Building a Common Navigator Framework (CNF) Viewer Part IV: Object Contributions

ACTION MAY NOT ALWAYS BRING HAPPINESS, BUT THERE IS NO HAPPINESS WITHOUT ACTION.
-- BENJAMIN DISRAELI

Overview

In the last post, we discussed how to configure the popup menus for a Common Navigator instance. As we saw, a Common Navigator can declare all of its menu insertion points through the **org.eclipse.ui.navigator.viewer** extension point and indicate whether contributions to the **org.eclipse.ui.popupMenus** extension point should be honored. The declarative menu configuration serves the dual purpose of avoiding programmatic configuration of the menu structure, and documenting the menu structure for potential extenders.

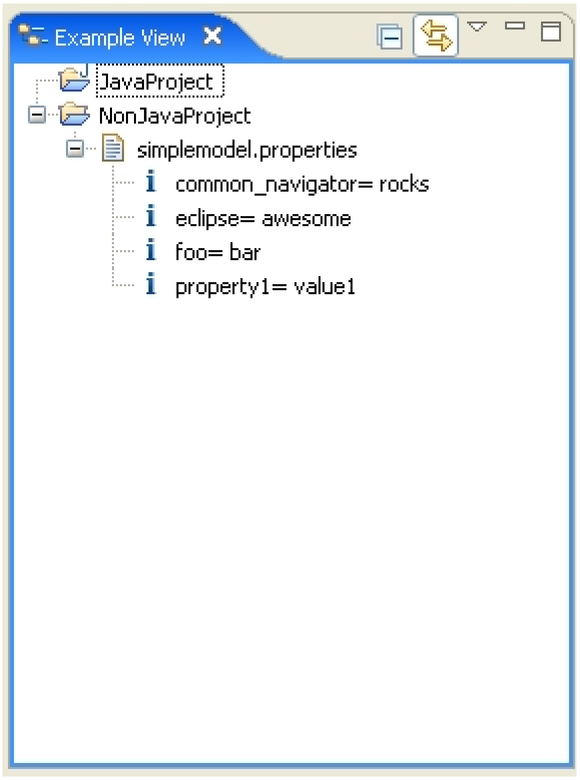
We also briefly talked about the two ways that contributors can tap into a menu. The first was through **org.eclipse.ui.popupMenus**, which allows you to add menus throughout the workbench, and the second was through **org.eclipse.ui.navigator.navigatorContent**, which is specific to the Common Navigator framework. We will cover **...popupMenus** in this article, and **...navigatorContent** in the next.

As always, you can find the full source for this example in the **org.eclipse.ui.navigator.examples** plugin from the Eclipse CVS repository. There are also some instructions on using Eclipse with CVS, which also documents the repository paths.

With that out of the way, let's dive into the example.

Adding a *Delete Property* action with **org.eclipse.ui.popupMenus**

Recall that for this series of articles, we are rendering a simple model of a properties file.

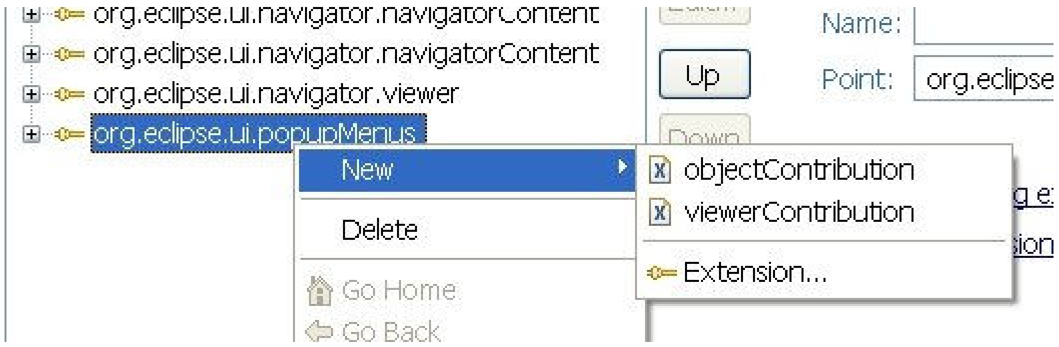


Now we are going to add a *Delete Property* action that allows a user to select a property from the listing above and remove it.

Open the *Plug-in Manifest Editor* by double clicking the plugin.xml file in your plugin project. If you're not quite sure what this means, check out Part I of this series.

