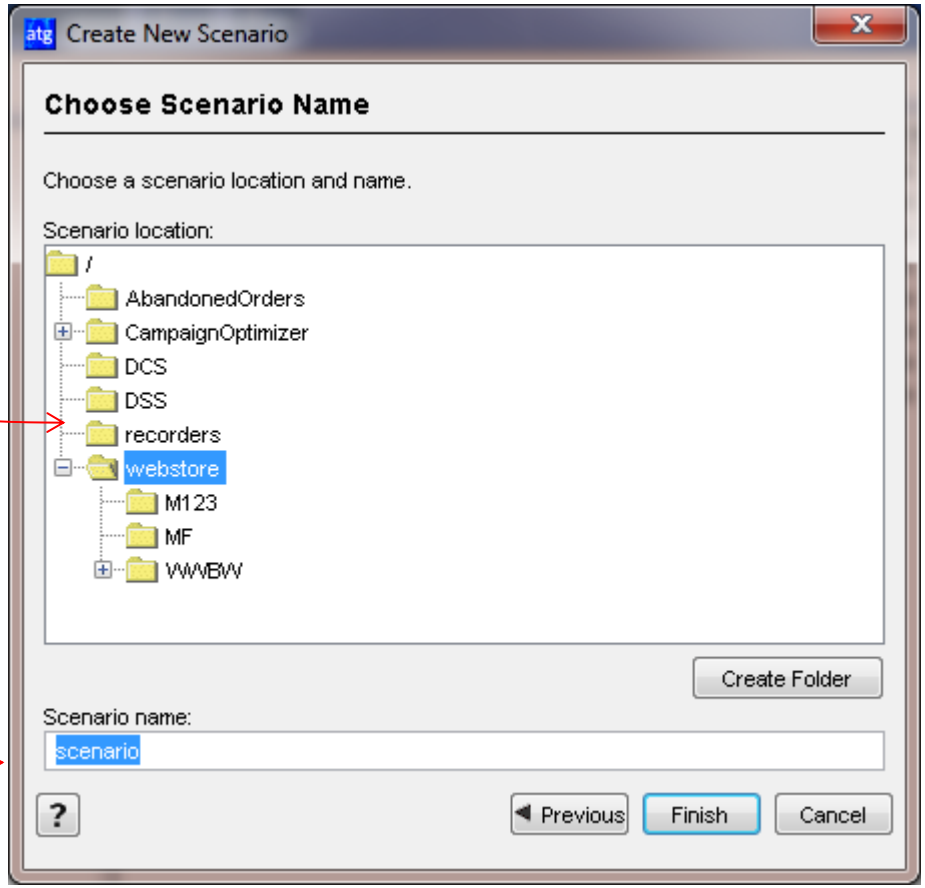
Scenario Folders

Creating a New Scenario



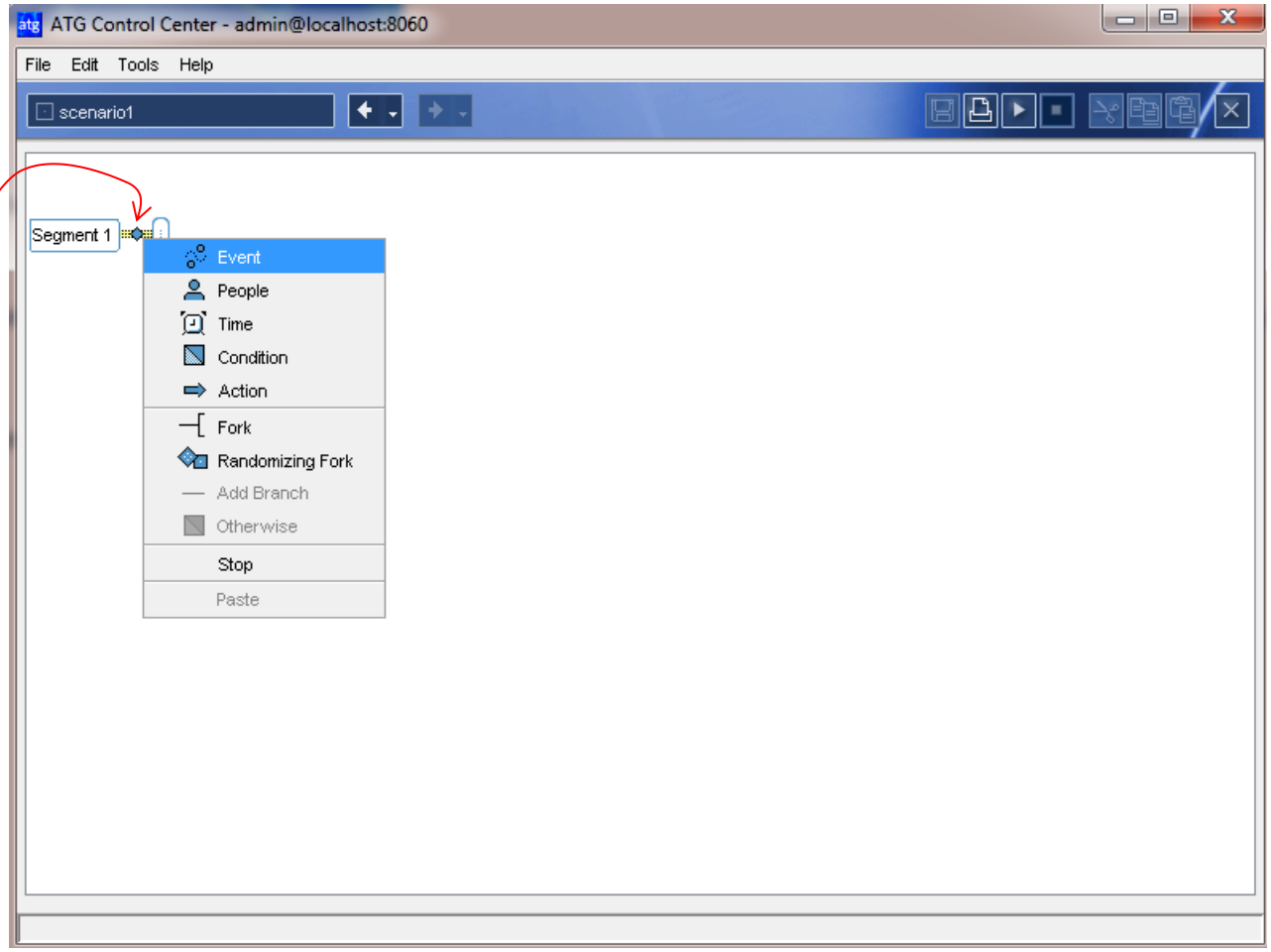
Choose a scenario folder

Choose a scenario name



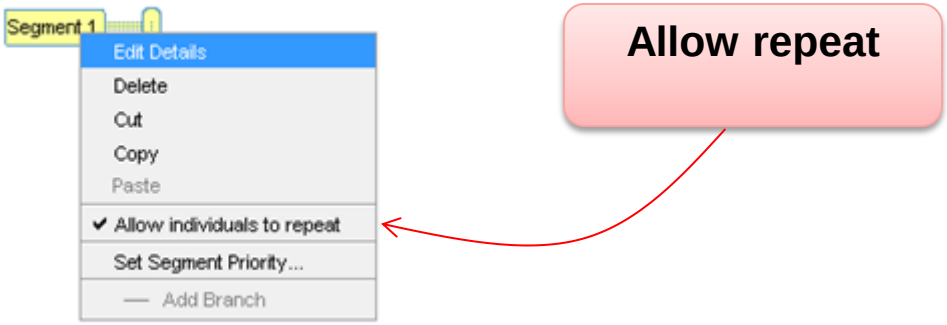
Editing a Scenario

Click on line to see choices



Repeating the Scenario

- By default users cannot repeat a scenario.
- They only go through the scenario once.
- To allow them to repeat the scenario, right click on the segment and select ‘Allow individuals to repeat’ option.
- When filling items in slot, not allowing users to repeat will result in a slot not filling with values the second time users browse to the page.

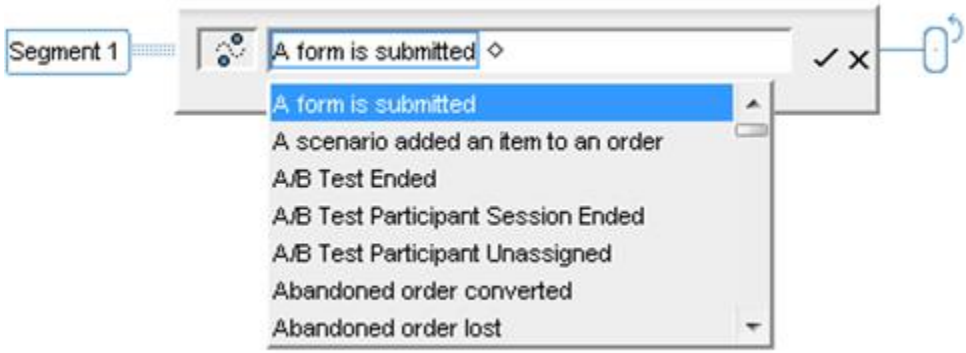


Elements of Scenarios

Elements	Description
Event	What event will trigger the remainder of this scenario
People	To whom should this portion of the scenario apply
Time	When should the scenario continue or be active
Condition	What condition must be met to proceed down this path
Action	What action should the scenario take now
Fork	Which path should the scenario follow
Randomizing Fork	What percentage of users should go down which path
Branch	Adding another branch to a Fork or Randomizing Fork
Otherwise	When should the scenario take the default path

