

MultiUberspect

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/** org.apache.velocity.tools.generic.introspection.MultiUberspect
    Allows Velocity to Introspect other types of Objects
    November 2004
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    $Id: MultiUberspect.java,v 1.1.2.7 2004/12/20 00:20:34 fix Exp $
 */

/**
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 */

package org.apache.velocity.tools.generic.introspection;

import java.util.*;
import java.lang.reflect.Constructor;

import org.apache.log4j.Logger;

import org.apache.velocity.util.introspection.Info;
import org.apache.velocity.util.introspection.Uberspect;
import org.apache.velocity.util.introspection.UberspectImpl;
import org.apache.velocity.util.introspection.VelPropertyGet;
import org.apache.velocity.util.introspection.VelPropertySet;

/**
 * Expanded Uberspect implementation that allows you to designate custom Uberspects on
 * a per class basis, so that classes that don't follow the Java Beans specification can
 * be handled like beans in Velocity Templates.
 *
 * <p>To use, tell Velocity to use this class for introspection
 * by adding the following to your velocity.properties:<br />
 *
 * <code>
 * runtime.introspector.uberspect = org.apache.velocity.tools.generic.introspection.MultiUberspect
 * </code>
 * </p>
 *
 * @author <a href="mailto:fix@smete.org">Eric Fixler</a>
 * @version $Id: MultiUberspect.java,v 1.1.2.7 2004/12/20 00:20:34 fix Exp $
 */

public class MultiUberspect extends UberspectImpl {
    private final Map    customIntrospectors = new HashMap();
    private final Map    derivedIntrospectors = new HashMap();

    public MultiUberspect() {}

    protected boolean useSuperclassIntrospector = false;

    /** <p>If true, and a class is encountered for which a custom Uberspect has not been registered,
        will check to see if any superclasses of class have registered Uberspects.  If so, will use
        the superclass' Uberspect.</p>
        <p>When false (the default), will only return a custom Uberspect if the requested Objects class
        has had a Uberspect explicitly registered.</p>
    */
}
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        @param b the flag
    */

    public void                setUseSuperclassIntrospector(boolean b) { this.useSuperclassIntrospector = b; }

    /** Whether of not we will look for a superclass Uberspect if an exact match for a custom Uberspect is not
    found. */

    public final boolean      getUseSuperclassIntrospector() { return this.useSuperclassIntrospector; }

    /** Register a custom uberspect

        @param clz      The class handled by this Uberspect
        @param u        The Uberspect
    */

    public void addIntrospector(Class clz, Uberspect u) {
        try {
            u.init();
        } catch (Exception e) {
            return;
        }
        this.customIntrospectors.put(clz, u);
        this.derivedIntrospectors.clear();
        this.derivedIntrospectors.putAll(this.customIntrospectors);
        Logger.getRootLogger().info("Added uberpect " + u.getClass().getName() + " for " + clz.getName());
    }

    /** Unregister a custom uberspect.

        @param clz      The class handled by the Uberspect
    */

    public void removeIntrospector(Class clz) {
        this.customIntrospectors.remove(clz);
        this.derivedIntrospectors.clear();
        this.derivedIntrospectors.putAll(this.customIntrospectors);
    }

    /** Get the Uberspect, if one exists

        @param clz The class for which to get an Uberspect
        @return an Uberspect, or null if none exists
    */

    protected Uberspect getCustomIntrospector(Class clz) {
        Uberspect uber = (Uberspect) this.derivedIntrospectors.get(clz);
        if ((! this.useSuperclassIntrospector) || (uber != null)) return uber;
        synchronized(this.derivedIntrospectors) {
            Iterator it = this.customIntrospectors.entrySet().iterator();
            while (it.hasNext()) {
                Map.Entry entry = (Map.Entry) it.next();
                Class checkClz    = (Class) entry.getKey();
                if (checkClz.isAssignableFrom(clz)) {
                    uber = (Uberspect) entry.getValue();
                    this.derivedIntrospectors.put(clz, uber);
                    return uber;
                }
            }
        }
        return null;
    }

    /**
    * Property iterarot - returns Iterator apropos for #foreach($foo in $bar.).
    * <br />
    * Looks to see if a custom Uberspect has been registered for obj.getClass().
    * If an Iterator was not found, tries the regular routine.
    *
    * @param obj the object
    * @param info a bunch of information.
    */

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* @return a valid <code>Iterator</code>, if it was found.
* @throws Exception failed to create a valid <code>Iterator</code>.
*/
public Iterator getIterator(Object obj, Info info)
    throws Exception {
    Uberspect uberspect = (Uberspect) this.getCustomIntrospector(obj.getClass());
    return (uberspect != null)
        ? uberspect.getIterator(obj, info)
        : super.getIterator(obj, info);
}

