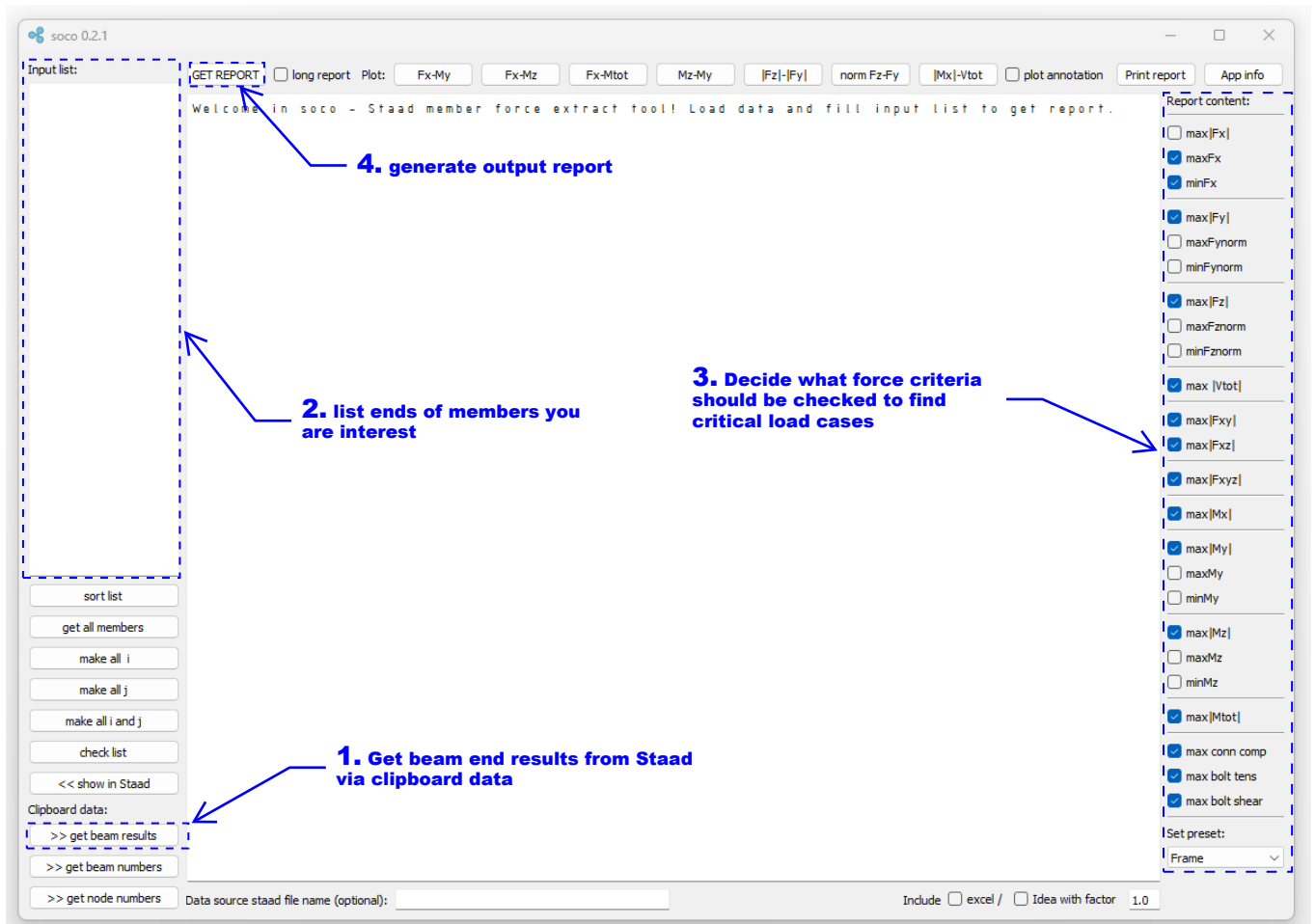


Basic workflow steps (each step explained in details on next pages)



# 1. Getting beam end results from Staad via clipboard data

Note - here decide what load combinations you are interested in

**A. left click here (at "Beam") to select all data (it turns table in black)**

**B. .. then right click at table center and "copy" (wait a moment after as it takes some time to copy data into clipboard, after that you should be able to click at the center of this table and makes it gray back)**

The screenshot shows the 'Beam Results' table with columns for Beam, L/C, Node, Fx, Fy, Fz, Mx, My, and Mz. The table is currently selected, and a context menu is open with the 'Copy' option highlighted.