Event Element (1)

- Events are triggered when the ScenarioManager receives events from the Dynamo Message System.
- There can be global events and individual events.
- Examples of events are:
  - A form is submitted (optional attribute formName),
  - Clicks a link (optional attribute from page, to page or source),
  - Item requested by slot,
  - Logs in,
  - Logs out,
  - Dynamo starts,
  - Dynamo shuts down,
  - Session starts,
  - Profile marker added,
  - Visits (optional page parameter).



Event Element (2)

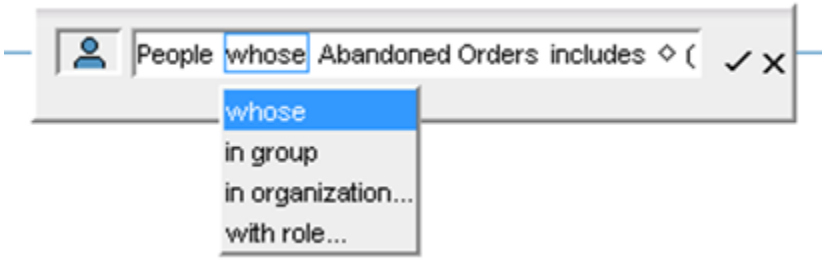
- Developers should enable some page elements to send events properly.
- Clicks a link event requires a dsource parameter to generate an event:

```
<dsp:a href="content/welcome.jsp">
   <dsp:param name="dsource" value="OnSale"/>
    Click here to see this month's discounts!
</dsp:a>
```

- When configuring form handlers, set sendMessages to true. This property is inherited from the GenericFormHandler.

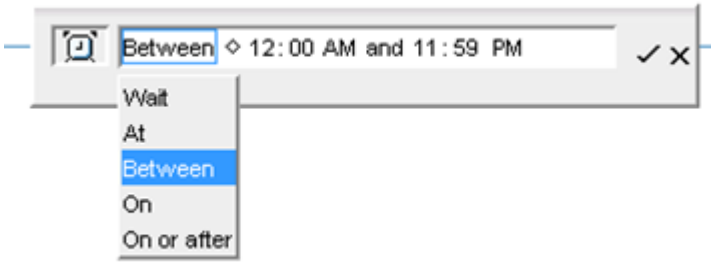
People Elements

- People Elements:
  - **People whose** <Profile Attribute>,
  - **People in group** <User Segment>,
  - **People with profile type** <Profile Type>,
  - **People in Organization** <Organization>,
  - **People with role** <Role>.



