# Changing length of ABB track in Robcad

All IRBT Tracks are delivered with max length. This guide will help you to modify the track to any track length.

Changing a tracks to a desired length can be divided into 6 steps. These are:

## 1. Create new work folder

1.1 Copy and rename your file to an appropriate name
1.2 Start *RobCad* and under *RobCad* choose *Modeling* mode
1.3 Click on *Open*
1.4 Mark the new file
1.5 Click *Select*
1.5 Click *Accept*
1.6 Confirm Unloading cell
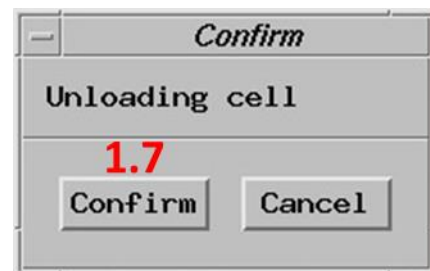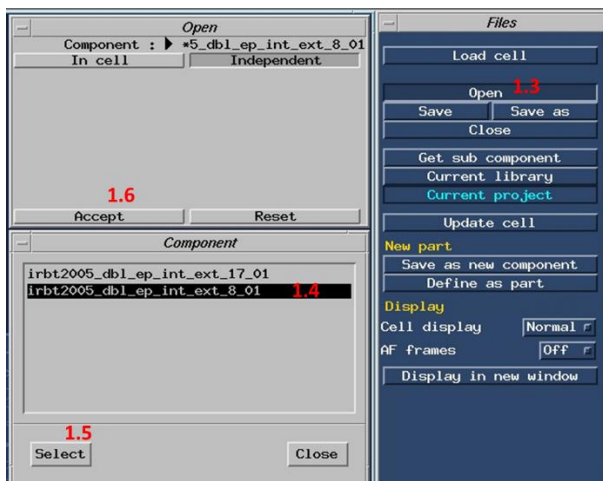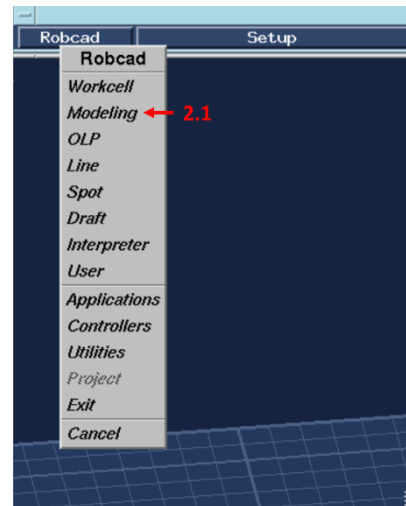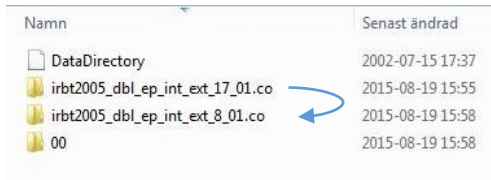
## 2. Delete sections

The general rule for calculating how many sections that should be deleted is:

$$Number\ of\ sections\ to\ be\ deleted = Travel\ length\ of \max length\ track - Travel\ length\ on\ wanted\ track$$

