

# Developing a ship design process



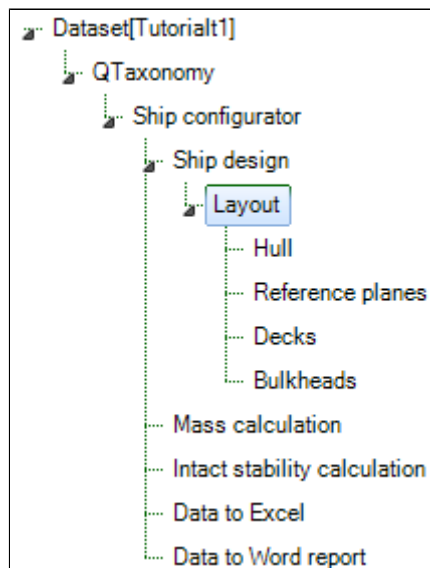
## 1 Adding still more entities

In this section you will develop the ship design process further.

- Include the following entities:

Layout	child of Ship design	Singular obligatory
Hull	child of Layout	Singular obligatory
Reference planes	child of Layout	Singular obligatory
Decks	child of Layout	Belongs to group of single optional Entities
Bulkheads	child of Layout	Belongs to group of single optional Entities

How to include entities is described in the previous sections. The result so far should look like this:



A ship design always contains a layout with at least a hull and defined reference planes. The entities *Decks* and *Bulkheads* will be optional for a user to include in their ship design.

### Entity Hull

- Include the following two entities as children of *Hull*:

Main Dimensions	Singular obligatory
Hydrostatics	Singular obligatory

### Entity Reference planes

- Include the following two entities as children of *Reference planes*:

Transverse planes	Singular obligatory
Horizontal planes	Singular obligatory

### Entity Decks

Entity `Decks` will be developed as a container which contains combined data of all defined singular decks below.

- Include the following entity as child of `Decks`:

Deck	Multiple, select none, one or more
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The entity `Decks` can contain one or more `Deck` entities, each with the same content (which will be added shortly), however, the user can provide different input values for each `Deck`.

### Entity Bulkheads

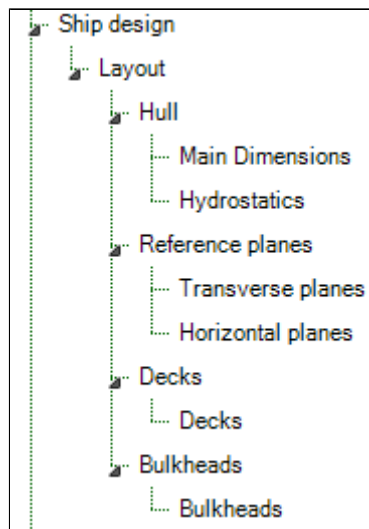
This ship configurator uses another entity structure for defining (transverse) bulkheads than for defining decks. The same entity structure could be used, but it is more instructive to present (and develop) a different approach.

The development of the `Bulkheads` entity is comparable to the `Decks` entity. However, above we used a *Multiple* entity to enable the user to define one or more decks. Here we will develop an entity where the user can create one table to define one or more transverse bulkheads instead of several `Bulkhead` entities.

- Include the following entity as child of `Bulkheads`:

Bulkheads	Singular obligatory
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The complete `Ship design` tree should now look like this:



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