C. go to SOCO

Clipboard data:

- >> get beam results
- >> get beam numbers
- >> get node numbers

D. click on "get beam results" button

GET REPORT ☐ long report Plot: Fx-My Fx-Mz Fx-Mtot Mz-My |Fz|-|Fy| norm Fz-Fy |Mx|-Vtot ☐ plot annotation

>>>> 80 res point data loaded from model name <<<<

E. you should see confirmation that member results has been received by SOCO

soco 0.0.4

Input list:

- 23
- 25
- 26
- 29
- 36
- 41
- 45
- 49
- 54
- 65
- 66
- 69
- 223
- 226
- 229
- 234
- 237
- 479
- 484
- 489
- 498
- 515
- 517
- 535
- 541
- 554
- 566
- 660
- 776

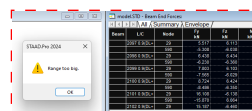
sort list

get all members

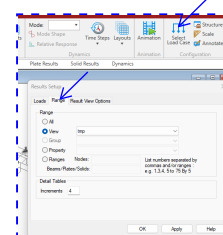
make all i

F. you can use "get all members" button to see what member results are available

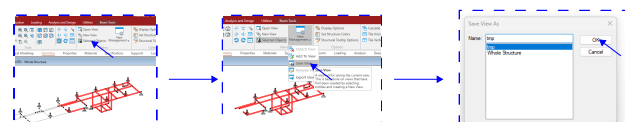
"Range too big." issue.



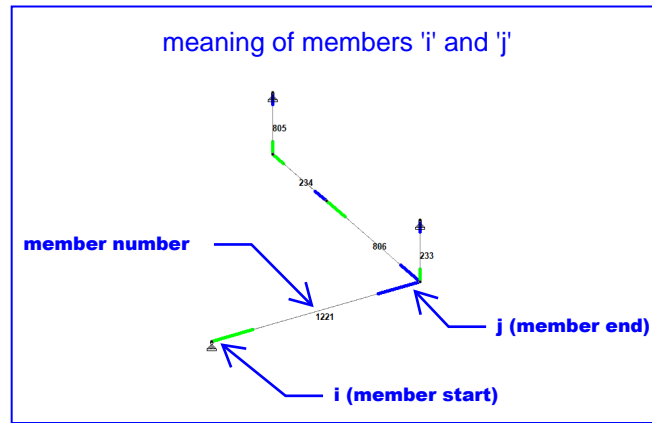
For big models or/and many load combinations results table can be too big to copy all members results for entire. For that case you need to reduce the table size by using some criteria as shown below.



Using 'View' option is most flexible as you can define views in fly with no impact on std file and no need recalculate model when create new view. See below how to create new named view in Staad.

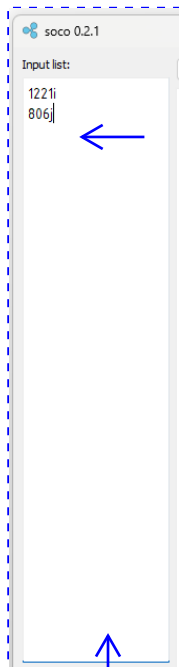


## 2. Listing ends of members you are interested in



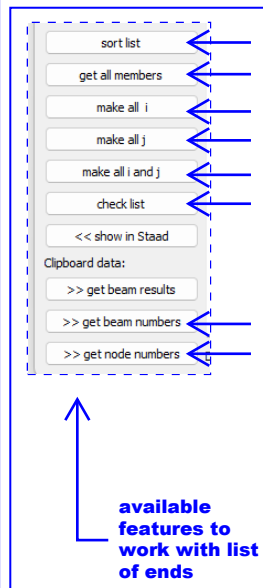
There are two options how to specify list of ends