Time Element

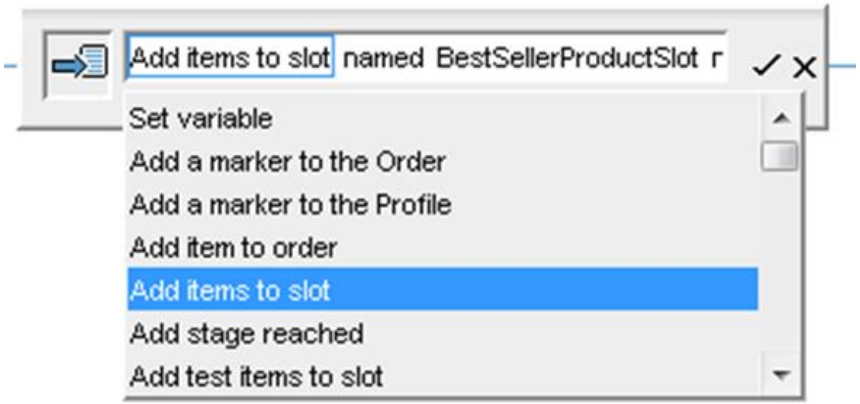
- The following are the time elements
  - Wait: Defines the length of time to wait.
  - On: Defines the exact time.
  - At: Defines the time of day.
  - Between: Defines a range of dates.



- ***On*** Element supports
  - On date: On 12/21/2012.
  - On weekday: On Monday.
  - On weekday of month: Second Tuesday of November.
  - On monthday: On day 15 of month.

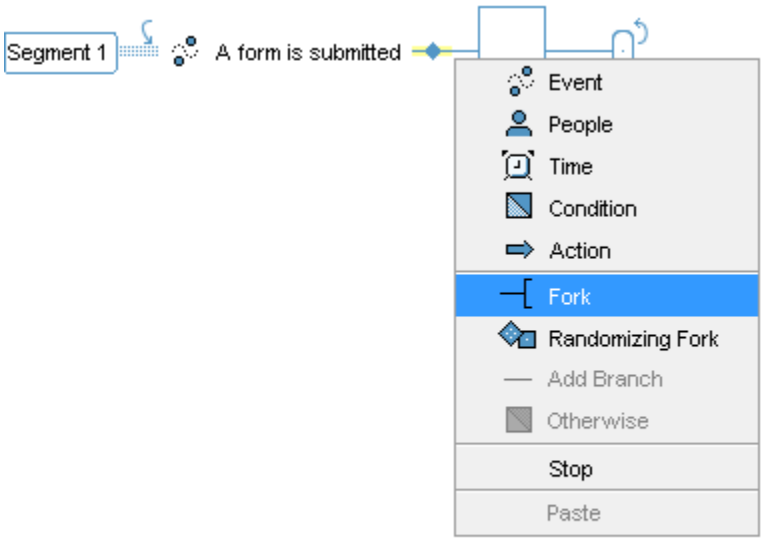
Action

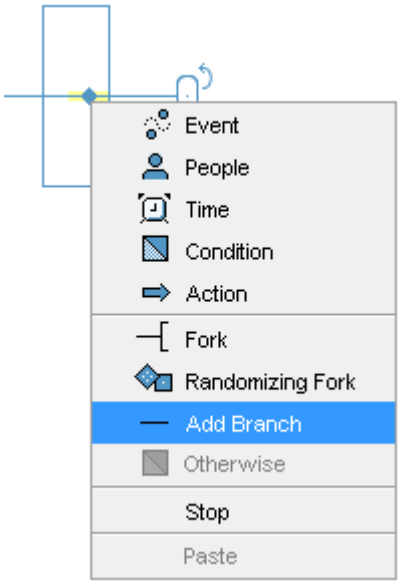
- Actions represent some action that can happen when the user reaches that state in the scenario.
- Examples of actions:
  - Add item to slot (specify slot).
  - Set variable: Set a variable in one place of the segment and use it in another part.
  - Send email: Sends email to users or groups of users.
  - Redirect page: Sends users to a different page.
  - Add marker.
  - Record event.
  - Record audit trail.
- Custom events can be added by developers.



Forks and Branches (1)

- Forks represent parallel if conditions.
- They allow you to divide a scenario into separate branches.
- You can add more than two branches to a fork by choosing the branch dropdown in the fork.



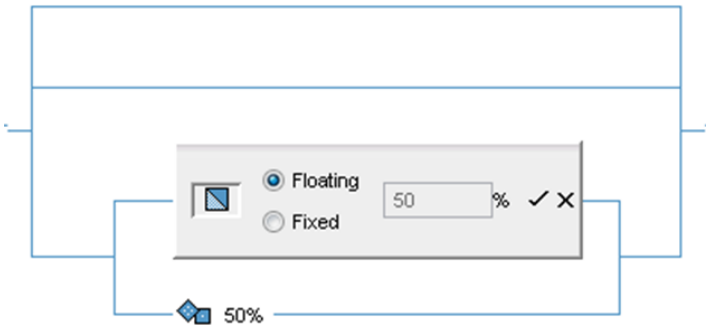


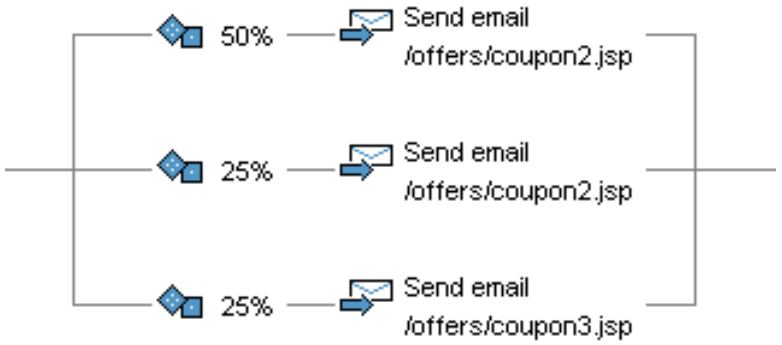
Forks and Branches (2)

- By default at least one branch needs to succeed for the user to proceed to the next element in the scenario.
- You can change that behavior by selecting ‘Requires all branches’ in the dropdown.
- You can also choose ‘Requires only one branch’ to allow only one branch.
- In the default behavior, scenario engine will wait for the user to succeed on the other branch until the scenario is completed.