On the *Extensions* tab, select Add... and choose **org.eclipse.ui.popupMenus**. If you don't see this option listed, uncheck "Show only extension points from the required plugins". If you haven't already added **org.eclipse.ui** as a dependent plugin, this will take care of that for you.

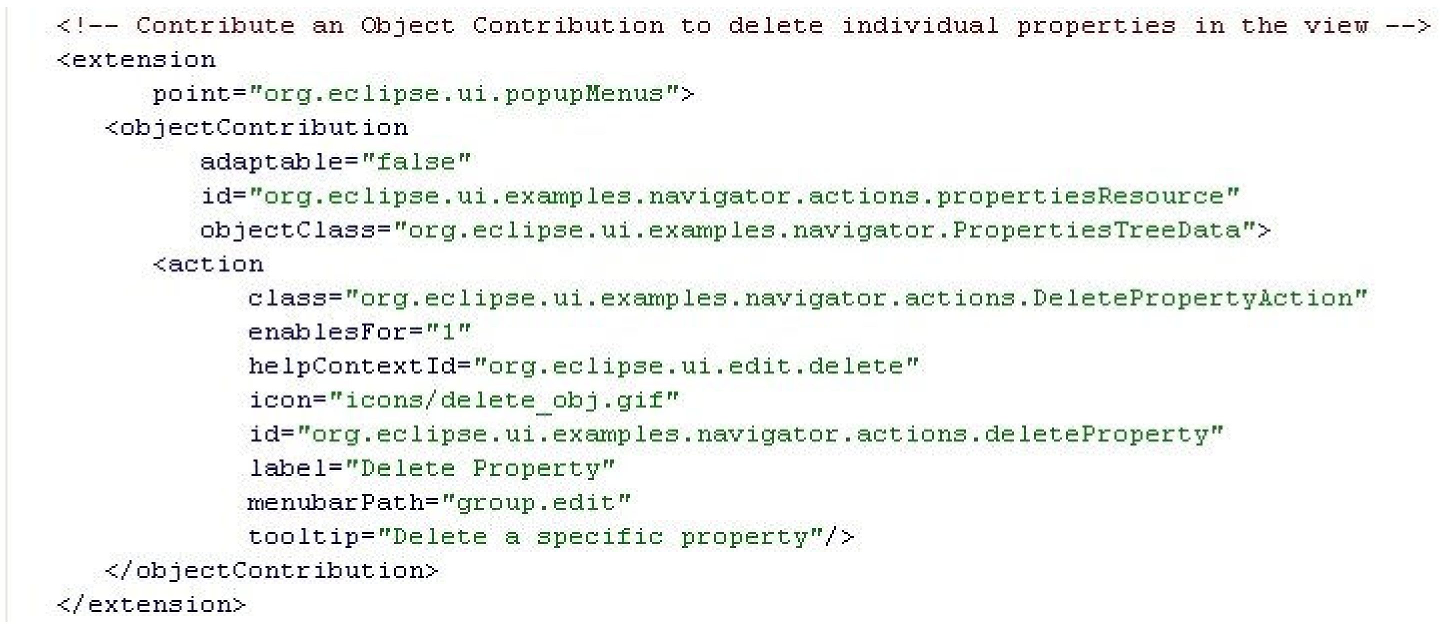
Now select the entry created in the list ("org.eclipse.ui.popupMenus"), right-click and choose "objectContribution". Then, right-click again and choose "action".


org.eclipse.ui.navigator.navigatorContent
org.eclipse.ui.navigator.navigatorContent
org.eclipse.ui.navigator.viewer
org.eclipse.ui.popupMenus
New
Delete
Go Home
Go Back
objectContribution
viewerContribution
Extension...
Up
Down
Name:
Point:
org.eclipse

An *objectContribution* can declare menus (submenu extensions of the popup menu) and actions. The extension is fairly verbose to help optimize plugin loading. That is, the extension declares enough information that the actual class (and therefore the plugin) doesn't need to be loaded to render the menu. If the user never selects the action, then the plugin needn't be loaded.

In particular, the extension declares the menu label, the menu icon, and a tooltip among other things. The extension also declares the menubar path (recall we described the values for insertion points in Part III).

