Sorting Aspects with Grids

Application Designer's grid controls support automated sorting of items.

- TEXTGRID(SSS): by default, you can sort the grid columns by clicking on the corresponding columns header. When using CSVCOLUMN controls, you need to explicitly tell which property is behind which column (property `proprefsprop`).
- ROWTABLEAREA2: by using the GRIDCOLHEADER control, you have the same type of sorting as you have with TEXTGRIDs.

This chapter covers the following topics:

- Default Sorting
- Your Own Sorting
- Special Consideration with CSVCOLUMN Controls

Default Sorting

The default sorting is done in the following way:

- Application Designer sorts the grid collection on the server side.
- Application Designer accesses the grid item objects by reflection or by dynamic access. (See *Binding between Page and Adapter* for more information on dynamic access.)
- Application Designer is taking the data type of the property into consideration when deciding whether to sort lexically or numerically.

Your Own Sorting

You can override the default sorting inside a `TEXTGRIDCollection` or `GRIDCollection`. The following example shows how to do so:

```
package com.softwareag.cis.demoapps;

// This class is a generated one.

import java.util.*;
import com.softwareag.cis.server.*;
import com.softwareag.cis.server.util.*;
import com.softwareag.cis.util.*;

public class GridSortAdapter
    extends Adapter
{
    /**
     * Own textgrid collection that overrides the default sort behaviour.
     */
    public class MyTGC extends TEXTGRIDCollection
    {
```

```
        /**
         * Own SortInfo-class. In the sort-method you can do "everything you like"
         * for sorting: you can e.g. manipulate the grid collection in any way.
         */
        public class MySI extends SORTInfo
        {
            public void sort(String sortProperty, boolean ascending)
            {
                outputMessage(MT_SUCCESS,"Sorting: " + sortProperty + ", " + ascending);
            }
        }

        protected SORTInfo createGridSortInfo()
        {
            MySI result = new MySI();
            return result;
        }
    }

    /**
     * "Normal" lines item object.
     */
    public class LinesItem
    {
        // property >firstName<
        String m_firstName;
        public String getFirstName() { return m_firstName; }
        public void setFirstName(String value) { m_firstName = value; }

        // property >lastName<
        String m_lastName;
        public String getLastName() { return m_lastName; }
        public void setLastName(String value) { m_lastName = value; }
    }

    MyTGC m_lines = new MyTGC();
    public MyTGC getLines() { return m_lines; }

    public void init()
    {
        for (int i=0; i<100; i++)
        {
            LinesItem li = new LinesItem();
            li.setFirstName("FN " + i);
            li.setLastName("LN " + i);
            m_lines.add(li);
        }
    }
}
```

Instead of working on the normal `TEXTGRIDCollection`, you work on a derived one (in the example, this is `MyTGC`). In the derived implementation, you need to overwrite the method `createGridSortInfo()` returning an object that extends `SORTInfo` (in the example, this is `MySI`). Inside the `SORTInfo` object, you need to implement the `sort(..)` method as shown in the example.

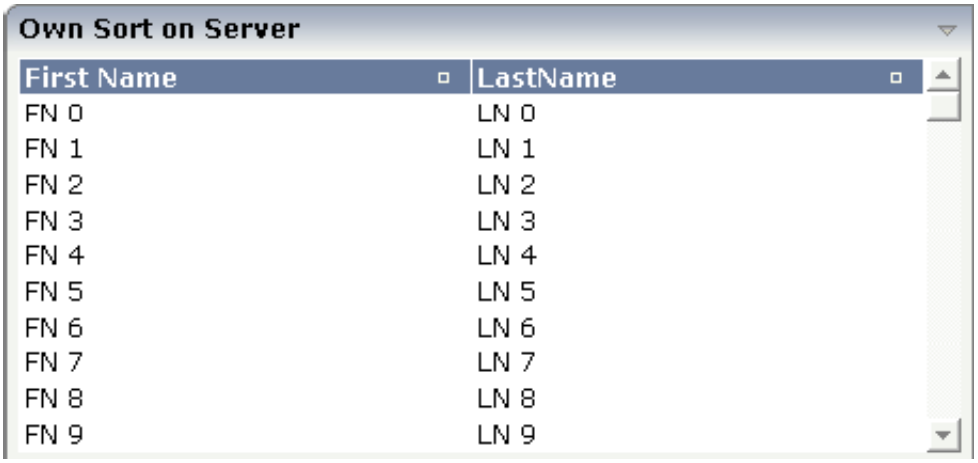
In the example, all classes are defined as inner classes. Of course, the choice whether to use inner classes or normal classes is up to you.