Randomizing Fork

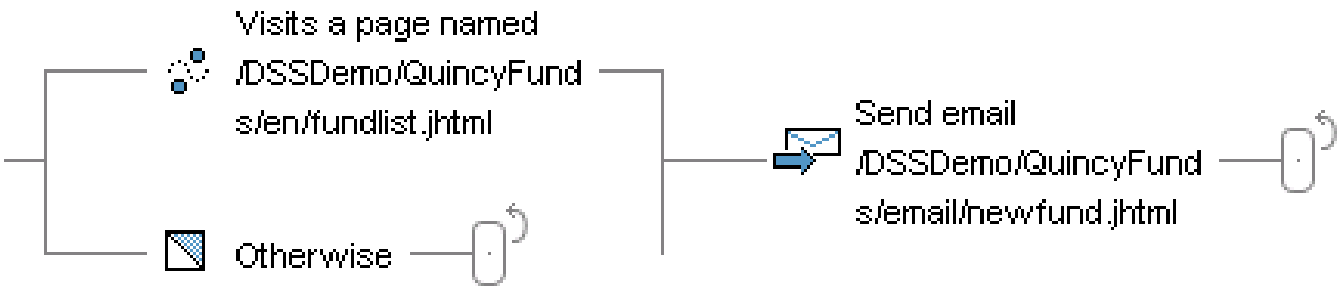
- Randomizing fork allows you to split the users into separate branches randomly.
- By default the system divides users equally.
- You can change this behavior by specifying percentages.





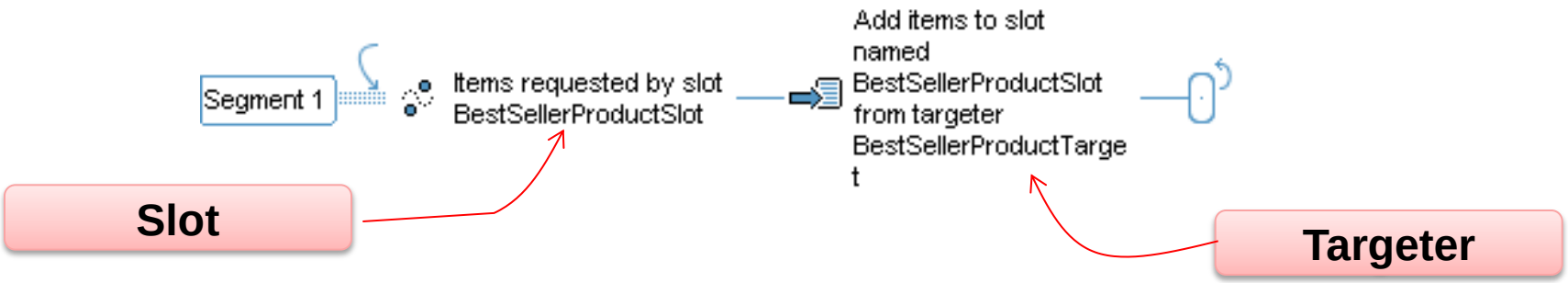
Using Otherwise Element

- Otherwise elements are used only in forks.
- If you set up if elements for one or more branches, you can use the Otherwise element as an else branch.
- Setting up Otherwise is highly recommended as the users exit the scenario and the scenario engine does not have to track them anymore.



Scenarios and Targeters

- Several features of scenarios are also available in the targeters.
- Scenarios introduce the **element of time** and are triggered by events.
- Slots introduce powerful features such as caching and offer better content delivery.
- Usually, scenarios are used to fill slots with content from targeters.



Scenario and Process Editor Servers

- A cluster of ATG servers must always contain:
  - Exactly one process editor server,
  - Zero or more global scenario servers,
  - Zero or more individual scenario servers.
- The individual server handles all the individual or user specific events.
- The global server handles all user specific and global events.
- The process editor server is a specific instance of global server that is also responsible for starting and stopping scenarios.
- You can create and edit scenarios only in the ACC connected to the process editor server.

Designing Effective Scenarios

- Scenarios are powerful personalization tools.
- They have been designed with great flexibility.
- The performance you get from the scenario depends on their design.
- To optimize performance:
  - Exclude anonymous visitors,
  - Minimize the number of visitors included,
  - Minimize the number of collective elements,
  - Avoid scenarios that run indefinitely,
  - Combine scenarios where practical,
  - Minimize the number of paths through a fork.

Workflows: Generalized Scenarios

- The scenarios module includes a mechanism for modeling business processes called a workflow.
- Workflows are based on ATG's process engine architecture.
- Workflows are similar to scenarios, but can be applied to a wider range of processes.
- Workflows enable creating new custom types of workflows that are tailored to specific processes.
- Many different types of business processes can be exposed as workflows:
  - Commerce order fulfillment,
  - Management of customer support calls.

Section 2 
Check Your Understanding

How do you allow users to repeat a scenario?

Answer: To allow them to repeat the scenario, right click on the segment and select 'Allow individuals to repeat' option.

Section 2 
Check Your Understanding

Name some elements of a scenario.

Answer: Event, people, time, condition, fork, etc.

Section 2
Check Your Understanding

What receives and triggers events in the scenario manager?

Answer: The Dynamo Message System.

Section 2 
Check Your Understanding

Name some people elements.

