1 Initialising a Tribon Project

After copying the relevant directories and files and editing the d065 file it is now necessary to initialise the Form data bank (**SB_CGDB**) and the Structure data bank (**SB_OGDB**). This involves the creation of various objects and tables in both the **SB_CGDB** and **SB_OGDB**. These objects and tables will inform the Tribon system which hull form to use, what the frame spacing is, what the prefix for the naming of seams and butts should be, etc, etc…

This object and table creation is done using the Tribon M3 Initiate Hull Standards utility.

Use the **Project Selection** tool and select your new project.

Start the utility by clicking on **Start Menu > Programs > Tribon M3 > Hull > Initiate Hull Standards**

In the tree structure on the left-hand side of the resulting application expand the **Initiate Hull Model** node and the following nodes will be displayed.

Hullref, create	Creates a Hull Reference Object in the SB_CGDB
Structref, create	Creates a Structure Reference Object in the SB_OGDB
Blocks, manipulate	Creates Block objects in the SB_OGDB
Frame/long positions, create	Creates an __SBH_GENTAB__ object in the SB_OGDB

The purpose and use of the above four functions are explained in the following chapters.

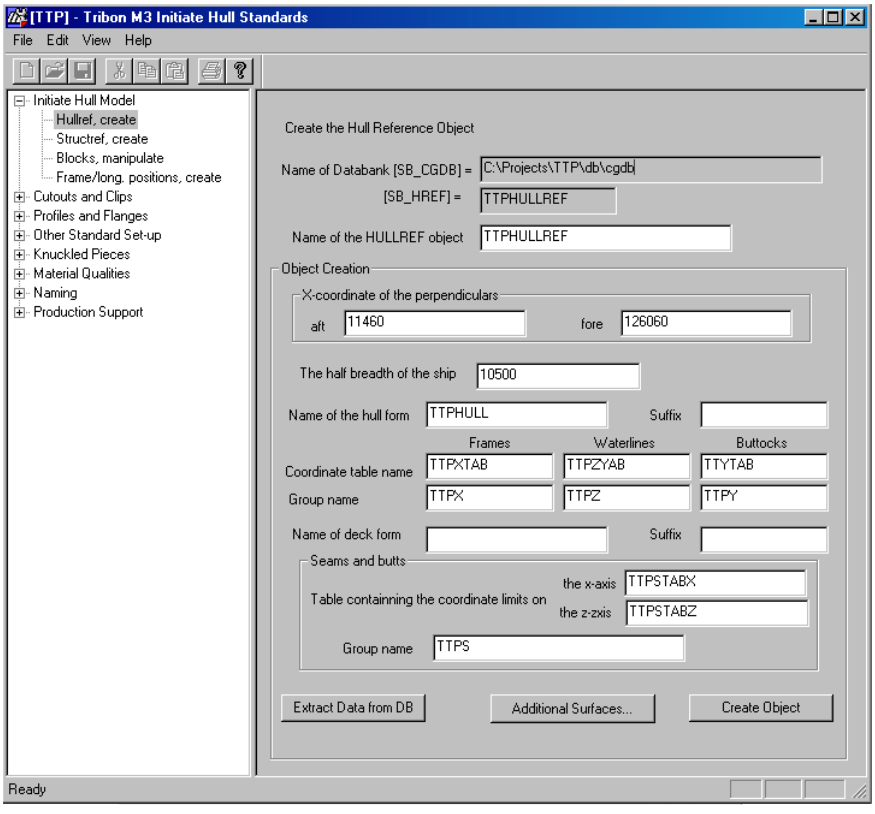
1.1 Initialising the Form data bank (SB_CGDB)

The form databank contains information related to the surfaces of the ship i.e. the ship surface itself and curve information derived from the surfaces. Additionally, there are some tables that keep a record of the names of objects in this data bank and of the objects stored there.

1.1.1 Creating a Hull Reference Object

The hull reference object is a small table containing information about names and name rules of objects in the form databank (**SB_CGDB**). The Tribon modules access the name of this object via the Tribon environment variable **SB_HREF**.

