AIMMS User's Guide - Page Resizability

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Chapter 13

Page Resizability

Resizability

Due to the diversity of objects and their position on a page, it is not immediately clear how objects should adjust when the size of a page is changed. Should buttons remain the same, when the size of particular data objects are changed? Such decisions are up to you, the developer of the application.

This chapter

In this chapter, you will learn about the facilities in AIMMS which you can use to specify how page components should scale when a page size changes. Such facilities allow you to create *resizable pages* which are ready for use with different screen resolutions. In addition, resizable pages let an end-user temporarily enlarge or reduce the size of a particular page to view more data on the same page, or to simultaneously look at data on another end-user page.

13.1 Page resizability

Choosing a base resolution

When you are developing an end-user interface around an AIMMS-based application for a large group of end-users, you must decide about the base screen resolution on which the end-user interface is intended to be run primarily. Such a decision is based on your expectations about the screen resolution that most of your end-user will be using. Fortunately, there is a tendency towards high-resolution screens amongst users.

Supporting different resolutions

Nevertheless, it is likely that one or more of your end-users will request to run the application at a different resolution. One reason could be that they use a notebook which does not support the base resolution you selected. Another reason could be that some of your end-users are working with such large data sets that a higher resolution would help them to have a better overview of their data.

Resizable pages

To help you support the demands of your end-users, AIMMS provides a fairly straightforward facility to create resizable pages and page templates. As you will see later on, the position and type of so-called *split lines*, placed on a resizable page, determines the manner in which objects on the page will scale upon resizing the page.

Non-resizable behavior

When a page has not been made resizable, all objects on that page will remain in their original position. Whenever such a page is reduced, and a data object included on the page falls outside the visible page area, AIMMS will automatically add horizontal or vertical scroll bars. If the page is increased in size, the bottom and right parts of the page will remain empty.

Adding resizability

To make a page resizable, the page should be put into **Resize Edit** mode, which is available in the **View-Resize Edit** menu of any page that is already in **Edit** mode. **Resize Edit** mode will replace all objects on the page by shaded rectangles. Figure 13.1 illustrates the **Resize Edit** view of the end-user page shown in Figure 12.8.

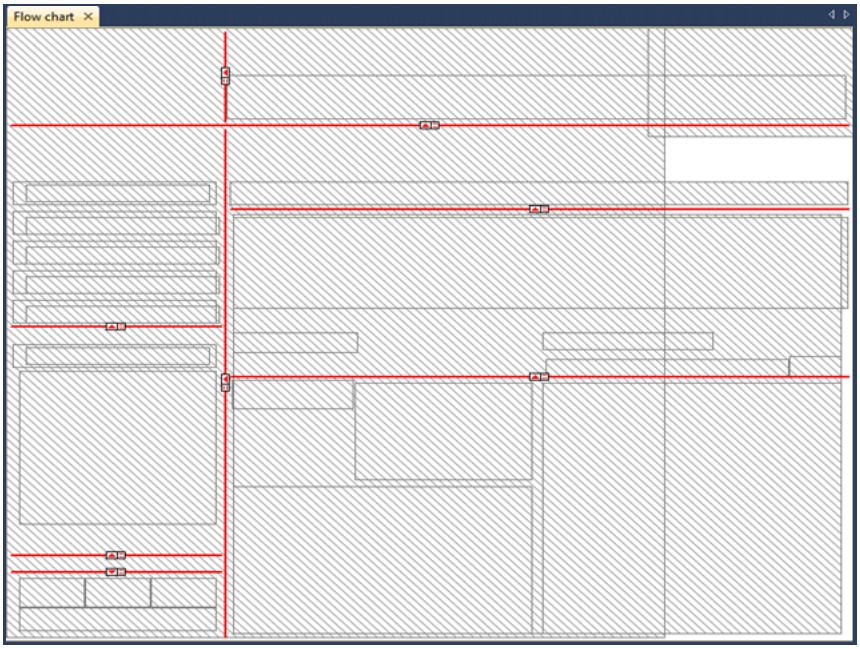


Figure 13.1: Page 12.8 in **Resize Edit** Mode

Split lines

A page is resizable as soon as it contains one or more horizontal or vertical *split lines*. The page in Figure 13.1 illustrates a number of such split lines. Each split line divides the rectangle in which it has been placed into two subrectangles. For each vertical split line you can decide either

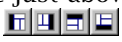
- to keep the width of the left or right subrectangle constant (indicated by and markers),
- to ensure that the widths of the left and right subrectangles have the same ratio (indicated by marker), or
- to make the ratio between these two widths user-adjustable (indicated by or markers).

