

## 12.4.4 Presentations

### 12.4.4.1 General

Some conforming readers may allow a document to be displayed in the form of a *presentation* or slide show, advancing from one page to the next either automatically or under user control. In addition, PDF 1.5 introduces the ability to advance between different states of the same page (see 12.4.4.2, “Sub-page Navigation”).

NOTE 1 PDF 1.4 introduces a different mechanism, known as alternate presentations, for slide show displays, described in 13.5, “Alternate Presentations.”

A page object (see 7.7.3, “Page Tree”) may contain two optional entries, **Dur** and **Trans** (*PDF 1.1*), to specify how to display that page in presentation mode. The **Trans** entry shall contain a *transition dictionary* describing the style and duration of the visual transition to use when moving from another page to the given page during a presentation. Table 162 shows the contents of the transition dictionary. (Some of the entries shown are needed only for certain transition styles, as indicated in the table.)

The **Dur** entry in the page object specifies the page’s *display duration* (also called its *advance timing*): the maximum length of time, in seconds, that the page shall be displayed before the presentation automatically advances to the next page.

NOTE 2 The user can advance the page manually before the specified time has expired.

If no **Dur** entry is specified in the page object, the page shall not advance automatically.

Table 162 – Entries in a transition dictionary

Key	Type	Value
<b>Type</b>	name	(Optional) The type of PDF object that this dictionary describes; if present, shall be <b>Trans</b> for a transition dictionary.
<b>S</b>	name	<p>(Optional) The <i>transition style</i> that shall be used when moving to this page from another during a presentation. Default value: R.</p> <p><b>Split</b> Two lines sweep across the screen, revealing the new page. The lines may be either horizontal or vertical and may move inward from the edges of the page or outward from the center, as specified by the <b>Dm</b> and <b>M</b> entries, respectively.</p> <p><b>Blinds</b> Multiple lines, evenly spaced across the screen, synchronously sweep in the same direction to reveal the new page. The lines may be either horizontal or vertical, as specified by the <b>Dm</b> entry. Horizontal lines move downward; vertical lines move to the right.</p> <p><b>Box</b> A rectangular box sweeps inward from the edges of the page or outward from the center, as specified by the <b>M</b> entry, revealing the new page.</p> <p><b>Wipe</b> A single line sweeps across the screen from one edge to the other in the direction specified by the <b>Di</b> entry, revealing the new page.</p> <p><b>Dissolve</b> The old page dissolves gradually to reveal the new one.</p> <p><b>Glitter</b> Similar to Dissolve, except that the effect sweeps across the page in a wide band moving from one side of the screen to the other in the direction specified by the <b>Di</b> entry.</p> <p><b>R</b> The new page simply replaces the old one with no special transition effect; the <b>D</b> entry shall be ignored.</p> <p><b>Fly</b> (PDF 1.5) Changes are flown out or in (as specified by <b>M</b>), in the direction specified by <b>Di</b>, to or from a location that is offscreen except when <b>Di</b> is None.</p>
		<p><b>Push</b> (PDF 1.5) The old page slides off the screen while the new page slides in, pushing the old page out in the direction specified by <b>Di</b>.</p> <p><b>Cover</b> (PDF 1.5) The new page slides on to the screen in the direction specified by <b>Di</b>, covering the old page.</p> <p><b>Uncover</b> (PDF 1.5) The old page slides off the screen in the direction specified by <b>Di</b>, uncovering the new page in the direction specified by <b>Di</b>.</p> <p><b>Fade</b> (PDF 1.5) The new page gradually becomes visible through the old one.</p>
<b>D</b>	number	(Optional) The duration of the transition effect, in seconds. Default value: 1.
<b>Dm</b>	name	<p>(Optional; <b>Split</b> and <b>Blinds</b> transition styles only) The dimension in which the specified transition effect shall occur:</p> <p>H Horizontal</p> <p>V Vertical</p> <p>Default value: H.</p>
<b>M</b>	name	<p>(Optional; <b>Split</b>, <b>Box</b> and <b>Fly</b> transition styles only) The direction of motion for the specified transition effect:</p> <p>I Inward from the edges of the page</p> <p>O Outward from the center of the page</p> <p>Default value: I.</p>

Table 162 – Entries in a transition dictionary (continued)

Key	Type	Value
<b>Di</b>	number or name	<p>(Optional; <i>Wipe, Glitter, Fly, Cover, Uncover</i> and <i>Push</i> transition styles only)                      The direction in which the specified transition effect shall moves, expressed in degrees counterclockwise starting from a left-to-right direction. (This differs from the page object's <b>Rotate</b> entry, which is measured clockwise from the top.)                      If the value is a number, it shall be one of:                      0 Left to right                      90 Bottom to top (Wipe only)                      180 Right to left (Wipe only)                      270 Top to bottom                      315 Top-left to bottom-right (Glitter only)                      If the value is a name, it shall be None, which is relevant only for the Fly transition when the value of SS is not 1.0.                      Default value: 0.</p>
<b>SS</b>	number	<p>(Optional; <i>PDF 1.5; Fly</i> transition style only) The starting or ending scale at which the changes shall be drawn. If <b>M</b> specifies an inward transition, the scale of the changes drawn shall progress from <b>SS</b> to 1.0 over the course of the transition. If <b>M</b> specifies an outward transition, the scale of the changes drawn shall progress from 1.0 to <b>SS</b> over the course of the transition                      Default: 1.0.</p>
<b>B</b>	boolean	<p>(Optional; <i>PDF 1.5; Fly</i> transition style only) If <b>true</b>, the area that shall be flown in is rectangular and opaque. Default: <b>false</b>.</p>

NOTE 3 Figure 56 illustrates the relationship between transition duration (**D** in the transition dictionary) and display duration (**Dur** in the page object). Note that the transition duration specified for a page (page 2 in the figure) governs the transition to that page from another page; the transition from the page is governed by the next page's transition duration.