The hull reference object is created or modified by the **Hullref, create** option. Clicking on this option will result in the following form being displayed:



Name of Databank (SB_CGDB) and **(SB_HREF)** will be automatically filled in by the system assuming the relevant variable is set in the current project.

Name of HULLREF object: An arbitrary string, but usually a combination of the project identification, (ship letters) and the word HULLREF. This field will also be automatically filled in with the current value of SB_HREF. This allows either the modification of this existing object or the creation of a new hull reference object. Multiple hull reference objects can exist in one project but only the one currently assigned to SB_HREF will be read by the system.

X co-ordinate of the perpendiculars: The relevant X co-ordinate for the Aft and Fore Perpendiculars (given in mm)

The Half breadth of the ship: The half breadth of the ship (given in mm)

Name of the hull form: If using TID software to produce the hull form this name should match the name of the DML or DM file stored in the directory in which the Surface Server was started.

Suffix: Curves created in these additional surfaces are named according to the same rules as curves in the main surfaces. To separate them from the main surface curves the group names of these additional surfaces have an additional "suffix" by which the group name will be extended.

Example of Composed Names of Objects in Multiple Surfaces:
In order to allow the same numbers to be used for objects in different surfaces, it is necessary to specify a surface specific extension of the group names. This surface suffix consists normally of one letter.
e.g. Suppose that there is a seam with number 123 in an additional surface with surface suffix C and that the group name for seams is AAS. Then the name of that seam will be AASC123.

The main hull need not have any surface suffix.

Co-ordinate table name: The name of the co-ordinate tables for frame, waterline and buttock curves. These tables contain the X, Y and Z co-ordinate of the plane in which the curve with a given number is located.

Group name: The group names of frame, waterlines and buttocks. The names of these main curves are composed by a "group name" concatenated with a curve number (e.g. a frame number). These group names are defined in this object.

Name of deck form: If using TID software to produce the deck form this name should match the name of the DML or DM file stored in the directory in which the Surface Server was started. If no deck form is present in this particular project, the field should be left blank.

Seams and butts:

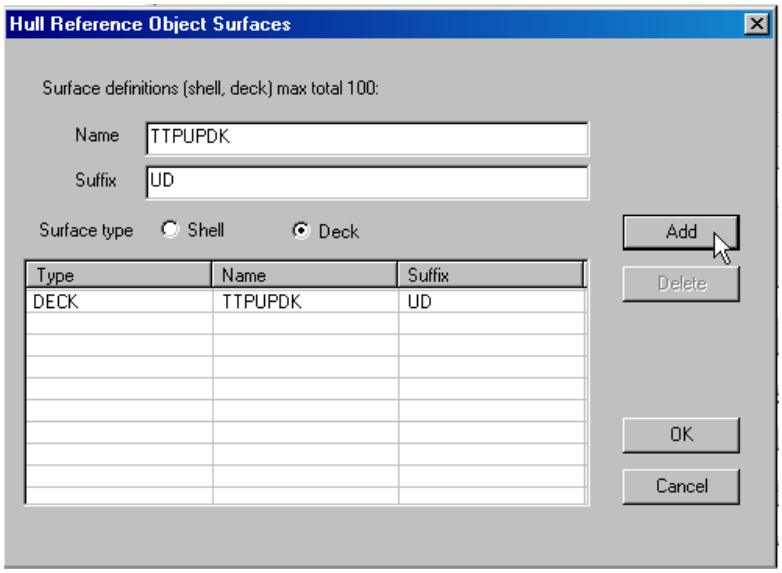
Table of co-ordinate limits on X-axis/ Z-axis: The names of the limit tables along the X and Z axes for seams. One of these tables contains the minimum and maximum co-ordinates along the X axis of all seams, the other the same information for the Z axis.

Group name: Defines prefix to be given to Seams and Butts in the tables above

Additional Surfaces: Opens the dialog box shown opposite, where the user can add up to 100 additional surfaces.

Name: If using TID software to produce the additional surface this name should match the name of the DML or DM file stored in the directory in which the Surface Server was started.