Use the values from the following diagram to configure the action element. You can enter the values on the *Extensions* page, or flip over to the *plugin.xml* tab and fill it in by hand.



```
<!-- Contribute an Object Contribution to delete individual properties in the view -->
<extension
      point="org.eclipse.ui.popupMenus">
   <objectContribution
         adaptable="false"
         id="org.eclipse.ui.examples.navigator.actions.propertiesResource"
         objectClass="org.eclipse.ui.examples.navigator.PropertiesTreeData">
      <action
            class="org.eclipse.ui.examples.navigator.actions.DeletePropertyAction"
            enablesFor="1"
            helpContextId="org.eclipse.ui.edit.delete"
            icon="icons/delete_obj.gif"
            id="org.eclipse.ui.examples.navigator.actions.deleteProperty"
            label="Delete Property"
            menubarPath="group.edit"
            tooltip="Delete a specific property"/>
   </objectContribution>
</extension>
```

There's a few things we should discuss here.

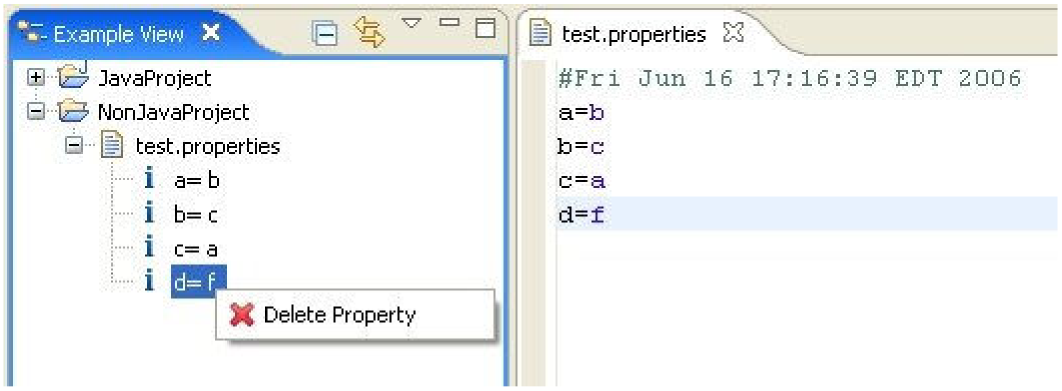
First is the *objectClass*, which declares that we are interested in **...PropertiesTreeData**. Recall from Part II that we defined a simple object model to represent the *name=value* pairs in a property file. To delete these items, we want our action to enable on instances of our model.

The *class* attribute specifies a subclass of **org.eclipse.ui.actions.ActionDelegate**. The implementation of *DeletePropertyAction.run(IAction)* has some boilerplate for robustness, but the important part is as follows:

```
try {
   // load the model
    Properties properties = new Properties();
    properties.load(propertiesFile.getContents());
    monitor.worked(1);

    // delete the property
    properties.remove(data.getName());
    monitor.worked(1);

    // persist the model to a temporary storage medium (byte[])
    ByteArrayOutputStream output = new ByteArrayOutputStream();
    properties.store(output, null);
    monitor.worked(1);

    // set the contents of the properties file
    propertiesFile.setContents(
                        new ByteArrayInputStream(output.toByteArray()),
                                IResource.FORCE | IResource.KEEP_HISTORY, monitor);
    monitor.worked(1);
```

ActionDelegate declares a *selectionChanged(IAction, ISelection)* method that is updated when the selection in the viewer changes. We override this method to remember the selection, so that in the event that the user selects the menu option, we know what item they clicked on.

And that's all there is to it. The final example view should appear like the following. When the "Delete Property" action is invoked, the selected property will be removed from the property file.



```
#Fri Jun 16 17:16:39 EDT 2006
a=b
b=c
c=a
d=f
```

Summary

Now you should feel comfortable experimenting with adding more actions to the popup menu, as well as adding submenus. Be sure to check out the *menu* element (accessible in the same way you found *action* earlier). If you use the *Extensions* tab, all of the available attributes will be accessible to you, and remember you can use the right-click menu to create sub elements.

In this article we covered the basics of contributing an action to our example viewer through the **org.eclipse.ui.popupMenus** extension point. In the next article, we'll cover how to programmatically configure the menu using an extension of **org.eclipse.ui.navigator.navigatorContent**.

ABOUT THE AUTHOR

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Michael has been a Java developer since 1999 and currently contributes to Eclipse in open source and commercial venues. Most recently, Michael has contributed the Common Navigator Framework (CNF) to Eclipse 3.2. Prior to that, he helped design several of the frameworks and API in the Web Tools Platform (WTP), and continues to contribute fixes to WTP through the open source process. Michael is currently part of the Services Oriented Architectures (SOA) Tools Team for IBM Rational® based in Research Triangle Park, NC.