

6.3 Formatting Objects Summary

retrieve-table-marker

The fo:retrieve-table-marker is used in conjunction with fo:marker to produce table-headers and table-footers whose content can change over different pages, different regions or different columns.

6.13.1.1.2 Table Markers

The following example shows how to use the fo:retrieve-table-marker formatting object to create a 'Table continued...' caption that appears at the bottom of the table, when the table continues on the next page (assuming enough data is present that page breaks are generated). It will also show the subtotal at the bottom of the page when the table continues on the next page, and the grand total at the end of the table.

Input sample:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<numbers>
  <number>1</number>
  <number>2</number>
  <!-- and so on... -->
  <number>11</number>
  <number>12</number>
</numbers>
```

XSL Stylesheet:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
xmlns:fo="http://www.w3.org/1999/XSL/Format" version="1.0">
  <xsl:strip-space elements="*" />

  <xsl:template match="numbers">
    <fo:table>
      <fo:table-column/>
      <fo:table-footer>
        <fo:table-row>
          <fo:table-cell font-weight="bold">
            <fo:block>
              <fo:retrieve-table-marker retrieve-class-name="subtotal-caption"
| retrieve-position-within-table="last-ending" />
              <fo:retrieve-table-marker retrieve-class-name="subtotal"
| retrieve-position-within-table="last-ending" />
            </fo:block>
          </fo:table-cell>
        </fo:table-row>
        <fo:retrieve-table-marker retrieve-class-name="continued"
| retrieve-position-within-table="last-ending" />
      </fo:table-footer>
    </fo:table-body>
    <fo:marker marker-class-name="continued">
```

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```

        <fo:table-row>
          <fo:table-cell>
            <fo:block>Table continued...</fo:block>
          </fo:table-cell>
        </fo:table-row>
      </fo:marker>
      <fo:marker marker-class-name="subtotal-caption">
        Subtotal:
      </fo:marker>
      <xsl:apply-templates/>
    </fo:table-body>
  </fo:table>
</xsl:template>

<xsl:template match="number">
  <fo:table-row>
    <fo:marker marker-class-name="subtotal">
      <xsl:value-of select="sum(preceding::number)+text()"/>
    </fo:marker>
    <xsl:if test="position() = last()">
      <fo:marker marker-class-name="continued"/>
      <fo:marker marker-class-name="subtotal-caption">
        Total:
      </fo:marker>
    </xsl:if>
    <fo:table-cell>
      <fo:block>
        <xsl:apply-templates/>
      </fo:block>
    </fo:table-cell>
  </fo:table-row>
</xsl:template>

</xsl:stylesheet>

```

Result Instance: elements and attributes in the fo: namespace

```

<?xml version="1.0" encoding="UTF-8"?>
<fo:table>
  <fo:table-column/>
  <fo:table-footer>
    <fo:table-row>
      <fo:table-cell font-weight="bold">
        <fo:block>
          <fo:retrieve-table-marker
            retrieve-position-within-table="last-ending"
            retrieve-class-name="subtotal-caption"/>
          <fo:retrieve-table-marker
            retrieve-position-within-table="last-ending"
            retrieve-class-name="subtotal"/>
        </fo:block>
      </fo:table-cell>
    </fo:table-row>
    <fo:retrieve-table-marker retrieve-class-name="continued"
      retrieve-position-within-table="last-ending"/>
  </fo:table-footer>
  <fo:table-body>
    <fo:marker marker-class-name="continued">
      <fo:table-row>
        <fo:table-cell>

```

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```

        <fo:block>Table continued...</fo:block>
    </fo:table-cell>
</fo:table-row>
</fo:marker>
<fo:marker marker-class-name="subtotal-caption">
    Subtotal:
</fo:marker>
<fo:table-row>
    <fo:marker marker-class-name="subtotal">1</fo:marker>
    <fo:table-cell>
        <fo:block>1</fo:block>
    </fo:table-cell>
</fo:table-row>
<fo:table-row>
    <fo:marker marker-class-name="subtotal">3</fo:marker>
    <fo:table-cell>
        <fo:block>2</fo:block>
    </fo:table-cell>
</fo:table-row>
<!-- and so on... -->
<fo:table-row>
    <fo:marker marker-class-name="subtotal">66</fo:marker>
    <fo:table-cell>
        <fo:block>11</fo:block>
    </fo:table-cell>
</fo:table-row>
<fo:table-row>
    <fo:marker marker-class-name="subtotal">78</fo:marker>
    <fo:marker marker-class-name="continued"/>
    <fo:marker marker-class-name="subtotal-caption">
        Total:
    </fo:marker>
    <fo:table-cell>
        <fo:block>12</fo:block>
    </fo:table-cell>
</fo:table-row>
</fo:table-body>
</fo:table>