Suffix: Curves created in these additional surfaces are named according to the same rules as curves in the main surfaces. To separate them from the main surface curves the group names of these additional surfaces have an additional "suffix" by which the group name will be extended



Surface type: Select either **Shell** or **Deck**

Add: After completing the 3 fields above use this button to submit the additional surface information.

Delete: Highlight an existing additional surface in the list displayed and use this button to delete it.

OK: Use this button to exit the function after Adding/Deleting the desired surfaces.

Extract data from DB: The system will refresh the current form with the latest data from the SB_CGDB.

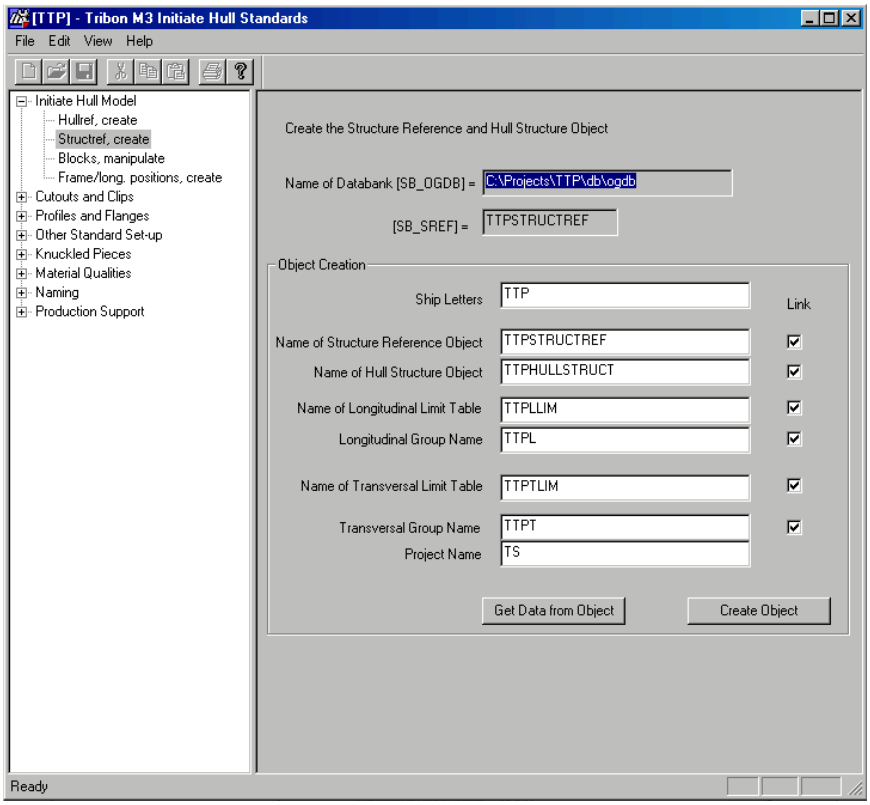
Create Object: After completing all the required fields use this button to create/update the hull reference object in the SB_CGDB.

1.2 Initialising the Structure data bank (SB_OGDB)

The structure databank contains model information about the internal structure of the ship. The model information in the structure information is stored according to nominal dimensions and the adjustments for production are made when parts are extracted for production. Examples of such adjustments are shrinkage compensation, excess, shell plate development, development of knuckled pieces, changes for (varying) bevels angles and bevel gaps.
Additionally the structure data bank contains some table information and objects that describe miscellaneous types of hull standards, set up by the customer.

1.2.1 Creating a Structure Reference & Hull Structure Object

The structure reference object is a small table containing information about names and name rules of objects in the structure databank. The Tribon application modules access the name of this object via the Tribon environment variable **SB_SREF**.
The structure reference object is created or modified by the **Structref, create** option. Clicking on this option will result in the following form being displayed:



Name of Databank (SB_OGDB) and **(SB_SREF)** will be automatically filled in by the system assuming the relevant variable is set in the current project.

Ship Letters: It is suggested that the names of all hull objects of a certain project should start with the same one or two letters. Check all of the **Link** boxes and the letters keyed into this field will be automatically added to the default names for the other objects in this menu.