Option 1. Just write it manually



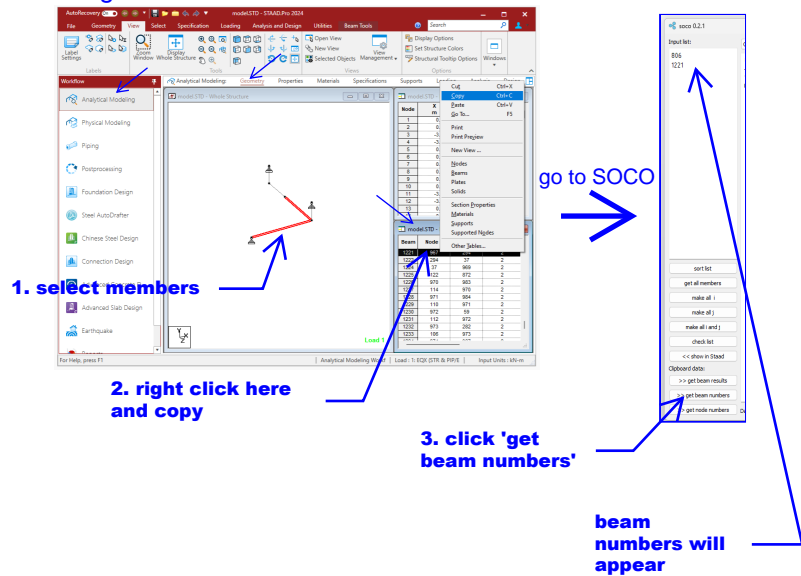
List of ends need to be specified here

Option 2. Use Soco build in features that make it easier to create and manage the list

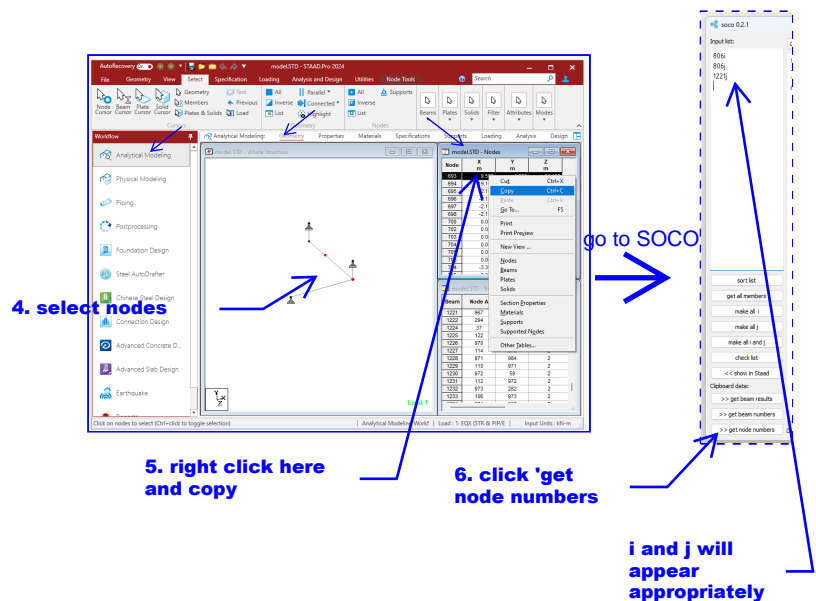


Specifying list of ends based on Staad member and point selection is shown below.

First get beam numbers based on Staad selection:

