Keeps [OS B.4.4.13, Tutorial 2–15]

FOSI formatting is a batch process, which means page, column, and line breaks are not manually reviewed, as with WYSIWYG formatting. The keeps category is used to specify breaks that are prohibited or discouraged.

OutSpec DTD fragment

```
<!ELEMENT keeps - o EMPTY>
<!ATTLIST keeps
          scope (col | page | line) #IMPLIED
          keep NUMBER -- ATI: 0 - 7 -- #IMPLIED
          widowct NUMBER -- an integer -- #IMPLIED
          orphanct NUMBER -- an integer -- #IMPLIED
          next NUMBER -- ATI: 0 - 7 -- #IMPLIED
          prev NUMBER -- ATI: 0 - 7 -- #IMPLIED
          floatsout IDREFS -- idrefs of floatlocs -- #IMPLIED>
```

NOTE: keeps is a defaulting category that must be coded in the charlist to have any effect — with one exception. Widow and orphan lines are usually prohibited, so when widowct and orphanct are coded in the docdesc, the settings apply to the entire document without adding f to every e-i-c. When keeps is not coded in a charlist, the formatter acts as if an empty keeps category is present. Any missing characteristics default to the envdesc, docdesc, or system default setting, as detailed in **Figure 23 Inheritance and defaulting flow chart** on page 50.

The table below describes the characteristics for the keeps category.

Table 69 Keeps characteristics

Characteristic	Values	Default	Notes
floatsout (keep floats out)	list of floatloc IDS	—	Specifies any floatloc not allowed within the current element. **NOTE:** When a float with pagetype="afterref" immediately precedes an element that keeps those floats out, afterref may be ignored, with the floats appearing in the previous valid floatloc.
keep (keep together)	INTEGER 0 through 7	0	Specifies that the content must be kept together in the same line, column, or page, as specified by the scope

continued . . .

KEY

Monospaced fonts are used for user input and FOSI categories, characteristics, and attributes.

In OutSpec DTD fragments, a single underscore means support only for print/PDF output. A double underscore indicates both Edit window and print/PDF support.

Table 69 Keeps characteristics *(cont'd)*

Characteristic	Values	Default	Notes
			characteristic. For example, to keep a title together in the same column.
`next` (keep with next)	INTEGER 0 through 7	0	Specifies that the content must be kept with whatever comes next. For example, to keep a title in the same column with whatever follows it.
`orphanct` (orphan count)	0 2 3	2	Specifies the minimum number of lines to keep at the bottom of a column or page. A value of 0 allows a page or column break between the first and second lines of a paragraph. A value of 2 prevents a page or column break between the first and second lines. A value of 3 prevents page or column breaks between the first and the third lines. **NOTE:** This break prevention is not affected by soft keeps.
`prev` (keep with previous)	INTEGER 0 through 7	0	Specifies that the content must be kept with whatever is before it. For example, to keep a caption in the same column as the graphic that precedes it.
`scope`	col line page	col	Specifies the boundary for `keeps`, `next`, and `prev` characteristics. **NOTE:** `col` applies to page breaking as well as column breaking. **NOTE:** When `scope="col"` or `scope="page"`, the `e-i-c` must be coded as a block element, or the `keeps` setting is ignored. **NOTE:** `keeps` has just one `scope` characteristic, which means it is not possible to specify `keeps keep="7" scope="page"` and `keeps next="7" scope="column"` in the same `charlist`. Referencing `Keep-together-page-7` and `Keep-next-column-7` charsubsets in that order sets `scope="column"`.

continued . . .

Table 69 Keeps characteristics *(cont'd)*

Characteristic	Values	Default	Notes
`widowct` (widow count)	0	0	Specifies the minimum number of lines to keep together at the bottom of a column or page. A value of 0 allows a page or column break between the last and next–to–last lines of a paragraph. A value of 2 prevents a page or column break between the last and next–to–last lines. A value of 3 prevents a page or column break between the last and the third–to–last lines. **NOTE:** This break prevention is not affected by soft keeps.
	2		
	3		

The `keeps` category is used for the following purposes.

- `Keeps` defines any prohibited page, column, or line breaking for an `e-i-c`. For example, <title> is generally required to be in the same column as the text that follows it, so a `keeps` category is coded in the <title> `e-i-c` to forbid a page or column break within the element content or immediately after it. Another example: business rules may prohibit a page break inside <warning> elements. Put another way, a <warning> must be kept together on one page. If the content of a <warning> does not fit on the current page, it should move to the top of the next page. Similarly, an inline element may be required to be kept together on one line. If it doesn't fit on the current line, it should move to the beginning of the next line.

  NOTE: This is referred to as "hard keeps."