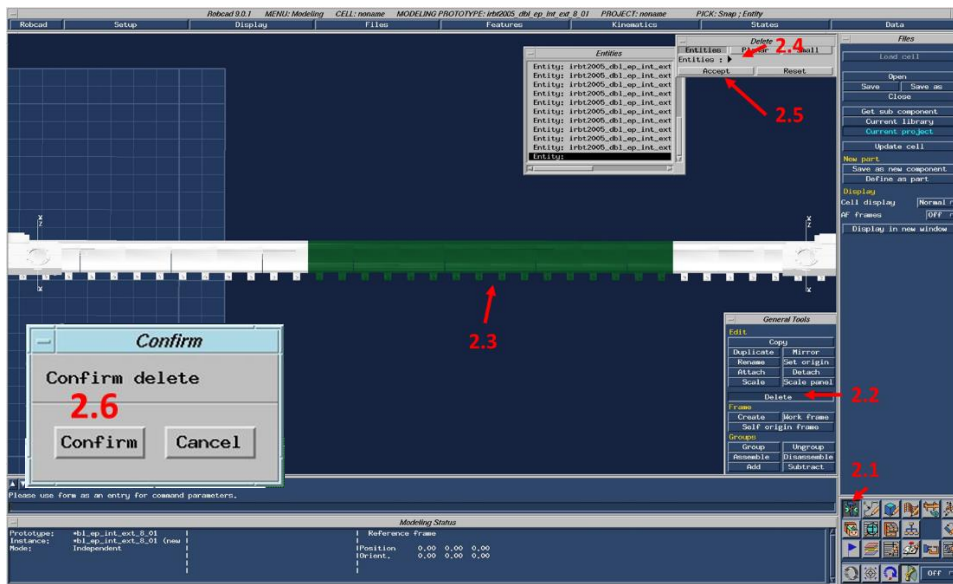Example: $21m - 13m = 8\ sections$

2.1 Open *General tools*

2.2 Click on *Delete*

2.3 Mark the sections should be deleted. Make sure that all components of a section is marked

2.4 Click beside *Entities* to choose the marked area

2.5.Click *Accept*

2.6 Confirm deleting the sections by clicking *Confirm* in the pop-up window



## 3. Move Robot /transfer to its new position

If a track with only one robot/transfer is placed closed to the world origin is modified then skip step 3.1-3.14
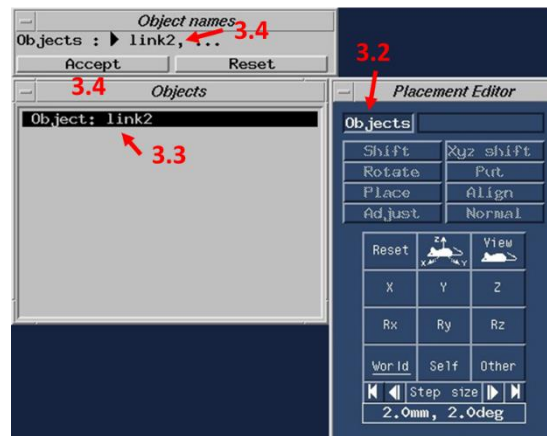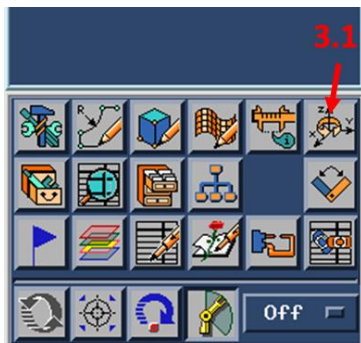
3.1 Open *Placement Editor*

2.2 Choose *Objects*

3.3 Define which Robot/transfer that should be moved by typing its name. The robot/transfer are named link1, link2 and link3. Link1 is placed at nearest the origin of the world coordinate system.