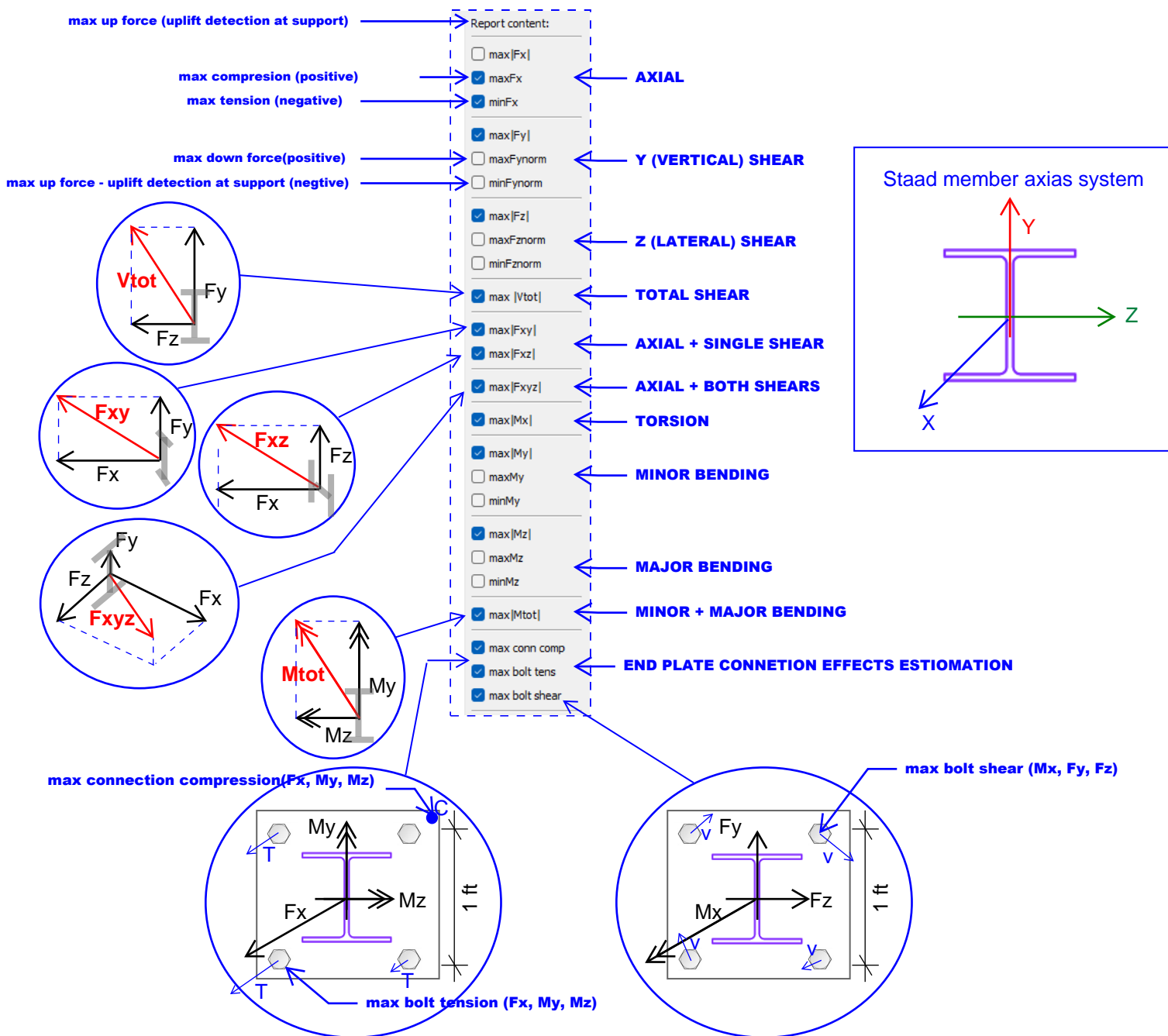


.. then get node numbers based on Staad selection to define beam ends (i, j):