```

6.13.1.1.2.1 fo:retrieve-table-marker and its selection mechanism

This section is meant as a note that explains by another example how the retrieve-table-marker functions, and how the retrieve scope area set gets determined depending on the properties specified on the fo:retrieve-table-marker.

Consider this XSL-FO result instance

```

<fo:root xmlns:fo=http://www.w3.org/1999/XSL/Format>
  <fo:layout-master-set>
    <fo:simple-page-master master-name="page ">
      <fo:region-body region-name=" body" column-count="2"/>
    </fo:simple-page-master>
  </fo:layout-master-set>
  <fo:page-sequence master-reference="page">
    <fo:flow fo:flow-name=" body">
      <fo:table>
        <fo:table-column/>
        <fo:table-header>...</fo:table-header>
        <fo:table-footer>

```

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```

<fo:table-row>
  <fo:table-cell>
    <fo:block>
      <fo:retrieve-table-marker retrieve-class-
name="marker-name" retrieve-position-within-table="See table for
values..." retrieve-boundary-within-table="See table for values..." />
    </fo:block>
  </fo:table-cell>
</fo:table-row>
</fo:table-footer>
<fo:table-body>
  <fo:table-row>
    <fo:table-cell>
      <!-- cell 1 -->
      <fo:marker marker-class-name="marker-name">
        <!-- marker 1 -->
        ...
      </fo:marker>
      ...
    </fo:table-cell>
  </fo:table-row>
  <!-- and so on ... -->
  <fo:table-row>
    <fo:table-cell>
      <!-- cell 14 -->
      <fo:marker marker-class-name="marker-name">
        <!-- marker 14 -->
        ...
      </fo:marker>
      ...
    </fo:table-cell>
  </fo:table-row>
</fo:table-body>
</fo:table>
</fo:flow>
</fo:page-sequence>
</fo:root>

```

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Say the XSL-FO instance results in a paginated document with two page, that can be represented by this illustration:

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The following table explains the behaviour for retrieve-table-marker 1 depending on the values for the properties:

<u>retrieve-boundary-within-table</u>	<u>retrieve scope area set</u>	<u>primary retrieve scope area</u>	<u>retrieve-position-within-table</u>	<u>selected fo-marker</u>
<u>page</u>	<u>A1, A2</u>	<u>A1</u>	<u>first-starting</u>	<u>1</u>
			<u>first-including-carryover</u>	<u>1</u>
			<u>last-starting</u>	<u>7</u>
			<u>last-ending</u>	<u>7</u>
<u>table</u>	<u>A1</u>	<u>A1</u>	<u>first-starting</u>	<u>1</u>
			<u>first-including-</u>	<u>1</u>

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			<u>carryover</u>	
			<u>last-starting</u>	<u>4</u>
			<u>last-ending</u>	<u>3</u>
<u>table-fragment</u>	<u>A1</u>	<u>A1</u>	<u>first-starting</u>	<u>1</u>
			<u>first-including-carryover</u>	<u>1</u>
			<u>last-starting</u>	<u>4</u>
			<u>last-ending</u>	<u>3</u>
<u>page-only-backwards</u>	<u>A1</u>	<u>A1</u>	<u>first-starting</u>	<u>1</u>
			<u>first-including-carryover</u>	<u>1</u>
			<u>last-starting</u>	<u>4</u>
			<u>last-ending</u>	<u>3</u>

The following table explains the behaviour for retrieve-table-marker 2 depending on the values for the properties:

<u>retrieve-boundary-within-table</u>	<u>retrieve scope area set</u>	<u>primary retrieve scope area</u>	<u>retrieve-position-within-table</u>	<u>selected fo-marker</u>
<u>page</u>	<u>A1, A2</u>	<u>A2</u>	<u>first-starting</u>	<u>5</u>
			<u>first-including-carryover</u>	<u>4</u>
			<u>last-starting</u>	<u>7</u>
			<u>last-ending</u>	<u>7</u>
<u>table</u>	<u>A1, A2</u>	<u>A2</u>	<u>first-starting</u>	<u>5</u>
			<u>first-including-carryover</u>	<u>4</u>
			<u>last-starting</u>	<u>7</u>
			<u>last-ending</u>	<u>7</u>
<u>table-fragment</u>	<u>A2</u>	<u>A2</u>	<u>first-starting</u>	<u>5</u>
			<u>first-including-carryover</u>	<u>4</u>
			<u>last-starting</u>	<u>7</u>
			<u>last-ending</u>	<u>7</u>
<u>page-only-backwards</u>	<u>A1, A2</u>	<u>A2</u>	<u>first-starting</u>	<u>5</u>
			<u>first-including-carryover</u>	<u>4</u>
			<u>last-starting</u>	<u>7</u>
			<u>last-ending</u>	<u>7</u>

The following table explains the behaviour for retrieve-table-marker 3 depending on the values for the properties:

<u>retrieve-boundary-within-table</u>	<u>retrieve scope area set</u>	<u>primary retrieve scope area</u>	<u>retrieve-position-within-table</u>	<u>selected fo-marker</u>
---------------------------------------	--------------------------------	------------------------------------	---------------------------------------	---------------------------

<u>page</u>	<u>A3, A4</u>	<u>A3</u>	<u>first-starting</u>	<u>8</u>