Name of Structure Reference Object: Usually ship letters + STRUCTREF

Name of Hull Structure Object: Usually ship letters + HULLSTRUCT. The Hull Structure object is the object that serves as the entry to the hull model via the design structure. It does not contain any relevant information except the references to all the blocks. The Hull Structure object is automatically updated each time a block object is created, modified or deleted. The designer never really gets in direct contact with the Hull Structure object.

Name of Longitudinal Limit Table: The name of the extension table for longitudinals along the X axis (min-max co-ordinate values). The names of limit tables for the extension along the Y and Z axes are formed by adding 'Y' and 'Z', respectively, to this name.

Longitudinal Group Name: The group names of longitudinals. The name for one of these objects is created by a "group name" plus a number added in Curved Hull or Basic Design, typically the longitudinal position multiplied by 10.

Name of Transversal Limit Table: The name of the extension table for transversal frames along the X axis (min-max co-ordinate values). The names of limit tables for the extension along the Y and Z axes are formed by adding 'Y' and 'Z', respectively, to this name.

Transversal Group Name: The group names of transversal frames. The name for one of these objects is created by a "group name" plus a number, typically the relevant frame number.

Project Name: The project name of the current project. This name may be used as a part the production oriented part names (and may thus be considered as an "external" correspondence to the ship letters that are for internal use).

Get data from Object: The system will refresh the current form with the latest data from the SB_OGDB.

Create Object: After completing all the required fields use this button to create/update the structure reference object in the SB_OGDB.

1.3 Defining Frame / Longitudinal positions

Within Tribon it is possible to define an object that contains the entire frame and longitudinal position information for the current project. Within this object it is possible to define both horizontal and longitudinal grid positions i.e. distances from the centreline and also vertical longitudinal positions i.e. distances from the baseline.

The object will be named **__SBH_GENTAB__** and will be stored in the structural database (**SB_OGDB**). The object is very important within a Tribon project as many of the applications use this object to calculate the position of model objects that are located using frame or longitudinal position references.

Before discussing the creation of the object a few Tribon numbering rules should be considered.

1.3.1 Frame numbering in Tribon

1. The frames must be integers i.e. they must not contain any letters, however they may be negative.
2. The number of the frames should be in the range [-899,2276]
3. The maximum number of frames is currently restricted to 500, unless the frames are consecutively numbered. In the latter case the frames may have numbers in the range [-99,500], i.e. 600 in total.
4. The relation between frame number and frame position may be quite arbitrary, e.g. they may be increasing with increasing x-co-ordinates, decreasing with increasing x-co-ordinate or set without any specific order with relation to the frame position.
5. The distance between frames may vary arbitrarily.

It is common within shipbuilding to locate frame number 0 at the aft perpendicular and to let the frames in the aft peak be identified by letters; A, B, C, etc. The rules above do not allow this denomination.

It is recommended that the letters be replaced by negative numbers (A→ -1, B→ -2, etc.).

In some regions of the world it is customary to have numbered frames only at web frames and to identify intermediate frames by adding letters to the main frame number, e.g. 56, 56A, 56B ...., 57, 57A, 57B, ... It is recommended that the letters in the example are replaced as follows; 56, 561, 562,...., 57, 571, 572, ... (or to 560, 561, 562, ..., 570, 571, 572, ...).

1.3.2 Longitudinal position numbering in Tribon

Frame positions are in most cases defined at those locations along the ship where there are transversal hull members, either frames or webs, etc. In a similar way there are in most ships characteristic distances from the Centre Line (CL) and above the Base Line (BL) where hull members are located. E.g. longitudinals in the bottom and in the side in the midship section are located at positions which normally also define the position of stiffeners in decks, platforms, bulkheads, etc, and the position of girders. By referring to these positions one may define locations along the Y and Z axes as simple as e.g. Y=LP10 +100 and Z=LP35 -100. (LP10 +100 means 100mm in portside direction from Longitudinal Position number 10 in the bottom, LP35 -100 means 100 mm below Longitudinal Position 35 in the side).