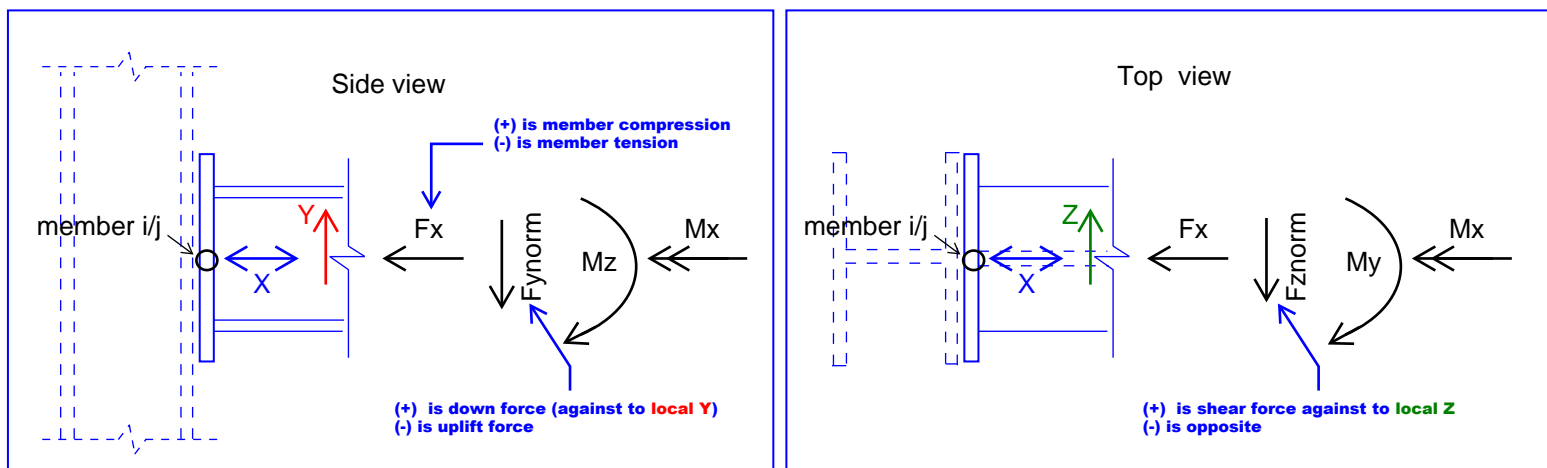


### 3. Decide what force criteria should be checked to find critical load cases

There are several options that can be selected to get output report, see below.



#### Force sign convention



## 4. Generating output report

soco 0.2.1

Input list:

- 22i
- 22j
- 206j
- 207i
- 207j
- 429i
- 429j
- 432i
- 432j
- 433i
- 433j
- 489i
- 489j
- 490i
- 490j
- 491j
- 779i
- 779j
- 780i
- 780j
- 828i
- 828j

sort list

get all members

make all i

make all j

make all i and j

check list

<< show in Staad

Clipboard data:

- >> get beam results
- >> get beam numbers
- >> get node numbers

GET REPORT ☐ long report ☐ Plot ☐ Fx-My ☐ Fx-Mz ☐ Fx-Mtot ☐ Mz-My ☐ [Fz]-[Fy] ☐ norm Fz-Fy ☐ [Mx]-[Vtot] ☐ plot annotation

Print report App info

Report content:

- ☐ max[Fx]
- ☒ maxFx
- ☒ minFx
- ☐ max[Fy]
- ☐ maxFynorm
- ☐ minFynorm
- ☒ max[Fz]
- ☐ maxFznorm
- ☐ minFznorm
- ☒ max [Vtot]
- ☒ max[Fxy]
- ☒ max[Fxz]
- ☒ max[Fxyz]
- ☒ max[Mx]
- ☒ max[My]
- ☐ max[Mz]
- ☐ minMy
- ☒ max[Mz]
- ☐ maxMz
- ☐ minMz
- ☒ max[Mtot]
- ☒ max conn comp
- ☒ max bolt tens
- ☒ max bolt shear

Set preset: Frame

click 'GET REPORT'

Results for: 1 22i 22j 206j 207i 207j 429i 429j 432i 432j 433i 433j 489i 489j 490i 490j 491j 779i 779j 780i 780j 828i 828j

Force unit = [kN], Moment unit = [kNm]