			<u>first-including-carryover</u>	<u>8</u>
			<u>last-starting</u>	<u>14</u>
			<u>last-ending</u>	<u>14</u>
<u>table</u>	<u>A1, A2, A3</u>	<u>A3</u>	<u>first-starting</u>	<u>8</u>
			<u>first-including-carryover</u>	<u>8</u>
			<u>last-starting</u>	<u>14</u>
			<u>last-ending</u>	<u>14</u>
<u>table-fragment</u>	<u>A3</u>	<u>A3</u>	<u>first-starting</u>	<u>8</u>
			<u>first-including-carryover</u>	<u>8</u>
			<u>last-starting</u>	<u>11</u>
			<u>last-ending</u>	<u>10</u>
<u>page-only-backwards</u>	<u>A3</u>	<u>A3</u>	<u>first-starting</u>	<u>8</u>
			<u>first-including-carryover</u>	<u>8</u>
			<u>last-starting</u>	<u>11</u>
			<u>last-ending</u>	<u>10</u>

The following table explains the behaviour for retrieve-table-marker 4 depending on the values for the properties:

<u>retrieve-boundary-within-table</u>	<u>retrieve scope area set</u>	<u>primary retrieve scope area</u>	<u>retrieve-position-within-table</u>	<u>selected fo-marker</u>
<u>page</u>	<u>A3, A4</u>	<u>A4</u>	<u>first-starting</u>	<u>12</u>
			<u>first-including-carryover</u>	<u>11</u>
			<u>last-starting</u>	<u>14</u>
			<u>last-ending</u>	<u>14</u>
<u>table</u>	<u>A1, A2, A3, A4</u>	<u>A4</u>	<u>first-starting</u>	<u>12</u>
			<u>first-including-carryover</u>	<u>11</u>
			<u>last-starting</u>	<u>14</u>
			<u>last-ending</u>	<u>14</u>
<u>table-fragment</u>	<u>A4</u>	<u>A4</u>	<u>first-starting</u>	<u>12</u>
			<u>first-including-carryover</u>	<u>11</u>
			<u>last-starting</u>	<u>14</u>
			<u>last-ending</u>	<u>14</u>
<u>page-only-backwards</u>	<u>A3, A4</u>	<u>A4</u>	<u>first-starting</u>	<u>12</u>
			<u>first-including-carryover</u>	<u>11</u>
			<u>last-starting</u>	<u>14</u>

			<u>last-ending</u>	<u>14</u>
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6.13.7 fo:retrieve-table-marker

Common Usage:

The fo:retrieve-table-marker is used in conjunction with fo:marker to produce table-headers and table-footers whose content can change over different pages, different regions or different columns.

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Typical examples include:

- dictionary headers showing the first and last word defined in the part of the table on the current page.
- subtotals e.g. that give a subtotal of numbers in rows up to the last row on the current page. For pages with multiple columns and/or multiple regions, the subtotal is displayed at the bottom of every table ‘fragment’ in every region or column.
- table-continued captions that show if a table is continued after the current page, or was a continuation from a previous page.

Areas:

The fo:retrieve-table-marker does not directly generate any area. It is (conceptually) replaced by the children of the fo:marker that it retrieves.

Trait Derivation:

The properties and traits specified on the ancestors of the fo:retrieve-table-marker are taken into account when formatting the children of the retrieved fo:marker as if the children had the same ancestors as the fo:retrieve-table-marker.

Constraints:

An fo:retrieve-table-marker is only permitted as the descendant of an fo:table-header or fo:table-footer or as a child of fo:table in a position where fo:table-header or fo:table-footer is permitted.

The fo:retrieve-table-marker specifies that the children of a selected fo:marker shall be formatted as though they replaced the fo:retrieve-table-marker in the formatting tree.

The fo:table that is a parent of both the fo:table-body (that has the fo:markers as its descendants) and the fo:table-header or fo:table-footer that has the fo:retrieve-table-marker as its descendant generates one or more normal block-areas. These are said to be the **retrieve scope area set**. The retrieve scope area set is limited by the constraints specified by retrieve-boundary-within-table property. An area in the retrieve scope area set is called a **retrieve scope area**. There is exactly one retrieve

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scope area that contains the areas generated or returned by the children on the retrieved fo: marker, and that is called the **primary retrieve scope area**.

The properties of the fo:retrieve-table-marker impose a hierarchy of preference on the descendants of the retrieve scope areas. Each fo:marker is conceptually attached to each normal area returned by the fo:marker's parent formatting object. Additionally, an fo:marker is conceptually attached to each non-normal area that is directly generated by the fo:marker's parent formatting object. Conversely, areas generated by any descendant of an fo:flow may have zero or more fo:marker's conceptually attached. The fo:marker whose children are retrieved is the one that is conceptually attached to the area that is at the top of this hierarchy.