Answer: People whose attributes, people in group, people in organization, etc.

Section 2
Check Your Understanding

What time element should be used to execute a scenario on the first Monday of the month?

Answer: The On element has that capability.

Section 2 
Check Your Understanding

What are randomizing forks?

Answer: Randomizing forks allows you to split the users into separate branches randomly.

Section 2 
Check Your Understanding

How do you exit people not meeting a criteria out of a scenario?

Answer: The otherwise element with a fork can be used.

Summary

- Scenarios are created, listed, and edited in the ACC.
- Events, Conditions, Actions, and Forks are some of the elements of a scenario.
- Events are triggered when the ScenarioManager receives events from the Dynamo Message System.
- People elements let you check conditions on people.
- Time elements allow you to wait to execute at a certain time.
- Actions represent some action that can happen when the user reaches that state in the scenario.
- Forks represent parallel if conditions.

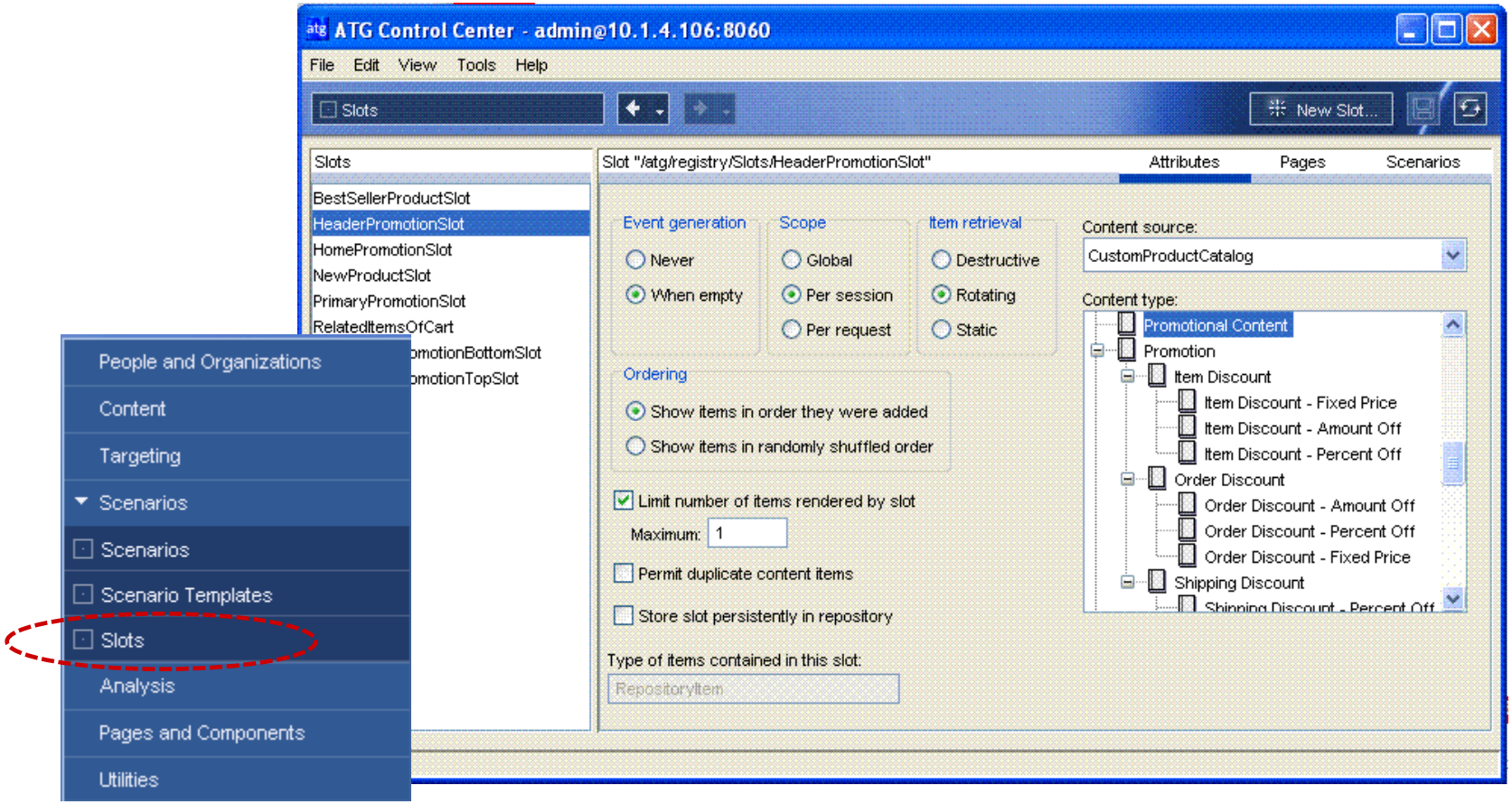
Section 3:

Working with Slots

Slots Overview

- Slots are containers that you can use to display and manage dynamic items on your web sites.
- You can use targeting servlet beans to include slots in site pages.
- Scenarios can fill slots with content.
- Slots provide more power and flexibility than targeters:
  - Slots have better caching capabilities.
  - Use scenarios to display items in slots.
  - Slots can display content other than repository items.