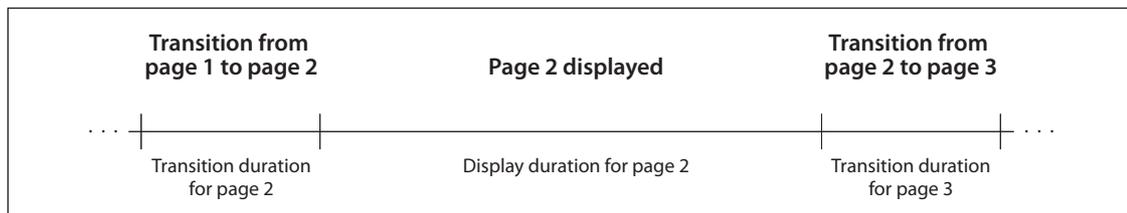


Figure 56 – Presentation timing

EXAMPLE The following example shows the presentation parameters for a page to be displayed for 5 seconds. Before the page is displayed, there is a 3.5-second transition in which two vertical lines sweep outward from the center to the edges of the page.

```

10 0 obj
  << /Type /Page
    /Parent 4 0 R
    /Contents 16 0 R
    /Dur 5
    /Trans << /Type /Trans
              /D 3.5
              /S /Split
              /Dm /V
              /M /O
            >>
  >>
endobj
    
```

12.4.4.2 Sub-page Navigation

Sub-page navigation (PDF 1.5) provides the ability to navigate not only between pages but also between different states of the same page.

NOTE 1 A single page in a PDF presentation could have a series of bullet points that could be individually turned on and off. In such an example, the bullets would be represented by optional content (see 8.11.2, “Optional Content Groups”), and each state of the page would be represented as a *navigation node*.

NOTE 2 Conforming readers should save the state of optional content groups when a user enters presentation mode and restore it when presentation mode ends. This ensures, for example, that transient changes to bullets do not affect the printing of the document.

A navigation node dictionary (see Table 163) specifies actions to execute when the user makes a navigation request.

EXAMPLE Pressing an arrow key.

The navigation nodes on a page form a doubly linked list by means of their **Next** and **Prev** entries. The primary node on a page shall be determined by the optional **PresSteps** entry in a page dictionary (see Table 30).

NOTE 3 A conforming reader should respect navigation nodes only when in presentation mode (see 12.4.4, “Presentations”).

Table 163 – Entries in a navigation node dictionary

Key	Type	Value
<b>Type</b>	name	(Optional) The type of PDF object that this dictionary describes; shall be <b>NavNode</b> for a navigation node dictionary.
<b>NA</b>	dictionary	(Optional) An action (which may be the first in a sequence of actions) that shall be executed when a user navigates forward.
<b>PA</b>	dictionary	(Optional) An action (which may be the first in a sequence of actions) that shall be executed when a user navigates backward.
<b>Next</b>	dictionary	(Optional) The next navigation node, if any.
<b>Prev</b>	dictionary	(Optional) The previous navigation node, if any.
<b>Dur</b>	number	(Optional) The maximum number of seconds before the conforming reader shall automatically advance forward to the next navigation node. If this entry is not specified, no automatic advance shall occur.

A conforming reader shall maintain a *current* navigation node. When a user navigates to a page, if the page dictionary has a **PresSteps** entry, the node specified by that entry shall become the current node. (Otherwise, there is no current node.) If the user requests to navigate forward (such as an arrow key press) and there is a current navigation node, the following shall occur:

- a) The sequence of actions specified by **NA** (if present) shall be executed.

If **NA** specifies an action that navigates to another page, the following actions for navigating to another page take place, and **Next** should not be present.

- b) The node specified by **Next** (if present) shall become the new current navigation node.

Similarly, if the user requests to navigate backward and there is a current navigation node, the following shall occur:

- a) The sequence of actions specified by **PA** (if present) shall be executed.

If **PA** specifies an action that navigates to another page, the following actions for navigating to another page take place, and **Prev** should not be present.

- b) The node specified by **Prev** (if present) shall become the new current navigation node.

Transition effects, similar to the page transitions described earlier, may be specified as transition actions that are part of the **NA** or **PA** sequence; see 12.6.4.14, "Transition Actions."

If the user requests to navigate to another page (regardless of whether there is a current node) and that page's dictionary contains a **PresSteps** entry, the following shall occur:

- a) The navigation node represented by **PresSteps** shall become the current node.
- b) If the navigation request was forward, or if the navigation request was for random access (such as by clicking on a link), the actions specified by **NA** shall be executed and the node specified by **Next** shall become the new current node, as described previously.

If the navigation request was backward, the actions specified by **PA** shall be executed and the node specified by **Prev** shall become the new current node, as described previously.

- c) The conforming reader shall make the new page the current page and shall display it. Any page transitions specified by the **Trans** entry of the page dictionary shall be performed.