3.4 Click beside *Objects* to choose the link

3.5 Click *Accept*

## Define step size

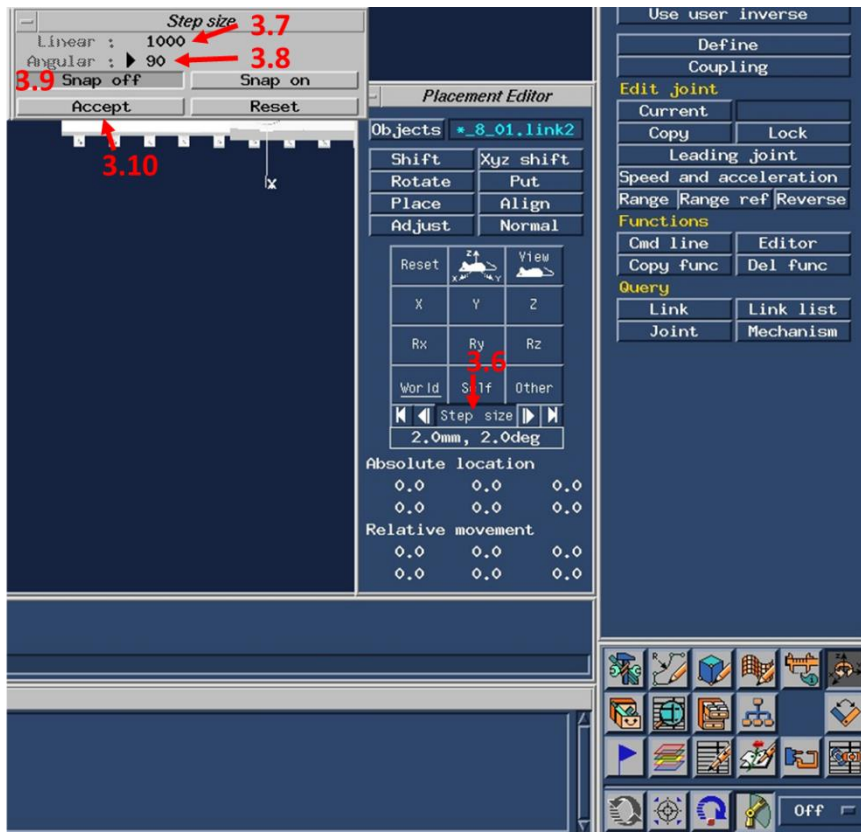3.6 Click on *step size*

3.7 In *Linear* row define 1000

3.8 In *Angular* row define 90

3.9 Make sure *Snap off* is checked in
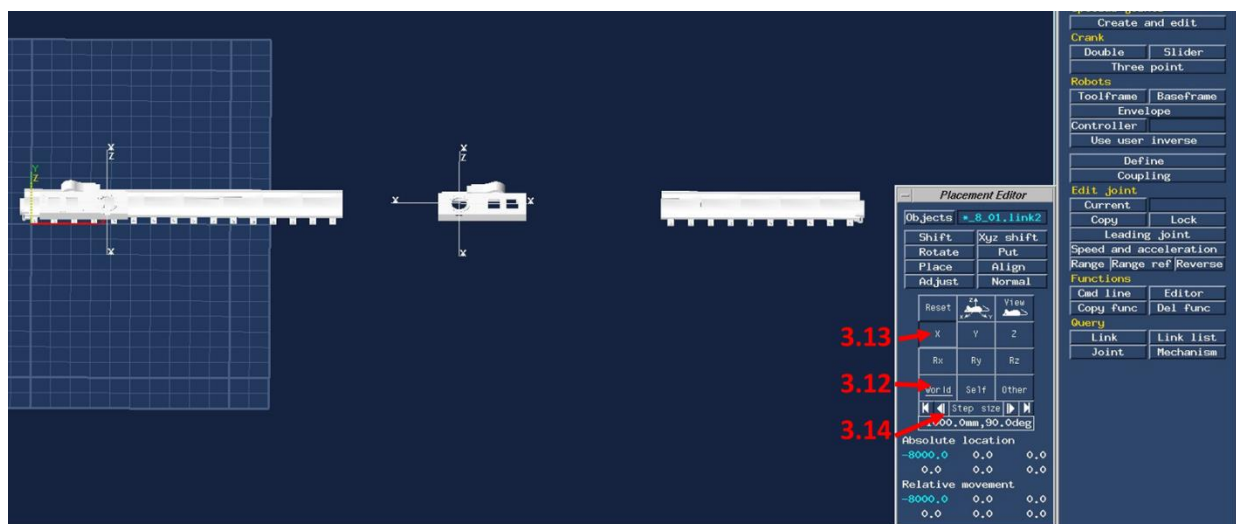
3.10 Click *accept*



## Relocate Robot/transfer

3.12 Make sure *World* coordinate system is chosen

3.13 Check in *X*

3.14 Click on the single *arrow* left to the button step size. How many times is determined by how many sections that was removed. E.g. if 8 sections was removed click 8 times.