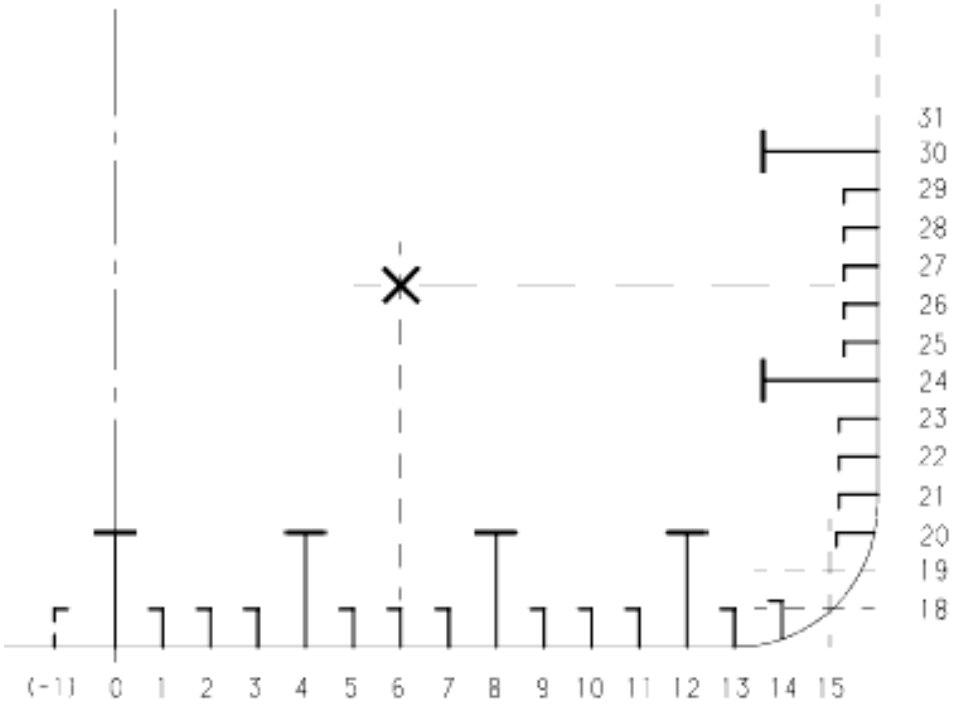
From a practical point of view it is recommended to let the longitudinal positions and their numbers coincide with the numbers and positions of actual longitudinals in the midship section. However, it should be noted that the longitudinal positions form a grid that need not have any direct relation with the physical longitudinal frames. E.g. if some longitudinals are replaced by girders there are "holes" in the numbering of longitudinals. However, the longitudinal positions should include all the positions, also those where there are no longitudinal frames.

The figure below shows schematically a typical midship frame with suggested longitudinal positions.

The point at the cross in the figure above may be located by Y=LP6, Z=LP26.5

The following rules should be considered:

1. The positions and the numbers should be related to those of actual longitudinal frames, if possible.
2. The longitudinal numbers should be in the interval [0,999]
3. The numbers for horizontal positions (along the Y axis) and vertical positions (along the Z axis) should not be the same.



4. It is quite possible to define a longitudinal position in the CL plane, i.e. where Y=0. This position may have number 0.

5. The relation between increasing/decreasing numbers and increasing/decreasing distances is arbitrary similar to what is stated for frames. This should be decided by the rules for longitudinal numbering, used by the yard.

6. There is no direct connection between the longitudinal position numbers and the generated physical longitudinal frames.

7. Longitudinal positions in the bottom are normally only defined on portside. Reference to the corresponding positions on the starboard side is done by negating the longitudinal number, e.g. Y=LP-20+100.