/**
 * Property getter - returns VelPropertyGet appropos for #set($foo = $bar.woogie).
 * <br />
 * Looks to see if a custom Uberspect has been registered for obj.getClass().
 * If a getter was not found, tries the regular routine.
 *
 * @param obj the object
 * @param identifier the name of the property
 * @param info a bunch of information.
 * @return a valid <code>VelPropertyGet</code>, if it was found.
 * @throws Exception failed to create a valid <code>VelPropertyGet</code>.
 */
public VelPropertyGet getPropertyGet(Object obj, String identifier, Info info)
    throws Exception
{
    Uberspect uberspect = (Uberspect) this.getCustomIntrospector(obj.getClass());
    return (uberspect != null)
        ? uberspect.getPropertyGet(obj, identifier, info)
        : super.getPropertyGet(obj, identifier, info);
}

/**
 * Property setter - returns VelPropertySet appropos for #set($foo.bar = "geir").
 * <br />
 * Looks to see if a custom Uberspect has been registered for obj.getClass().
 * If a setter was not found, tries the regular routine.
 *
 * @param obj the object
 * @param identifier the name of the property
 * @param arg the value to set to the property
 * @param info a bunch of information.
 * @return a valid <code>VelPropertySet</code>, if it was found.
 * @throws Exception failed to create a valid <code>VelPropertySet</code>.
 */
public VelPropertySet getPropertySet(Object obj, String identifier,
    Object arg, Info info) throws Exception
{
    Uberspect uberspect = (Uberspect) this.getCustomIntrospector(obj.getClass());
    return (uberspect != null)
        ? uberspect.getPropertySet(obj, identifier, arg, info)
        : super.getPropertySet(obj, identifier, arg, info);
}

/**
 * Change this source if you use this, since you won't have the classes referenced here.
 * (Obviously, would be better to assign the mappings elsewhere, and it's set up to do its
 * configuration work based on a map, in the hopes that, at some point, it'll be
 * configurable velocity.properties)
 */
public void init() throws Exception {
    super.init();
    Map m = new HashMap();
    m.put("org.apache.velocity.tools.generic.introspection.CumulusRecordUberspect",
        new String[] { "com.canto.cumulus.Record" });
    m.put("org.apache.velocity.tools.generic.introspection.CumulusCategoriesUberspect",
        new String[] { "com.canto.cumulus.Categories" });
}

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m.put("org.apache.velocity.tools.generic.introspection.LuceneDocumentUberspect",
      new String[] { "org.apache.lucene.document.Document" });
m.put("org.apache.velocity.tools.generic.introspection.SearchResultItemUberspect",
      new String[] { "org.smete.search.SearchResultItem" });

Iterator it = m.entrySet().iterator();

while (it.hasNext()) {
    Map.Entry entry = (Map.Entry) it.next();
    String key      = (String) entry.getKey();
    Object val      = entry.getValue();
    String[] clzNames = (val instanceof Object[])
        ? (val instanceof String[])
        : (String[]) val
        : new String[0] //need better handler

here
        : new String[] { val.toString() };

    Class      introspectorClass      = null;

    try {
        introspectorClass = Class.forName(key);
    } catch (Exception e) {
        Logger.getRootLogger().warn("Uberspect class " + key + " not found, ignoring", e);
        continue;
    }

    Constructor ubc = null; Object[] args = null;

    try {
        ubc = introspectorClass.getConstructor(new Class[] { MultiUberspect.class } );
        args = new Object[] { this };
    } catch (Exception e) {
        try {
            ubc = introspectorClass.getConstructor(new Class[0]);
            args = new Object[0];
        } catch (Exception ee) {
            Logger.getRootLogger().warn("Can't find constructor for Uberspect " + key,e);
            continue;
        }
    }

    Uberspect      introspector = null;
    try {
        introspector = (Uberspect) ubc.newInstance(args);
    } catch (Exception e) {
        Logger.getRootLogger().warn("Can't instantiate Uberspect " + key,e);
        continue;
    }

    for (int i = 0; i < clzNames.length; i++) {
        try {
            Class clz = Class.forName(clzNames[i]);
            this.addIntrospector(clz,introspector);
        } catch (Exception e) {
            Logger.getRootLogger().warn("Can't find class " + clzNames[i] + " for custom
Uberspect, ignoring", e);
            continue;
        }
    }

}

}

}

// $Log: MultiUberspect.java,v $
// Revision 1.1.2.7 2004/12/20 00:20:34 fix
// docs

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//  
// Revision 1.1.2.6 2004/12/16 03:45:01 fix  
// -- Uberspect for LuceneDocuments  
// -- Modified init() in MultiUberspect to make configuration make more sense  
//  
// Revision 1.1.2.5 2004/11/24 00:46:36 fix  
// -- Fixed MultiUberspect so delegation works for Iterators  
//  
// Revision 1.1.2.3 2004/11/05 06:35:40 fix  
// bug fix  
//  
// Revision 1.1.2.2 2004/11/05 05:51:00 fix  
// Added useSuperclassIntrospector to turn superclass scaling on and off  
//
```