## 4. Assembly the track

4.1 Choose *Kinematics mode*

4.2 Click on *Extract*

4.3 Select the sections that should be relocated

4.4 Click beside *Entities*

4.5 Click *Accept*
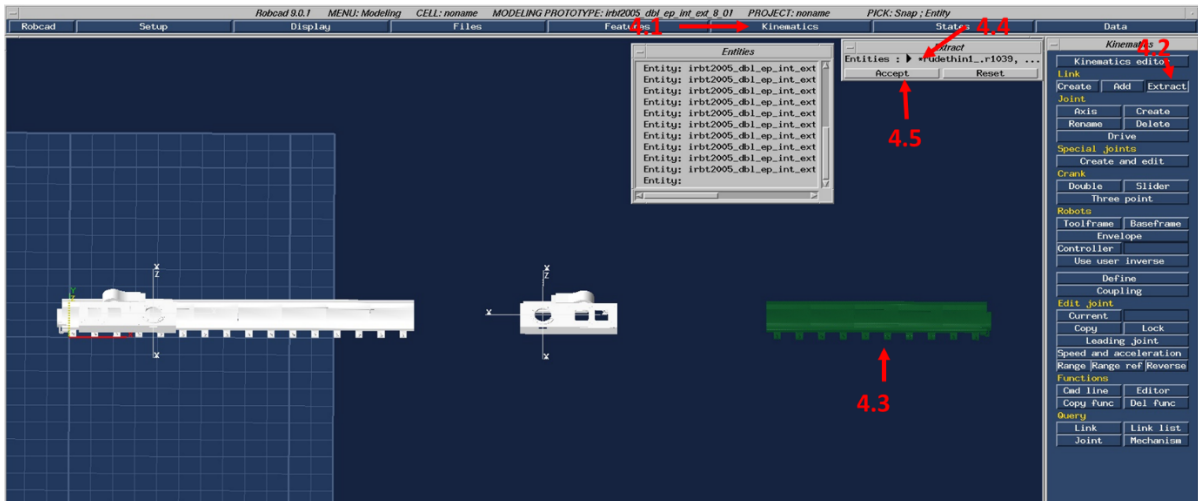


Choose section that should be moved

4.6 Open *Placement Editor*

4.7 Click on *Objects*

4.8 Select the section that should be moved. Make sure all components of the sections is selected
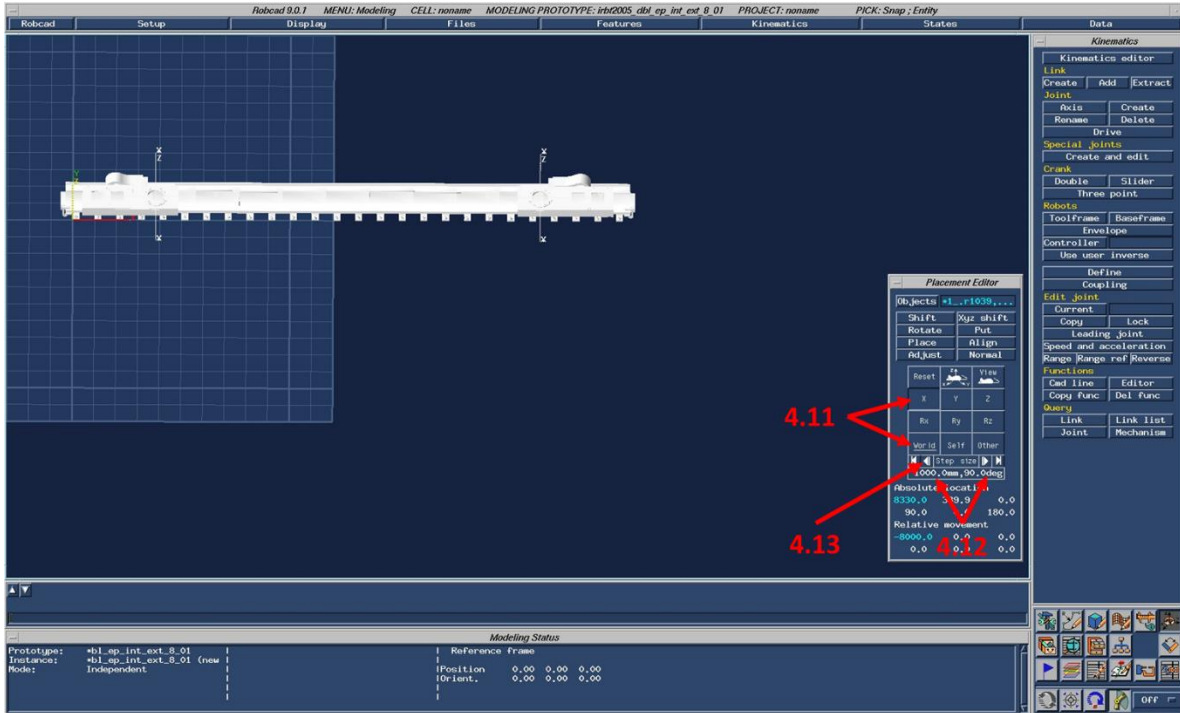
4.9 Click beside *Objects*