Special Consideration with CSVCOLUMN Controls

The CSVCOLUMN is a dynamic arrangement of columns inside a text grid. The adapter specifies the sequence, width and content of columns at runtime. In order to let Application Designer know how to sort the corresponding items of the `TEXTGRIDCollection`, you need to tell via the CSVCOLUMN property `proprefsprop` which property is behind which column.

When using the default sorting (i.e. no derived `TEXTGRIDCollection` as shown in the previous section), then Application Designer will sort the grid collection by accessing the properties. This means that you have to expose each column property accordingly.

Example:



The layout definition is:

```
<rowarea name="Own Sort on Server">
    <itr takefullwidth="true">
        <textgridsss2 griddataprop="lines" rowcount="10" width="100%">
            <csvcolumn titlesprop="titles" valuesprop="values"
                       widthsprop="widths" proprefsprop="proprefs">
            </csvcolumn>
        </textgridsss2>
    </itr>
</rowarea>
```

The adapter implementation looks like this:

```
package com.softwareag.cis.demoapps;

// This class is a generated one.

import java.util.*;

import com.softwareag.cis.file.CSVManager;
import com.softwareag.cis.server.*;
import com.softwareag.cis.server.util.*;
import com.softwareag.cis.util.*;

public class GridSortAdapter
    extends Adapter
{
    public class LinesItem
```

```
    {
        String m_firstName;
        public String getFirstName() { return m_firstName; }
        public void setFirstName(String value) { m_firstName = value; }

        String m_lastName;
        public String getLastName() { return m_lastName; }
        public void setLastName(String value) { m_lastName = value; }

        public String getValues()
        {
            return CSVManager.encodeString(new String[] {m_firstName,m_lastName});
        }

    }

    String m_proprefs = "firstName;lastName";
    public String getProprefs() { return m_proprefs; }

    String m_titles = "First Name;LastName";
    public String getTitles() { return m_titles; }

    String m_widths = "50%;50%";
    public String getWidths() { return m_widths; }

    TEXTGRIDCollection m_lines = new TEXTGRIDCollection();
    public TEXTGRIDCollection getLines() { return m_lines; }

    public void init()
    {
        for (int i=0; i<100; i++)
        {
            LinesItem li = new LinesItem();
            li.setFirstName("FN " + i);
            li.setLastName("LN " + i);
            m_lines.add(li);
        }
    }
}
```

The `LinesItem` class exposes three properties:

- The `values` property passes back the comma separated string that contains the content of the columns.
- The `firstName` and `lastName` properties are exposed for Application Designer being able to sort the grid collection by property access.

Since Application Designer communicates all simple datatype properties to the client that are part of an accessed object in the scenario above, all three properties are transferred to the UI client - though of course only the `values` property is actually required. The other properties are used for sorting puposes only.

To avoid this, you may use a certain interface `IControlPropertyAccess` with which you can clearly tell Application Designer that certain simple datatype properties - though provided in the implementation - are not relevant to be transferred to the client:

```
/**
 * "Normal" lines item object.
 */
public class LinesItem
    implements IControlPropertyAccess
{
    String m_firstName;
    public String getFirstName() { return m_firstName; }
    public void setFirstName(String value) { m_firstName = value; }

    String m_lastName;
    public String getLastName() { return m_lastName; }
    public void setLastName(String value) { m_lastName = value; }

    public String getValues()
    {
        return CSVManager.encodeString(new String[] {m_firstName,m_lastName});
    }

    public String[] findPropertiesNotToBeCollected()
    {
        return CSVManager.decodeString(m_proprefs);
    }
}

String m_proprefs = "firstName;lastName";
public String getProprefs() { return m_proprefs; }
```

If you do not want to provide for the fine granular properties at all (`firstName`, `lastName`), then you still can use the possibility of doing the sorting completely on your own as shown in the previous section. In this case, the property references passed by PROPREFSPROP are just strings thay are communicated to the `sort(..)` method when the user sorts a grid.