EXTRAORDINARY CASES LIST

LOC	TYPE	LC	NODE	Fx	Fy	Fz	Mx	My	Mz
700j	max Fx	36.862	2078	36.862	-2.246	2.843	-0	-0	0
22j	min Fx	-40.162	2008	-40.162	1.032	-41.020	-0	-0	-0
409j	max Fy	40.411	2008	43	-40.024	-40.411	3.29	0.290	2.843
22j	max Fz	41.020	2008	44	-40.162	1.032	-41.020	-0	-0
22j	max Fy/Fz	41.061	2008	44	-40.162	1.032	-41.020	-0	-0
409j	max Fxy	81.443	2008	43	-40.024	-40.411	3.29	0.290	2.843
22j	max Fxz	83.240	2008	44	-40.162	1.032	-41.020	-0	-0
22j	max Fxyz	83.297	2008	44	-40.162	1.032	-41.020	-0	-0
491j	max Mx	4.288	2076	938	-23.028	18.128	-17.107	4.288	8.894
22i	max My	32.763	2008	43	-41.307	0.907	-40.079	0	32.763
409j	max Mz	31.103	2008	43	-40.024	-40.411	3.29	0.290	2.843
22j	max conn comp (N-M)	2076	43	-24.307	-29.748	-21.929	0.927	-14.947	21.976
409j	max bolt tens (N-M)	2077	43	-38.337	-38.980	18.329	-0.04	10.881	24.120

Compressed list of load cases:

LOC	LC	NODE	Fx	Fy	Fz	Mx	My	Mz
700j	2073	280	36.862	-2.246	2.843	-0	-0	0
22j	2008	44	-40.162	1.032	-41.020	-0	-0	-0
409j	2008	43	-40.024	-40.411	3.29	0.290	2.843	31.103
491j	2076	938	-23.028	18.128	-17.107	4.288	8.894	-10.414
22j	2008	43	-41.307	0.907	-40.079	0	32.763	0.000
409j	2076	43	-24.307	-29.748	-21.929	0.927	-14.947	21.976
409j	2077	43	-38.337	-38.980	18.329	-0.04	10.881	24.120
928i	2077	289	-13.969	31.288	-7.714	-4.176	1.822	10.928

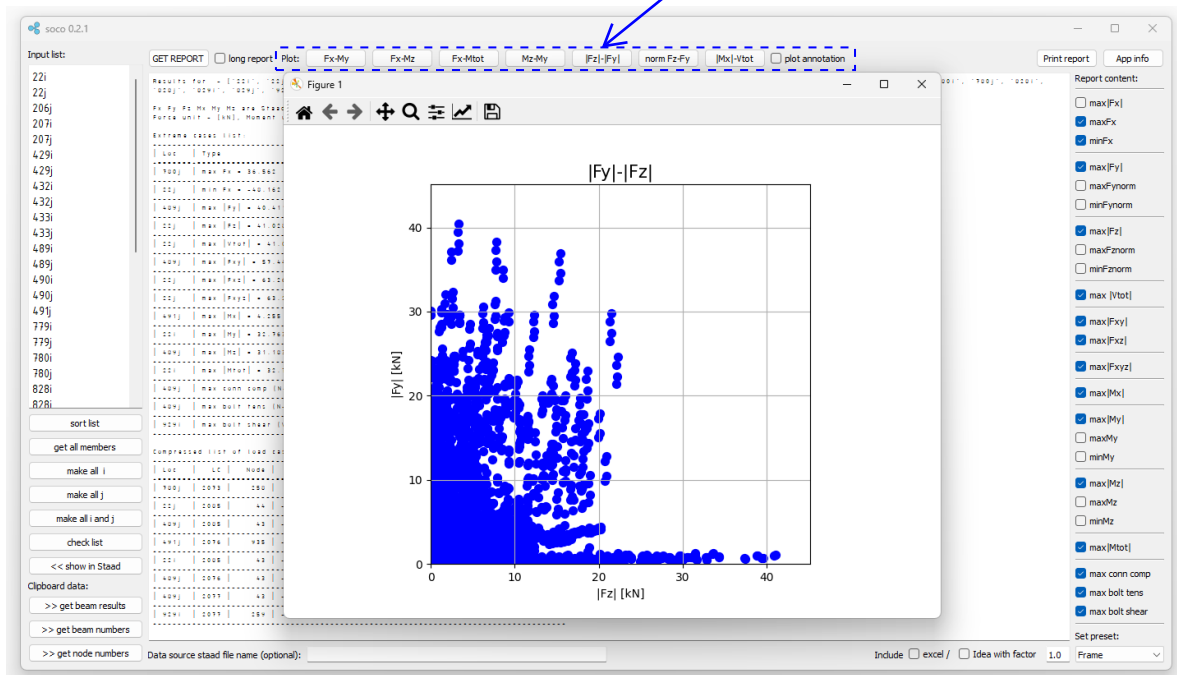
Data source staad file name (optional):