4.10 Click *Accept*
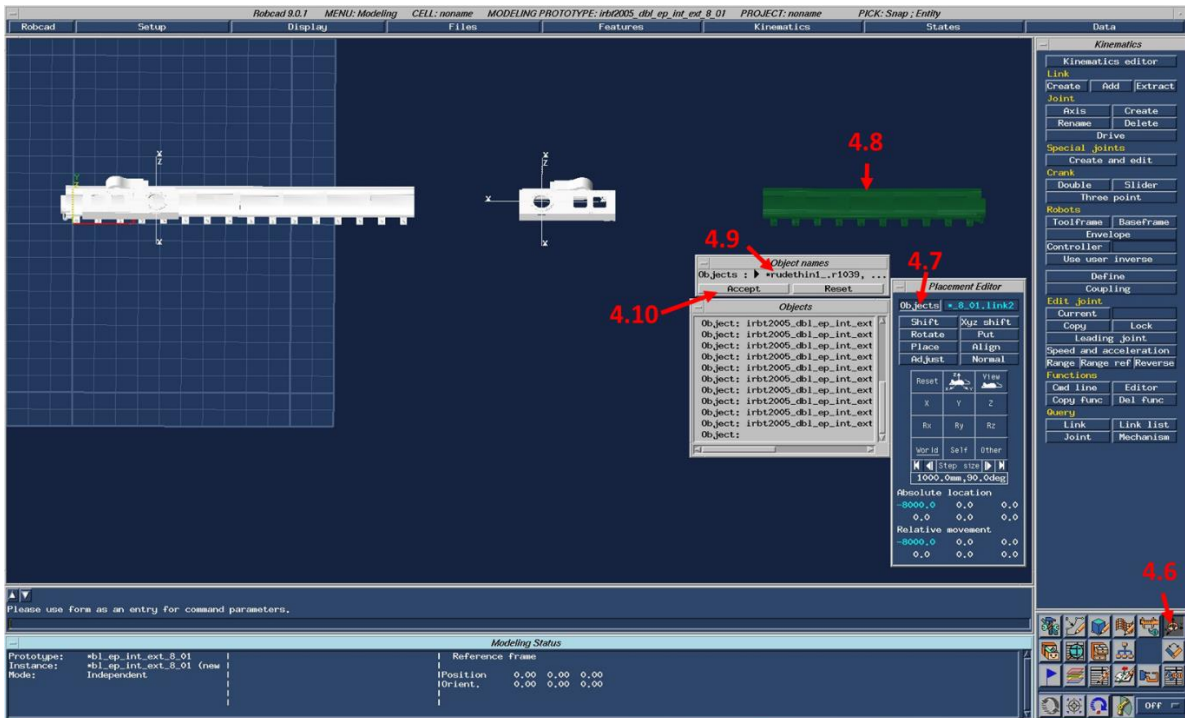
Relocate section

4.11 Make sure *world* coordinate system and axis *X* is chosen

4.12 Make sure *step size* is set to *1000.0mm, 90.0deg.* See step *3.6-3.10* how to define it

4.13 Click on the single *arrow* to move the section. Click on the arrow as many times as how many sections that were removed.