Deleted: We say an fo:retrieve-table-marker is **associated** with an fo:table-body if the fo:table that is the parent of the fo:table-body is the same as the parent of the fo:table-header or fo:table-footer that contains the fo:retrieve-table-marker.¶

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Deleted: the area tree.

Every area in the hierarchy is considered preferential to, or "better" than, any area below it in the hierarchy. When comparing two areas to determine which one is better, the terms "first" and "last" refer to the pre-order traversal order of the area tree.

An area that has an attached fo:marker whose "marker-class-name" property value is the same as the "retrieve-class-name" property value of the fo:retrieve-table-marker, is defined to be a qualifying area if it is a descendant of a retrieve scope area. Only qualifying areas have positions in the hierarchy.

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A qualifying area within one retrieve scope area is better than any qualifying area within a preceding one.

Deleted: generated or returned by a descendant of the fo:table-body that is associated with the fo:retrieve-table-marker.

If the value of the "retrieve-position-within-table" property is "first-starting", then the first qualifying area in the primary retrieve scope area whose "is-first" trait has a value of "true" is better than any other area. If there is no such area, then the first qualifying area in the primary retrieve scope area is better than any other area.

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If the value of the "retrieve-position-within-table" property is "first-including-carryover", then the first qualifying area in the primary retrieve scope area is better than any other area.

Deleted: If the "retrieve-boundary-within-table" property has a value of "page" then an area does not have a position in the hierarchy if it is not on the containing page.

If the value of the "retrieve-position-within-table" property is "last-starting", then the last qualifying area that is a descendant of a retrieve scope area, whose "is-first" trait has a value of "true" is better than any other area. If there is no such area, then the last qualifying area that is a descendant of a retrieve scope area is better than any other area.

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If the value of the "retrieve-position-within-table" property is "last-ending", then the last qualifying area that is a descendant of a retrieve scope area, whose "is-last" trait has a value of "true" is better than any other area. If there is no such area, then the last qualifying area that is a descendant of a retrieve scope area is better than any other area.

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If the hierarchy of areas is empty, no formatting objects are retrieved.

Contents:

EMPTY

The following properties apply to this formatting object:

[7.25.3 retrieve-class-name](#)

[7.25.6 retrieve-position-within-table](#)

[7.25.2 retrieve-boundary-within-table](#)

7.25.6 "retrieve-position-within-table"

XSL Definition:

Value: first-starting | first-including-carryover | last-starting | last-ending
Initial: first-starting
Inherited: No
Percentages: N/A
Media: Paged

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[The definitions of fo:retrieve-table-marker are used here.](#)

first-starting

Specifies a preference for retrieving the children of an fo:marker attached to an area

- that is [a descendant of the primary retrieve scope area](#),
- whose "is-first" trait is set to "true"
- and precedes in the area tree any other similarly constrained area that is attached to an identically named fo:marker, using pre-order traversal order.

Deleted: The term "containing page" is used here to mean the page that contains the first area generated or returned by the children of the retrieved fo:marker. An fo:retrieve-table-marker is said to be associated with an fo:table-body if the fo:table that is the parent of the fo:table-body is the same as the parent of the fo:table-header or fo:table-footer that contains the fo:retrieve-table-marker.¶

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Deleted: containing page