- `Keeps` prioritizes page, column, and line breaking. Child elements receive the highest priority `keeps`, while parent elements are coded with the lowest priority `keeps`. For example, a <group> element is required to be kept together on one page, unless the content won't fit, in which case the page break should occur between <subgroup> child elements in a <group>.

  NOTE: This is referred to as "soft keeps," or "prioritized keeps." Soft keeps works as follows: When the formatting engine builds an output page, it honors all keep rules for the elements on the page. If the result is an overset page, the formatter ignores keep rules with a priority of 1 (one) and formats the page again. If the page is still overset, the formatter ignores keep rules with `priority="2"` and formats the page again. The formatting engine repeats this process until the page is no longer overset or until

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priority="7", whichever comes first. priority="7" specifies a hard keeps that is never broken. At that point, the formatter outputs the overset page and displays formatting fault error messages, which are described in **Formatting faults** on page 666.

NOTE: Soft keeps must be enabled in rsrcdsc softkeepsline and softkeepspage, and the layout configuration setting in effect must be set to rigid. Refer to **Rsrcdesc** on page 254 and **Layout configurations** on page 686.

- Keeps specifies float locations that may not interrupt the current element. The formatting engine outputs such floats before outputting the element contents. A common example of using keeps for this purpose is to prevent a figure from floating within a multi–page table.
- Keeps defines requirements for orphan and widow line formatting.

NOTE: Hard keeps recognizes zero and non–zero values. Soft keeps uses the values of 0 (zero) through 6 to prioritize keeps handling, with 7 designating an unbreakable keeps.

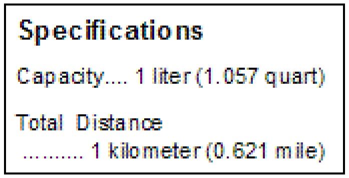
FOSI TIP

Keep-next, keep-previous, and keep-together charsubsets are useful in most FOSIs.

Keeps examples

The following figure show how hard keeps with scope="line" prevents a line break within the contents of the <spec> element.

Figure 264 Hard keeps for line breaking



Specifications

Capacity.... 1 liter (1.057 quart)

Total Distance
.... 1 kilometer (0.621 mile)

XML DTD fragment

```
<!ELEMENT spec (metric,imperial)>
<!ELEMENT (metric|imperial) (#PCDATA)>
```

XML fragment

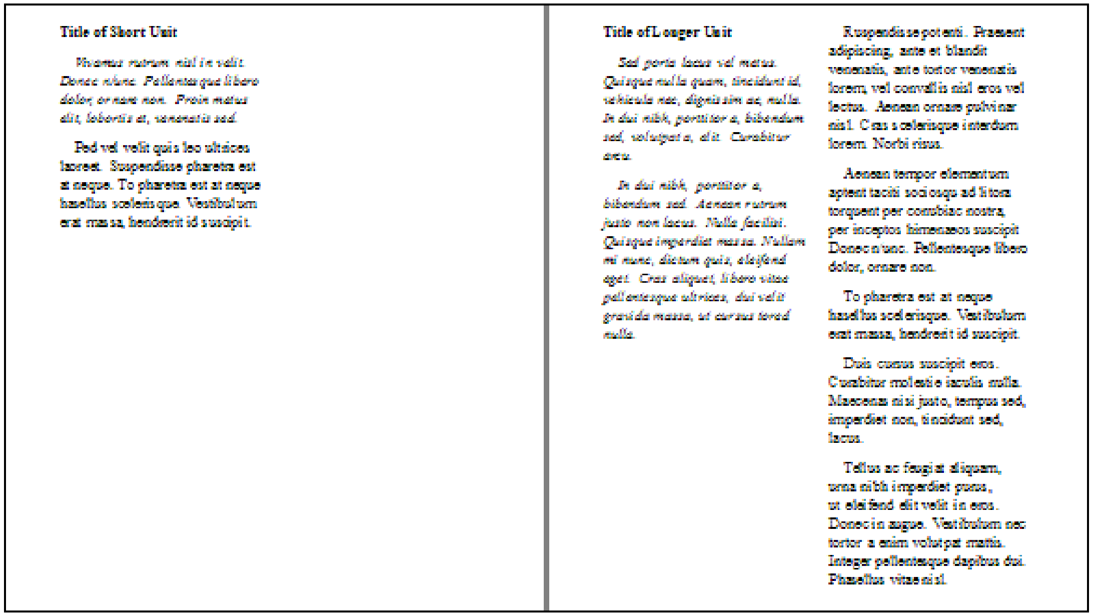
```
<title>Specifications</title>
<para>Capacity<spec><metric>1 liter</metric><imperial>1.057 quart
</imperial></spec></para>
<para>Total Distance<spec><metric>1 kilometer</metric><imperial>
0.621 mile</imperial></spec></para>
```