## 5. Define track as a complete entity

5.1 Hide the robot(s)/transfer(s) that blocking the view for the new moved section. Doing so by right click on the part(s) and choose Blank. Make sure all the parts of the robot/transfer is hidden.
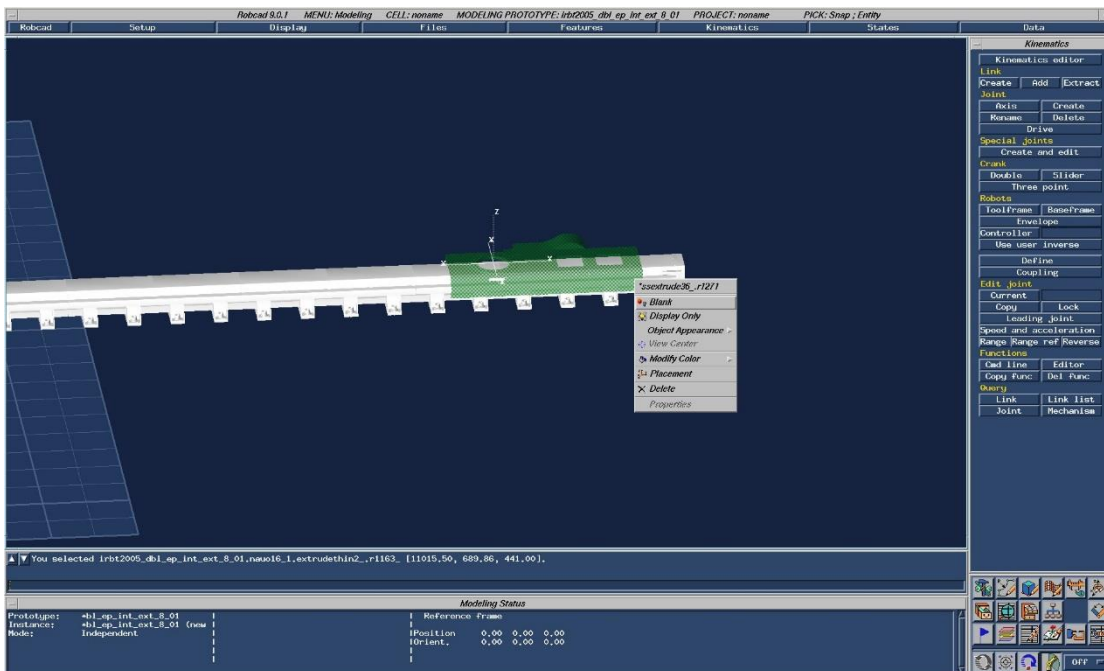
5.2 Click on *Add* under Link