Listing of Slots in ACC



Create and Set Up A Slot

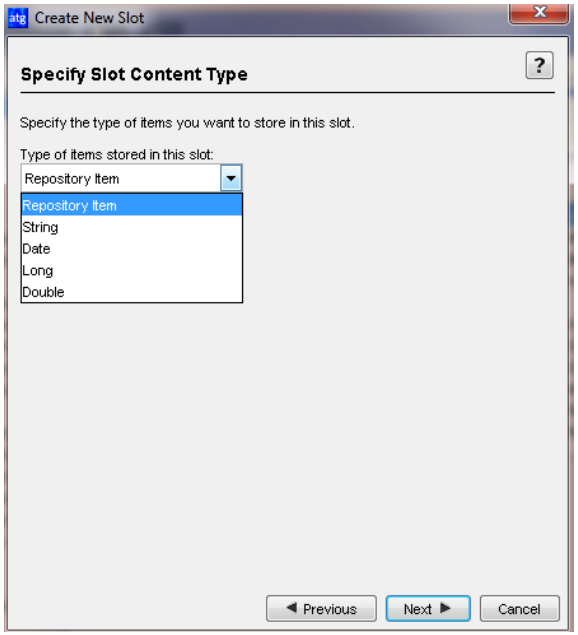
- The process of creating and setting up a slot has the following steps:
  - Create the slot component. Can use OOTB class atg.scenario.targeting.RepositoryItemSlot .
  - Add an appropriate targeting servlet bean (for example, **`TargetingFirst`**) to the page or pages where you want the slot to appear.
  - Create a scenario that specifies the content you want to display in the slot and defines the circumstances in which the content appears.

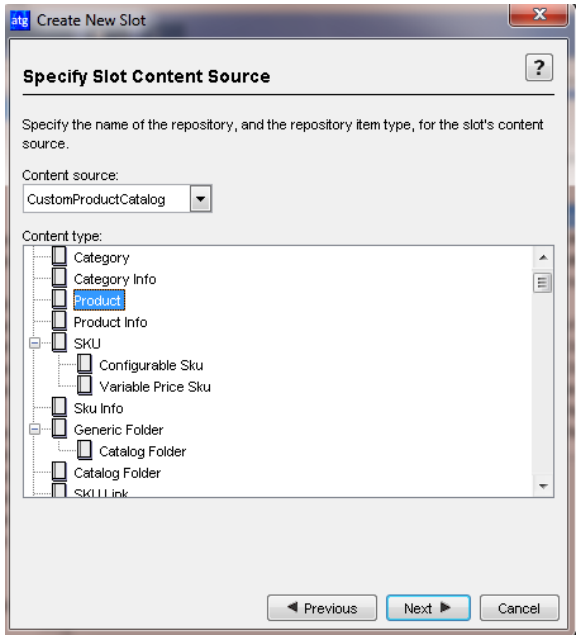
Slot Creation Wizard – Slot Name, Content Type, and Content Source

Corresponds to the **property file name.**

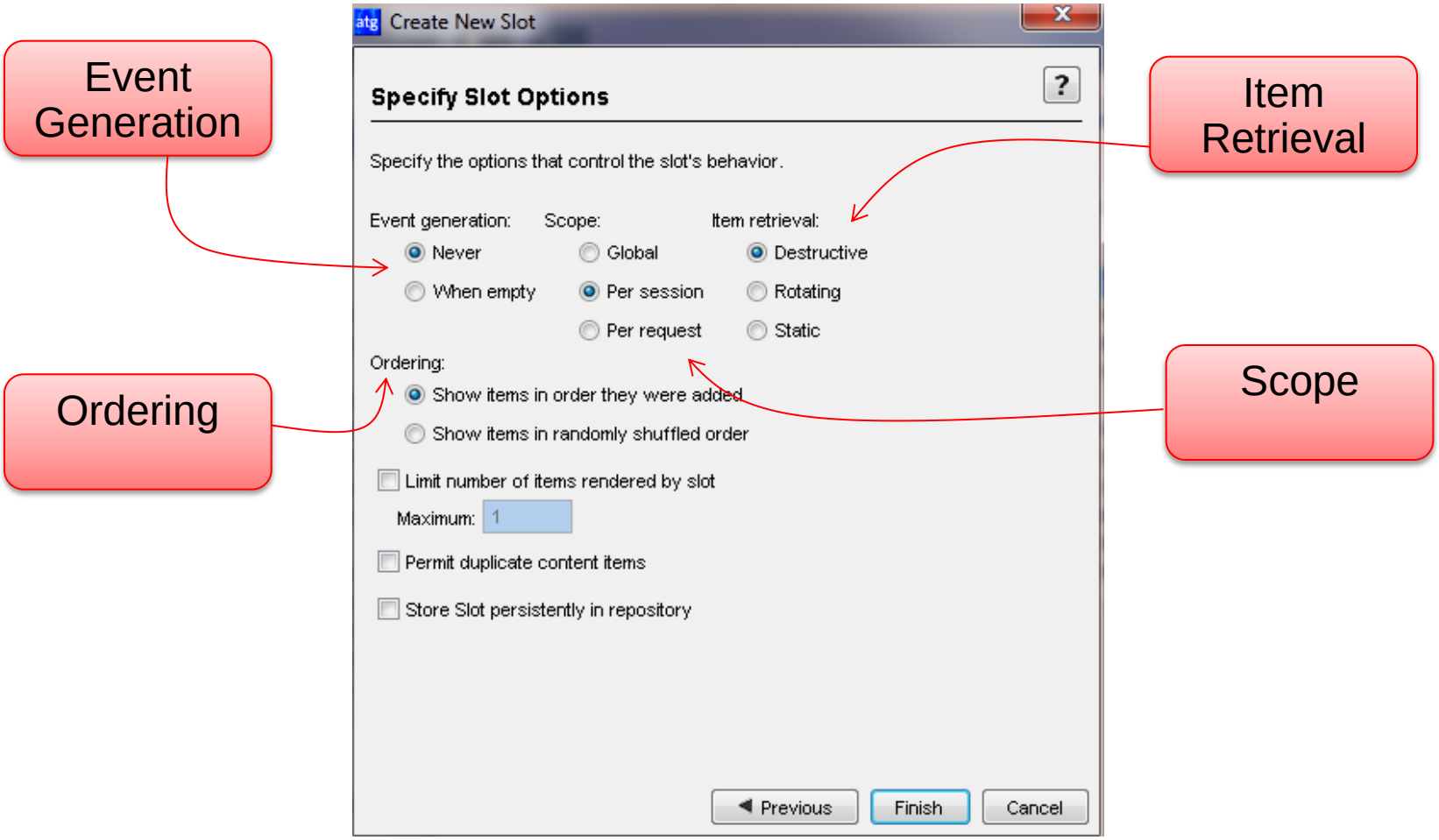
Corresponds to **repositoryName** in the property file.