Include ☐ excel / ☐ Idea with factor 1.0

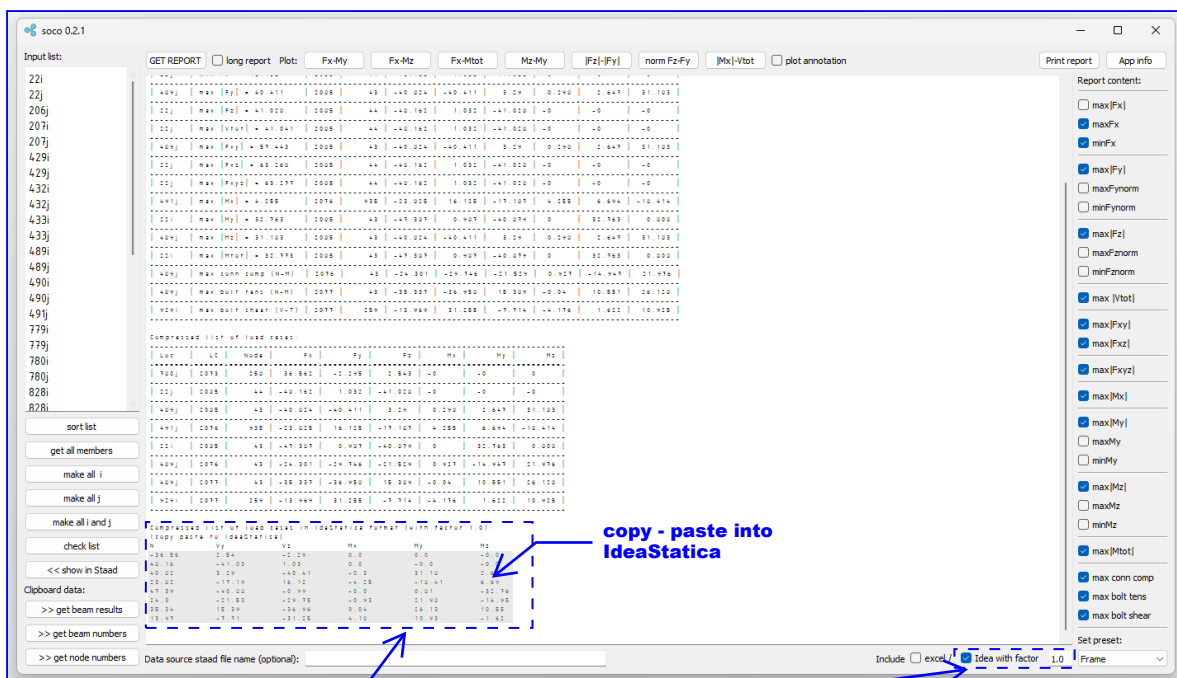
# Additional features

## Plots

plots that visualize forces for listed ends



## Transferring force to IdeaStatica



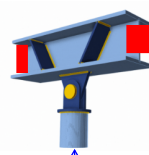
### IdeaStatica input

Copy area as show above.

In IDEA StatiCa Connection, select the XLS Import command from the ribbon. Finally, select the indicated cell below and Paste (Ctrl+V) the values.

Name	Member	Position	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
EE2	8	End	10.0	30.0	30.0	40.0	50.0	60.0

"One branch loaded" model example



Note. This procedure is assumed to be used for IdeaStatica connection model with only one branch loaded.

## Showing Staad model file name in report

optional Staad model name - if specified it will be shown at the top of the report

## Highlighting members and nodes in Staad

show in staad highlights members and nodes in Staad so you can see what members and ends are listed in SocO (make sure you have only one Staad instance open)

- END OF TUTORIAL -

Project website:  
<https://github.com/lukaszlab/soco>

Download latest version from:  
<https://github.com/lukaszlab/soco/releases>