5.3 Select the sections that was moved. Make sure all parts of the sections is selected

5.4 Click beside *Entities*

5.5 In the *Link* row write *link0*

5.6 Click *Accept*

5.7 Click *all* in the warning pop-up

5.8 Right click somewhere in the working space and select *Display All*
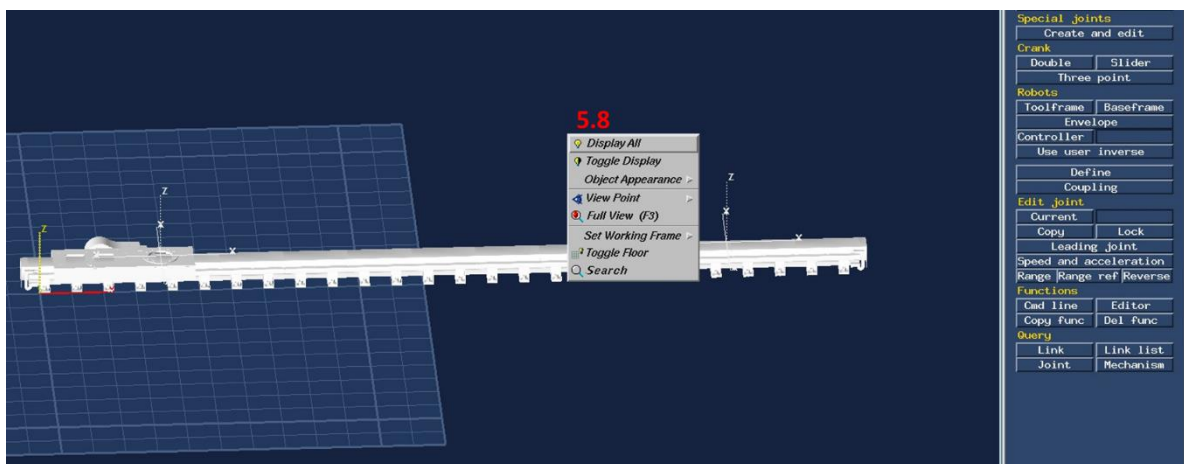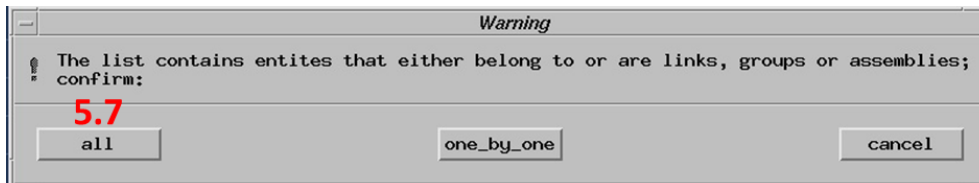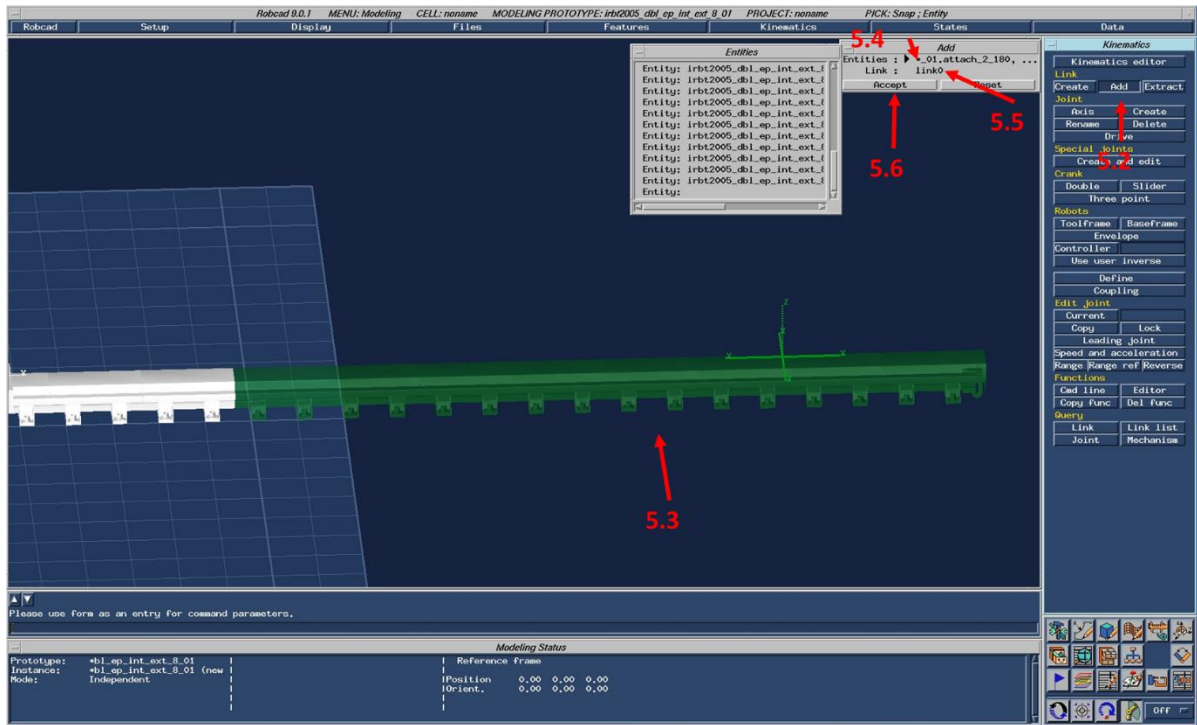
## 6. Define new joint limits