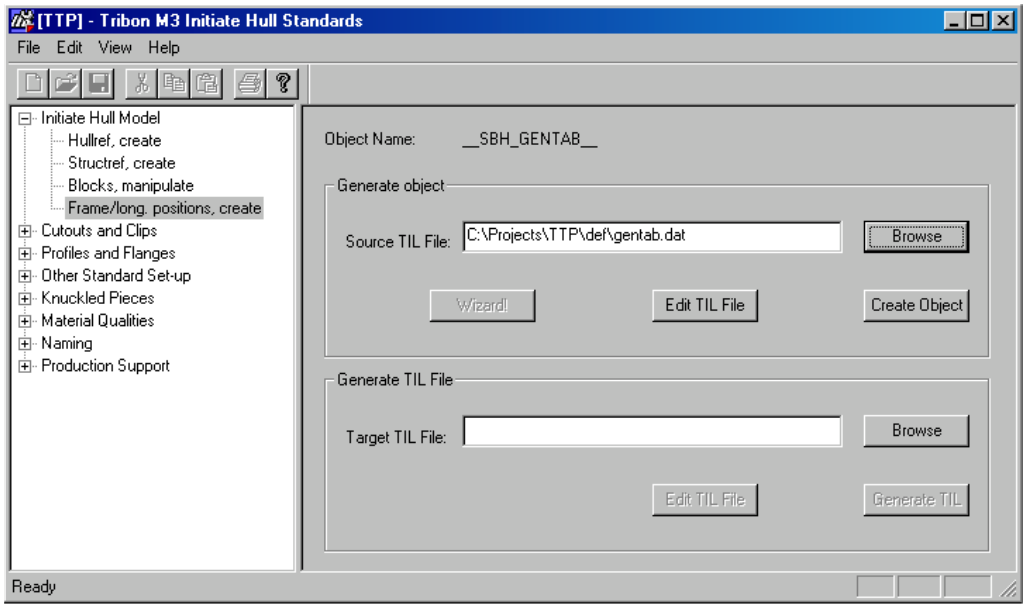
1.3.3 Creating the SBH GENTAB object

The **__SBH_GENTAB__** object is created or modified by the **Frame/long positions, create** option.
Clicking on this option will result in the following form being displayed:

The **__SBH_GENTAB__** object is created by the system reading a suitable TIL file.

If an input file already exists then use the **Browse** button in the **Generate object** field to locate the file.

If no file exists then use the **Generate TIL** button in the **Generate TIL File** field to create a new file. The system will prompt for a name for the file and it should then be saved before exiting the editor. After creating the file use the **Browse** button in the **Generate object** field to locate the file.



When the file has been located successfully in the **Generate object** field, use the **Edit TIL File** button to open the file with the default Windows editor and this allows editing to suit.

After the successful editing of the file close and save it. Click the **Create object** button and the system will generate the __SBH_GENTAB__ object.

1.3.4 The contents of the TIL file

The input file is organised in "record types" with layout as described below. The format is free but it is recommended to have one record per line. The line width is limited to 80 characters. The number of records is unrestricted.

Record Type 0

This record must specify the name of the current structure reference object.
E.g. **0 ''<NAME>STRUCTREF**
The line should consist of the digit zero followed by a blank space, then a single apostrophe followed immediately by another single apostrophe then a blank space followed by the name of the structref object.

Record Type 2

This record has no parameters. If it is included in the input file the system will produce an output file containing all of the frame and longitudinal positions generated along with their corresponding co-ordinate value. It is recommended that this record type is always included.

Record Type 20

This record type informs the system of the desired frame number and position.
E.g. **20 START STEP END COORD COORDSTEP**

START	The first frame number for which to add or change a co-ordinate
STEP	The difference in frame numbers for the current record
END	The last frame number for which to add or change a co-ordinate
COORD	The co-ordinate for the frame **START**
COORDSTEP	The distance between each frame in the range **START** → **END**

Recommended layout for record type 20 is as follows:

The first line must contain information for a single frame only (usually FR0)
The next line(s) should contain information for any negative frame numbers
The next line(s) should contain information for any positive frame numbers
The next line(s) should contain information for any ice frames (positive and negative)

Record Type 30
This record type informs the system of the horizontal longitudinal positions in the ship's bottom and their positions relative to the centreline. The records must be given such that the co-ordinates are in strictly ascending or descending order.
E.g. **30 START STEP END COORD COORDSTEP**

START	The first longitudinal for which to add or change a co-ordinate
STEP	The difference in longitudinal numbers for the current record
END	The last longl number for which to add or change a co-ordinate
COORD	The co-ordinate for the longitudinal **START**
COORDSTEP	The distance between each longitudinal in the range **START** → **END**

The longitudinal numbers should not be multiplied by 10 and they have to be equal to or greater than 0.