FOSI fragment

```
<rsrcdesc softkeepsline="0">
<charfill literal="." cfid="dotfill" mincount="3" break="before">
...
<e-i-c gi="spec">
<charlist inherit="1">
<keeps scope="line" keep="1">
<usetext source="dotfill" placemnt="before"></usetext>
...
<e-i-c gi="metric" context="spec">
<charlist inherit="1">
...
<e-i-c gi="imperial" context="spec">
<charlist inherit="1">
<usetext source="\ (\" placemnt="before"></usetext>
<usetext source="\)\" placemnt="after"></usetext>
...
```

The next figure illustrates soft keeps.

Figure 265 Soft keeps for column and page breaking



Title of Short Unit

Vivamus rutrum nisl in velit. Donec nunc. Pellentesque libero dolor, ornare non. Proin metus elit, lobortis at, venenatis sed.

Ped vel velit quis leo ultrices laoreet. Suspendisse pharetra est at neque. To pharetra est at neque hasellus scelerisque. Vestibulum erat massa, hendrerit id suscipit.

Title of Longer Unit

Sed porta lacus vel metus. Quisque nulla quam, tincidunt id, vehicula nec, dignissim ac, nulla. In dui nibh, porttitor a, bibendum sed, volutpat a, elit. Curabitur arcu.

In dui nibh, porttitor a, bibendum sed. Aenean rutrum justo non lacus. Nulla facilisi. Quisque imperdiet massa. Nullam mi nunc, dictum quis, eleifend eget. Cras aliquet, libero vitae pellentesque ultrices, dui velit gravida massa, ut cursus lorem nulla.

Ruspendisse potenti. Praesent adipiscing, ante et blandit venenatis, ante tortor venenatis lorem, vel convallis nisl eros vel lectus. Aenean ornare pulvinar nisl. Cras scelerisque interdum lorem. Norbi risus.

Aenean tempor elementum aptent taciti sociosqu ad litora torquent per conubiac nostra, per inceptos himenaeos suscipit. Donec nunc. Pellentesque libero dolor, ornare non.

To pharetra est at neque hasellus scelerisque. Vestibulum erat massa, hendrerit id suscipit.

Duis cursus suscipit eros. Curabitur molestie iaculis nulla. Maecenas nisi justo, tempus sed, imperdiet non, tincidunt sed, lacus.

Tellus ac feugiat aliquam, urna nibh imperdiet purus, ut eleifend elit velit in eros. Donec in augue. Vestibulum nec tortor a enim volutpat mattis. Integer pellentesque dapibus dui. Phasellus vitae nisl.

XML DTD fragment

```
<!ELEMENT unit (title,para+,body)>
<!ELEMEnT body (para+)>
<!ELEMENT (title|para) (#PCDATA)>
```

XML fragment

```
<unit>
<title>Title of Short Unit</title>
<para>Vivamus rutrum nisl in velit..</para>
<body>
<para>Ped vel velit quis leo ultrices laoreet...</para>
</body>
</unit>
<unit>
<title>Title of Longer Unit</title>
<para>Sed porta lacus vel metus...</para>
<para>In dui nibh, porttitor a, bibendum sed...</para>
<body>
<para>Ruspendisse potenti...</para>
<para>To pharetra est at neque hasellus scelerisque. ..</para>
<para>Duis cursus suscipit eros...</para>
<para>Tellus ac feugiat aliquam...</para>
</body>
</unit>
```

FOSI fragment

```
<rsrcdesc softkeepspage="1" dfltlayoutconfig="rigid">
...
<charsubset charsubsetid="TC-6">
<keeps scope="col" keep="6">
</charsubset>

<charsubset charsubsetid="TC-7">
<keeps scope="col" keep="7">
</charsubset>

<charsubset charsubsetid="NC-7">
<keeps scope="col" next="7">
</charsubset>
...
<e-i-c gi="body" context="unit">
<charlist inherit="1" charsubsetref="block TC-6">
...
<e-i-c gi="para" context="unit">
<charlist inherit="1" charsubsetref="block TC-7 prespace italic">
<indent firstln="1em">
...
<e-i-c gi="para" context="body unit">
<charlist inherit="1" charsubsetref="block TC-7 prespace">
<indent firstln="1em">
...
<e-i-c gi="title" context="unit">
<charlist inherit="1" charsubsetref="block TC-7 NC-7 prespace bold">
...
<e-i-c gi="unit">
```

```
<charlist inherit="1" charsubsetref="block">
<textbrk startpg="next">
...
```