Deleted: <#>that is generated or returned by descendants of the fo:table-body that the fo:retrieve-table-marker is associated with,¶

first-including-carryover

Specifies a preference for retrieving the children of an fo:marker attached to an area

- [that is a descendant of the primary retrieve scope area](#),
- and that precedes in the area tree any other similarly constrained area that is attached to an identically named fo:marker, using pre-order traversal order.

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<#>that is generated or returned by descendants of the fo:table-body that the fo:retrieve-table-marker is associated with,¶

last-starting

Specifies a preference for retrieving the children of an fo:marker attached to an area

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- [that is a descendant of the primary retrieve scope area](#),
- whose "is-first" trait is set to "true"
- and that follows in the area tree any other similarly constrained area that is attached to an identically named fo:marker, using pre-order traversal order.

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Deleted: <#>that is generated or returned by descendants of the fo:table-body that the fo:retrieve-table-marker is associated with,¶

last-ending

Specifies a preference for retrieving the children of an fo:marker attached to an area

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- that is a descendant of the primary retrieve scope area,
- and whose "is-last" trait is set to "true" and that follows in the area tree
any other similarly constrained area that is attached to an identically
named fo:marker, using pre-order traversal order.

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Deleted: <#>that is generated or returned by descendants of the fo:table-body that the fo:retrieve-table-marker is associated with,¶

This property specifies the preference for which fo:marker's children shall be retrieved by an fo:retrieve-table-marker, based on the areas returned by the parent of the fo:marker relative to the areas returned by the parents of other identically named fo:marker's.

7.25.2 "retrieve-boundary-within-table"

XSL Definition:

Value: page | table | table-fragment | page-only-backwards

Initial: ~~table~~

Inherited: No

Percentages: N/A

Media: Paged

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The definitions of fo:retrieve-table-marker are used here.

Deleted: The term "containing page" is used here to mean the page that contains the first area generated or returned by the children of the retrieved fo:marker. An fo:retrieve-table-marker is said to be associated with an fo:table-body if the fo:table that is the parent of the fo:table-body is the same as the parent of the fo:table-header or fo:table-footer that contains the fo:retrieve-table-marker

page:

Specifies that the retrieve scope area set is limited to the primary retrieve scope area and the retrieve scope areas that are on the same page as the primary retrieve scope area.

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table:

Specifies that the retrieve scope area set is limited to the primary retrieve scope area and the retrieve scope areas that precede the primary retrieve scope area.

Deleted: Specifies that the children of any fo:marker, that is a descendant of the fo:table-body the fo:retrieve-table-marker is associated with, whose parent area within the containing page or generated non-normal area within the containing page may be retrieved by this fo:retrieve-table-marker.

table-fragment:

Specifies that the retrieve scope area set is limited to the primary retrieve scope area.

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page-only-backwards:

Specifies that the retrieve scope area set is limited to the primary retrieve scope area and the retrieve scope areas that both precede this primary retrieve scope and are on the same page as the primary retrieve scope area.

Deleted: Specifies that the children of any fo:marker, that is a descendant of the fo:table-body the fo:retrieve-table-marker is associated with, may be retrieved by this fo:retrieve-table-marker.

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Appendix B

Note to the Editor: The properties `retrieve-boundary-within-table` and `retrieve-position-within-table` need to have their values updated in the tables of appendix B. I assume these tables are generated automatically. If not, please update the values accordingly.

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