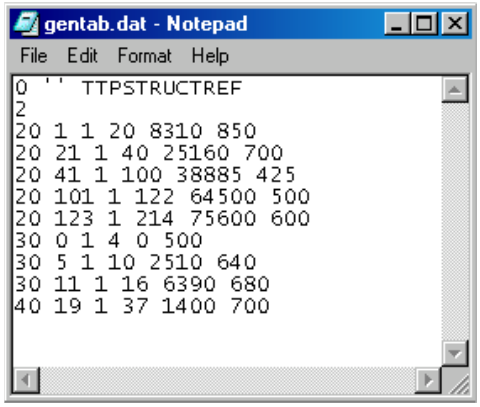
Record Type 40
This record type informs the system of the vertical longitudinal positions in the ship's side and their positions relative to the base line. The records must be given so that the co-ordinates are in strictly ascending or descending order.

E.g. **40 START STEP END COORD COORDSTEP**

START	The first longl number for which to add or change a co-ordinate
STEP	The difference in longitudinal numbers for the current record
END	The last longl number for which to add or change a co-ordinate
COORD	The co-ordinate for the longitudinal **START**
COORDSTEP	The distance between each longitudinal in the range **START** → **END**

The longitudinal numbers should not be multiplied by 10 and the first number should be greater than the final horizontal position number defined in record type 30.

Example of input



Resulting frame positions:

FR1is at X=8310, frame numbers then increase in steps of 1 until FR20 is reached with each frame being 850mm from the previous one
FR21 is then at X=25160, the frame numbers then increase in steps of 1 until FR40 is reached with each frame being 700mm from the previous one.
FR41 is then at X=38885 the frame numbers then increase in steps of 1 until FR100 is reached with each frame being 425mm from the previous one.
FR101 is at X=64500 and the frame numbers increase in steps of 1 until FR122 is reached with each frame being 500mm from the previous one.
FR123 is at X=75600 and the frame numbers increase in steps of 1 until FR214 is reached with each frame being 600mm from the previous one.

Resulting horizontal longitudinal positions:
LP0 is at Y=0 and the longitudinal position numbers then increase in steps of 1 until LP4 is reached with each longitudinal position being 500 from the previous one.
LP5 is at Y=2510 and the longitudinal position numbers then increase in steps of 1 until LP10 is reached with each longitudinal position being 640 from the previous one.
LP11 is at Y=6390 and the longitudinal position numbers then increase in steps of 1 until LP16 is reached with each longitudinal position being 680 from the previous one.

Resulting vertical longitudinal positions:

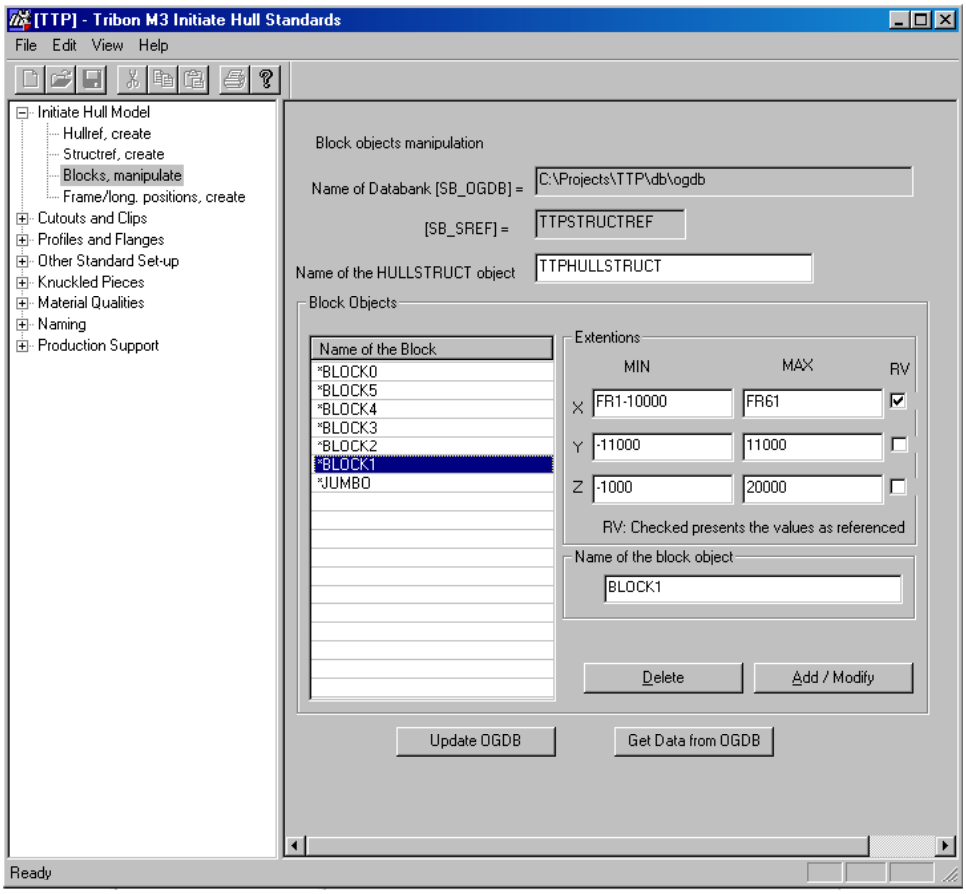
LP19 is at Z=1400 and the longitudinal position numbers then increase in steps of 1 until LP37 is reached with each longitudinal position being 700 from the previous one.

Additional increments may be added as required.

1.4 Creating a Block Object

Like the hull structure object the block objects do not carry any actual model information, only the location of its surrounding box in space. It should primarily be considered a geographically constrained container of panels, referred to from the Hull Structure object and itself referring to the panels that belong to the block. A block object is automatically updated each time a panel is created, modified or deleted.
The designer never really interacts with the block objects except when they are created. However, the block may be used as the "handle" by which information from the hull model is extracted in various situations.
The same block may include panels both on portside and on starboard. If a block is restricted to a side section (e.g. a side tank) its limits should be restricted to its limit on portside. Panels valid for the starboard side (and even those *modelled and stored* on starboard) may nevertheless belong to this block. Thus a block can always contain panels within its explicitly defined block but also panels within the box when mirrored in the centreline plane.
A block over the Centre line should be defined with its true limits.

A Block is created or modified by the **Blocks, manipulate** option. Clicking on this option will result in the following form being displayed:



This form serves as a view of the existing block objects in the databank and also enables the creation of new block objects.

Name of Databank SB_OGDB), (SB_SREF) and **Name of the HULLSTRUCT object** will be automatically filled in by the system assuming the relevant variable is set in the current project.

Name of the Block: A list of all existing blocks in the current project. This list also provides additional information as to whether this object can be found in the databank (marked with an asterisk – '*' in front of the name), or whether it is only referred to in the HULLSTRUCT object (denoted by an exclamation mark '!'). Clicking on a block name in the list will result in its particulars becoming current. Any of these values can then be edited and the block object updated.

Extensions: When a block is created it is necessary to define its (rough) extension ("box") in space. The panels belonging to a block should preferably be located entirely within this box. The boxes of different blocks may overlap. The representation of the values may be switched from FR/LP to absolute values by clicking the **RV** (referenced value) checkbox. If an existing block is selected, the values assigned will automatically populate the form.

Name of the block object: The name of the new block object to be created, or the existing block object to be modified. Automatically filled in if a block is selected from the list.

Delete Delete the current block object. Please note, if the block to be deleted contains panels these will also be deleted by this action.

Add/Modify: If an existing block has been selected from the list and it's extensions modified, or a completely new block name and extensions have been defined, this button will submit the new data.

Get Data from OGDB: The system will refresh the current form with the latest data from the SB_OGDB.

Update OGDB: Store any additions / modifications carried out to the blocks.

ⓘ *A block definition in Tribon does not have to reflect the building blocks used for construction. The use of the Assembly Planning Tool allows the actual build sequence to be completely redefined, regardless of the block definition in Tribon.*