

Transom Expansion

A practical application of Copy Snakes

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For ease of construction many boats feature a transom which is a portion of a straight circular cylinder. The model *cyl_transom_expansion.ms2* shows how to construct the expanded shape of the transom within MultiSurf.

The Translation Surface **transom_0** is the basis surface of the cylindrical transom. Its generator is the Arc **c1**, guiding curve is the Line **l1**. The control points of both curves are defined in the 3-point Frame **F1**, so that one can tilt and move the transom without changing its shape.

The hull and deck are intersected by the surface **transom_0** in the Intersection Snakes **n1** and **n3**, which in turn are projected onto **transom_0** as Projected Snakes **n2** and **n4**.

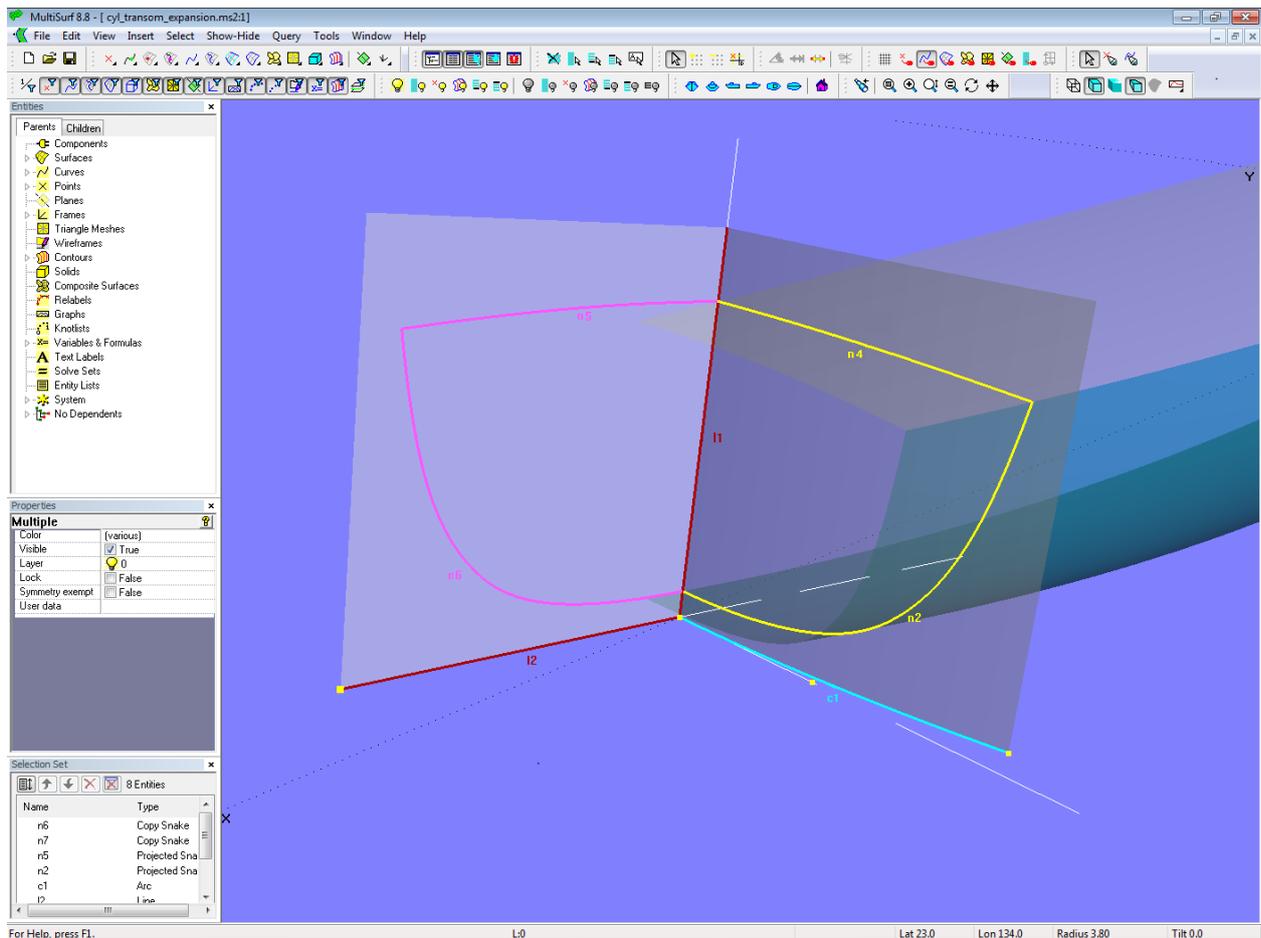
The expansion of the transom basis surface is the Translation Surface **s0**, whose generator is the Line **l2** (end point is Point **pt3**), the guiding curve is again Line **l1**. The length of Line **l2** must be equal to the length of the Arc **c1**. Since **s0** is in the XZ plane of the Frame **F1**, the Z-coordinate of Point **pt3** (end point of Line **l2**) simply corresponds to the length of **c1**. This length is displayed in Tools/ Mass Properties.

When the arc is changed, for example to increase the camber of the transom, the position of **pt3** must be adjusted manually.

To avoid this, the simple Formula **f1**:

$$f1 = \text{ARCLEN}(c1, 0, 1)$$

which calculates the length of Arc **c1** is used for the Z-coordinate of **pt3**. In this way it is guaranteed that **s0** always is just as long as Arc **c1**.



Model *cyl_transom_expansion.ms2*

In order to get the developed shape of the transom on *s0*, the two Projected Snakes *n2* and *n4* are copied onto *s0* as Copy Snake entities.

In this way you get without a specialized program the true outline of the circular cylinder transom.