Similarly, horizontal split lines are used to indicate the relative height of the lower and upper subrectangles. On an end-user page, a user-adjustable split line will be visible as a split bar, which can be dragged to (simultaneously) resize the areas on both sides of the bar.

Stacking split lines

By selecting a subrectangle created by a split line, you can recursively subdivide that rectangle into further subrectangles using either horizontal or vertical split lines. What results is a specification of how every part of the page will behave relative to its surrounding rectangles if the size of the entire page is changed.

Adding split lines

One way of adding split lines to any subrectangle on a page in **Page Resize** mode is to select that subrectangle on the page (by clicking on it), and add a horizontal or vertical split line to it using one of the buttons from the **Page Resize** toolbar. Alternatively, if you want to insert a split line within an existing hierarchy of split lines, select the line just above where you want to insert a split line, and use one of the buttons  to insert a new split line of the desired type.

Resize Try mode

By putting a page that is already in **Resize Edit** mode into **Resize Try** mode (via the **View-Resize Try** menu) and resizing the page, AIMMS will display the shapes of all page objects according to the specified resize behavior. Figure 13.2 illustrates the effect of resizing the page displayed in Figure 13.1

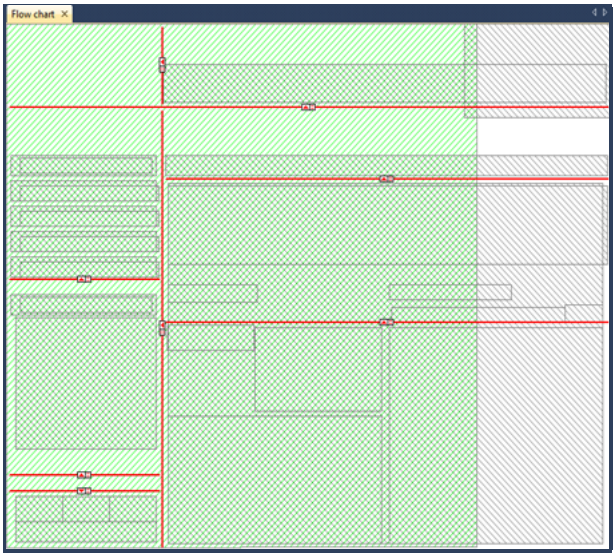


Figure 13.2: Resizing a resizable page

to a smaller size. These resized shapes are determined by calculating the new relative positions of all four corner points of an object within their re-

spective surrounding rectangles. This may result in nonrectangular shapes for some page objects, which are marked red. In such a situation, you should reconsider the placement of objects and split lines. Non- rectangularly shaped objects may distort the spacing between objects in end-user mode, because AIMMS will enforce rectangular shapes in end-user mode by only considering the top-left and bottom-right corners of every object.

Example

Consider the configuration of split lines illustrated in Figure 13.1, and its associated end-user page displayed in Figure 13.3. As already indicated in Fig-