6.1 Click on *Kinematics editor*

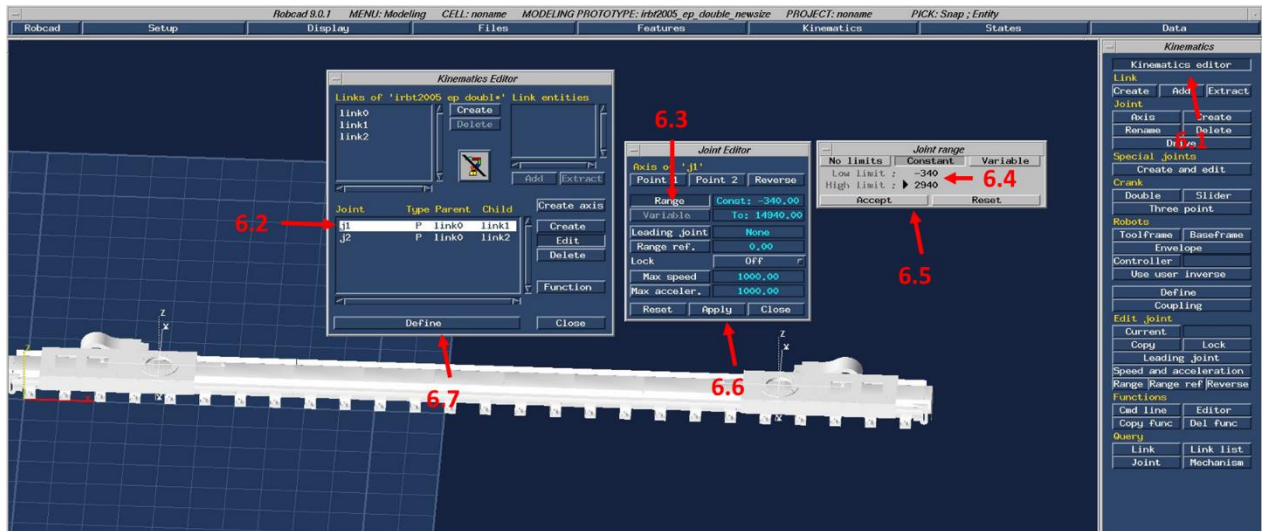6.2 Mark a *joint* and click on *edit*

6.3 Click on *Range*

6.4 Define new *limits*. Note that RobCad uses [mm] and ABB provides the joint limits in [m]

6.5 Click *Accept*

6.6 Click on *Apply*

Do the same procedure for the rest of the joint(s)

6.7 When all joint limits are defined click *Define*



## 7. Save the new track length

7.1 Click on *RobCad*

7.2 Choose *Modeling*

7.3 Click on *Save*

Done!