Corresponds to **ItemDescriptorName** in the property file.





Slot Options



Slot Options – Event Generation

- Event generation indicates whether a slot can issue a request for content items.
- Slots which issue requests when empty are called **active** slots. Otherwise they are called **passive** slots.
- Example of a Passive slot:
  - A user registers on the page.
  - The registration event is generated.
  - A scenario responds to the event and fills a slot with promotions.

- Example of an Active slot:
  - User visits the home page.
  - Home page banner slot has no content and issues a request.
  - A scenario responds to the event and fills the slot with banners.

Slot Options - Scope

- Like other nucleus components, slots can have global, session, and request scopes.
- Global
  - All site visitors share the same list of items.
- Per session
  - Each visitor has a separate list of items.
  - The slots keep track of items as the user moves from page to page.
  - These are most common.
  - All site visitors share the same list of items.
- Per request
  - Each request has a separate list of items
  - The slot does not keep track of items per user.
  - If you set this to rotating or destructive item retrieval, the slot restarts the cycle for each request.

Slot Options – Item Retrieval

- The Item Retrieval setting defines how the system cycles through the content items in the slot
  - Destructive (value 2).
  - Rotating (value 1).
  - Static (value 0).
- Destructive
  - Items display once each.
  - When an item has been displayed, it is removed.
- Rotating
  - Items display multiple times in rotation.
- Static
  - Items are not removed from the list.
  - Order of the list does not change.

Slot Options - Ordering

- Use the Ordering setting to change the order in which items appear in the slot:
  - Show items in order they were added (value 0),
  - Show items in randomly shuffled order (value 1).
- Show items in order they were added
  - Uses the At Priority option from the slot element to define the order.
  - This is the default setting.
- Show items in randomly shuffled order
  - Shuffles the items in the slot and display them in random order.
  - Shuffling happens for items with same priority.
  - Preserves the priority among groupings.
- Shuffling happens only once during each instance of slots scope.

Other Slot Options

- Limit number of items rendered by slot
  - Limits the number of items rendered by slot at once.
  - Default value is 2147483647 or effectively unlimited.
  - Developers can use the targeting servlet beans to control number displayed on page as well.
- Permit duplicate content items
  - By default it is false. So content item can be added only once.
  - Important if multiple scenarios are contributing to the slot.
- Store slot persistently in repository
  - By default, slot is initialized every time the corresponding scenario is triggered.
  - Use if the scenario is triggered only once. Example: registration.
  - To have the slot track the visitor across sessions, select this option.

Slots Property File

- Creation and editing of slots you do in the ACC are persisted as slot property files.
- These files may be copied to the config folder in the build.

```
# /atg/registry/Slots/homePage1
#Mon Jun 27 14:50:53 CST 2011
$class=atg.scenario.targeting.RepositoryItemSlot
$description=
$scope=session
generation=0
retrieval=0
itemDescriptorName=promotionalContent
repositoryName=CustomProductCatalog
```