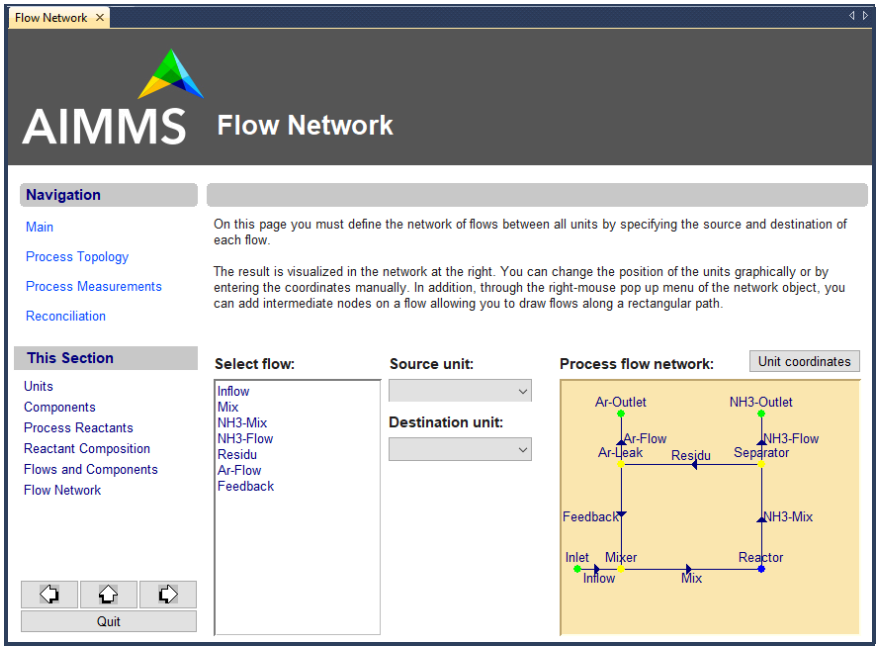


Figure 13.3: End-user page associated with Figure 13.1

ure 13.2, the particular combination of split lines results in the following behavior.

- The header area will have a fixed height at the top of the page whatever the page height, but will grow (or shrink) along with the page width.
- Similarly, the entire footer area will remain a fixed distance from the bottom of the page, and grow along with the page width.
- The information on the left-hand side of the data area has a fixed width, and the table will only grow/shrink vertically along with the page height.
- The flow chart header on the right-hand side of the data area has a fixed height, while the flow chart itself will grow/shrink along with both the page height and width.

Original size only

When entering **Edit** mode, AIMMS will always restore the editable page area to its original size (as saved at page creation time). This ensures that objects placed on the page always use the same coordinate system, preventing pixel rounding problems during a page resize. If the page has been saved at a different end-user size, AIMMS will open the page frame at the latest end- user size, and make the parts outside the original (editable) page size unavailable for editing, as illustrated in Figure 13.4. Any split line added to a page (or to its templates), will be visible in a page in **Edit** mode as a thin line.

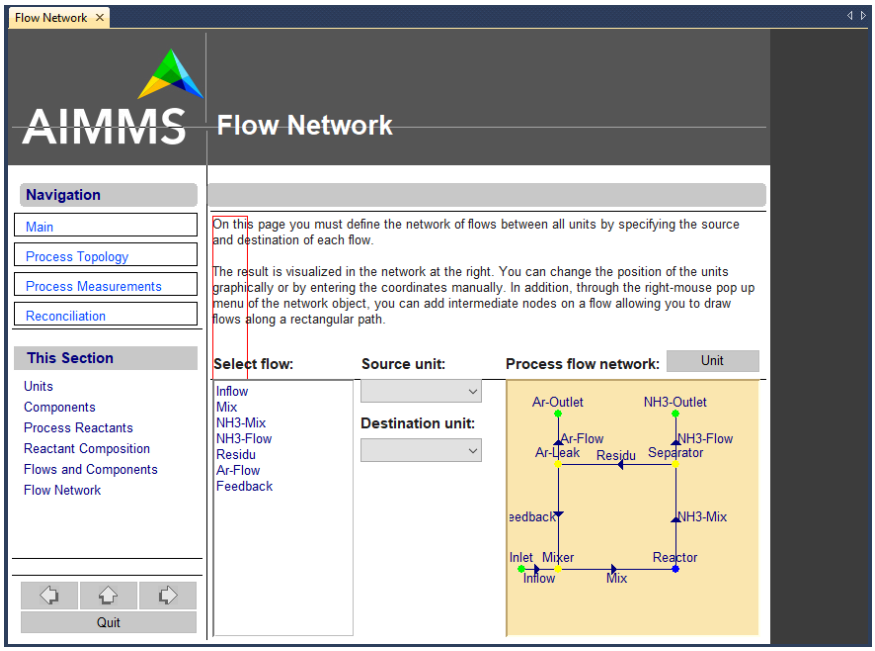


Figure 13.4: Editable area and split lines of a resizable page in **Edit** mode

13.2 Resizable templates

Creating resizable templates

When you are creating an AIMMS-based application with many resizable pages, all based on a number of page templates, you should also consider defining the basic resize properties of these templates. As templates behave as ordinary pages in the template tree, you can add split lines to templates as described in the previous section.

Inherited resizability

All templates and end-user pages based upon a resizable template inherit the resize properties of that template, i.e. all split lines in the template are also applicable to its child templates and pages. Generally, such inherited split lines should take care of the resize properties of those objects that are contained in the template itself.

Adding split lines

On any page (either template or end-user page) you can always add additional split lines to those inherited from its ancestor template(s). The added split lines are used to specify the resize properties of the additional objects that have been placed on the page. In this manner, the template tree can be used to define the entire look-and-feel of your pages in a hierarchical manner, and their resize properties.

Example revisited

The example page in Figures 13.1 and 13.3 already illustrates the inherited resizability from templates. In fact, Figure 13.1 displays the split line configuration of a template defining the common header and footer area of all its child pages. The page in Figure 13.3, which uses this template, automatically inherits its resize properties. Therefore, the table in the "data area" of this page automatically grows or shrinks in relation to the page size as dictated by the template.

13.3 Adapting to changing screen resolutions

Coping with different resolutions

AIMMS allows you to create pages in such a manner that they will automatically adapt to changing screen resolutions. Thus, given a sensible configuration of split lines, you can create an application than can be run in resolutions other than the base resolution for which you developed the pages.

Page properties

To specify the behavior of pages and templates, open the **Properties** dialog box for the page (template), as illustrated in Figure 13.5. In the **Position & Size**

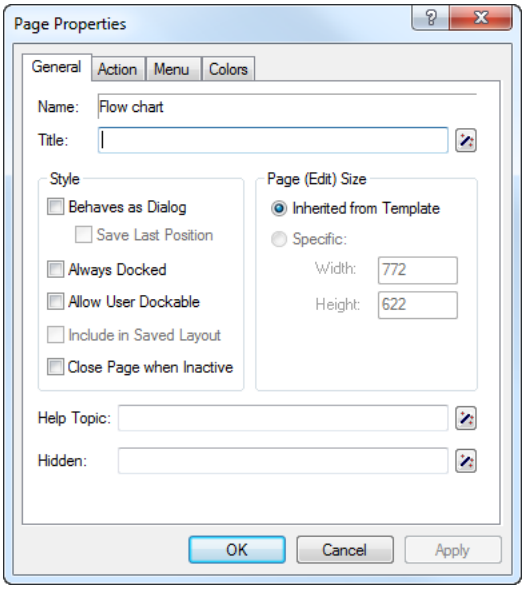


Figure 13.5: The page **Properties** dialog box

area of this dialog box, you can select the default position and size of the page, which AIMMS will use when opening the page.

Opening modes

For every page in your application, you can select one of the four following standard page opening modes:

- get the position and size from the template used by the page,
- open the page at maximum size, but with visible page borders,
- open the page at maximum size, but without visible page borders, and
- open the page using the last saved position and size.

Inherited modes

If you specify that a page should obtain its position and page size from its template, the page will use the page open mode as specified for that template. When, in turn, this template has been specified to open according to its last saved position and size, an interesting interaction between the template and all its dependent pages will take place. Changing the position and size of *any* page using such a template will cause all the other pages using that template to be opened using the new position and size.

Resizable root template

As an application for the above, you could decide to make every page and page template dependent on the position and size of the root template. In this manner, changing the size of any page, will automatically result in the adjustment of every other page.

Save over sessions

When you have specified that a page or page template should save its last position, this position is stored between sessions. That is, the next time you open the same project, AIMMS will open such pages in the same positions as used in the previous sessions on the same computer.