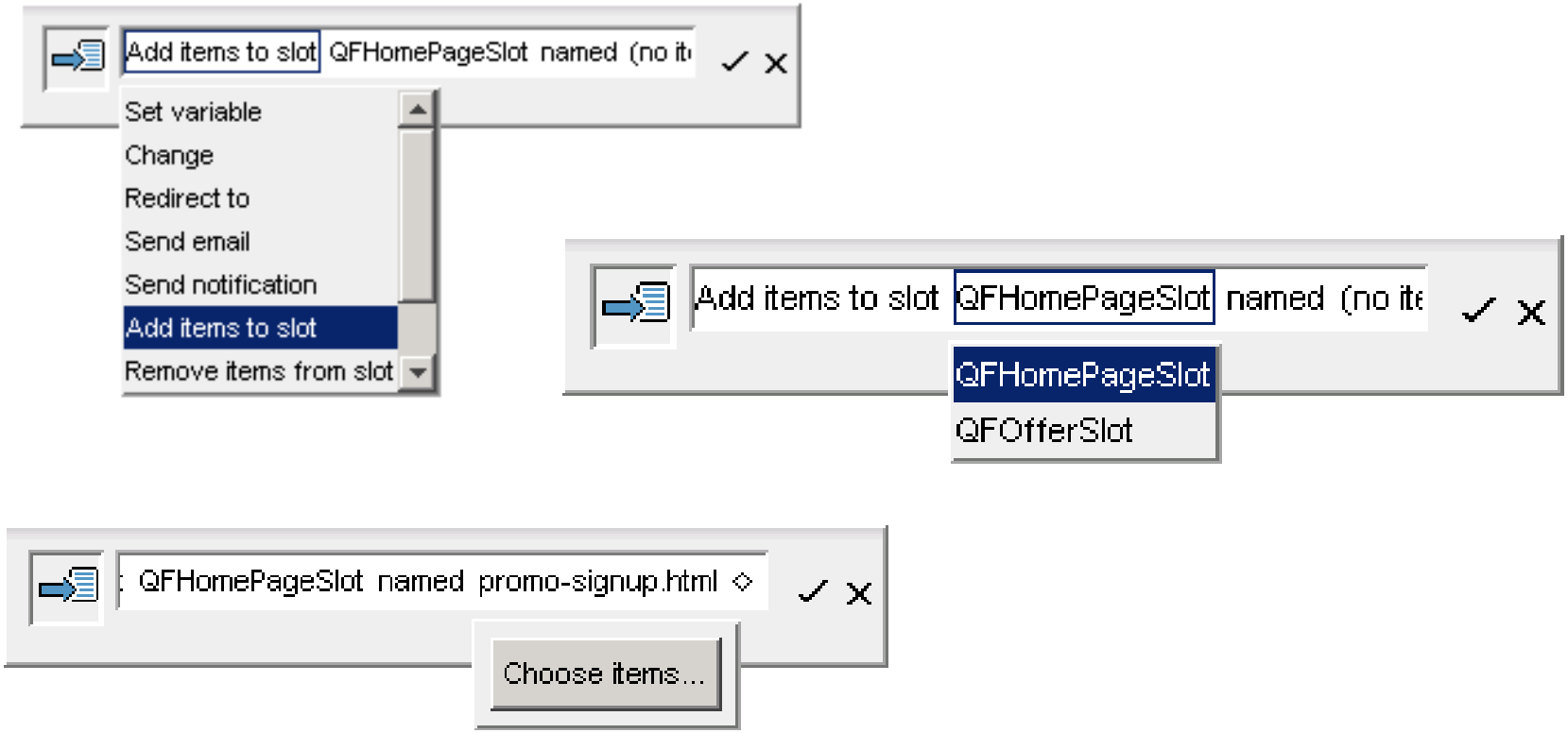
Creating Slots with Other Objects

- Slot components can contain non repository items:
  - Strings,
  - Dates,
  - Long, double, ints, etc.
- The valueType property describes the class object.
- The key differences between these and slots with repository items are:
  - Options specific to repository item slots are not displayed in the wizard.
  - These slots cannot be persisted across visitor sessions.

```
$class=atg.scenario.targeting.Slot
$description=displays dates
$scope=session
generation=0
maxRenderSize=2
ordering=1
valueType=java.util.Date
```

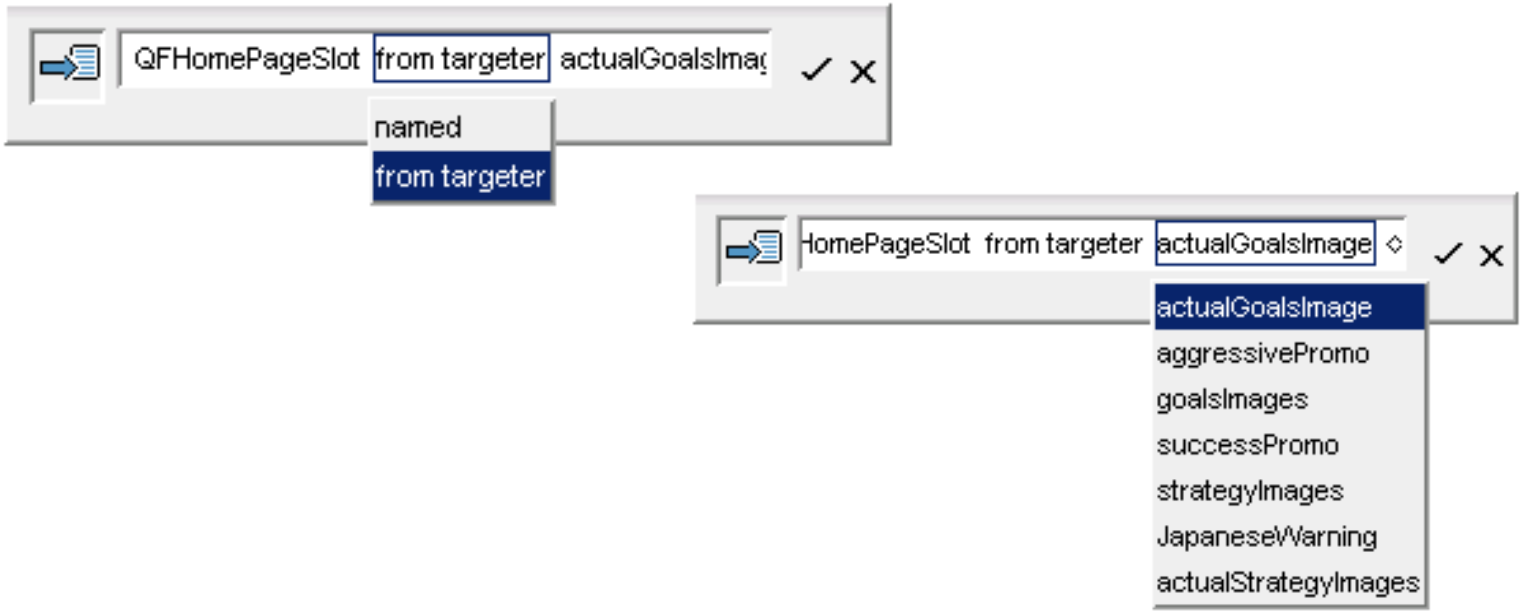
Creating a Scenario to Fill the Slot

- A scenario can fill the slot whether it responds to the slot's 'Item Requested' event or not.



Using a Targeter to Define the Content of a Slot

- The system can use merchandiser specified business rules to fill items in the slot.



Section 3  Check Your Understanding

How do you include slots on a JSP page?

Answer: Targeting servlet beans can be used to embed slots on a page.

Section 3 
Check Your Understanding

How do you specify the content the slot will store?

Answer: By specifying the repository name and item descriptor name.

Section 3  Check Your Understanding

What are passive slots?

Answer: Slots which issue requests when empty are called active slots. Otherwise they are called passive slots.

Section 3 
Check Your Understanding

If a slot has to show different items to different users, which scope should be used?

Answer: Use the per session scope.

Section 3 ✔
Check Your Understanding

What is destructive item retrieval?

Answer: Item displays only once and when an item has been displayed, it is removed.

Section 3

Check Your Understanding

When items are randomly shuffled, how is the priority handled?

Answer: Shuffling happens for items with same priority and Slots preserve the priority among groupings.

Summary

- Slots are containers that you can use to display and manage dynamic items on your websites.
- Slots provide more power and flexibility than targeters.
- They can generate an event indicating that they require content.
- Slots can have global, session, and request scopes.
- Slots have settings that define if the items are destroyed, rotated, or remain static when they are retrieved.
- They provide ordering capability of items.
- Slots can limit number of items rendered.
- You can permit or not permit duplicate content items.
- Slots can be persisted in the repository.

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