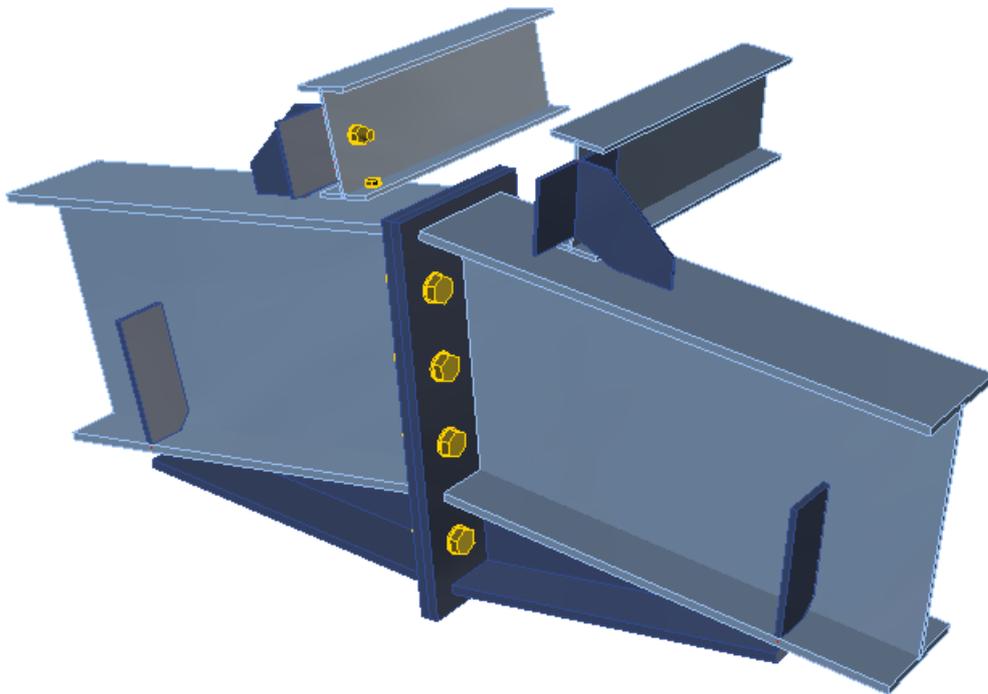


IDEA StatiCa Steel - Tutorial



Advance Steel link

This tutorial will show how to activate and use the link between Autodesk Advance Steel and IDEA StatiCa Connection.

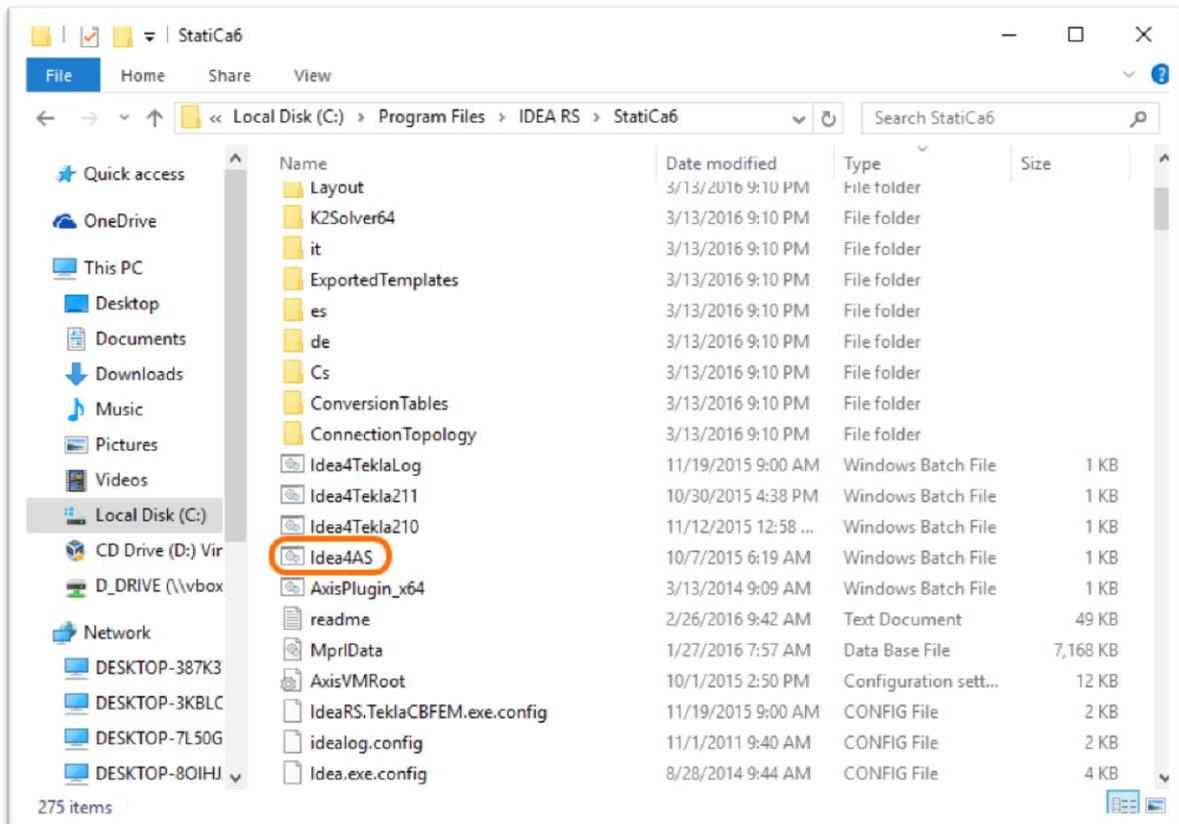
Advance Steel

How to activate the link

1. Autodesk Advance Steel 2016 with update 64-Bit UR2 (dated 3.9.2015) or Advance Steel 2017 must be installed on the computer.
2. Download and install the latest version of **64-bit IDEA StatiCa**.
Enhanced edition is required.
3. After installation of both programs, run file **Idea4AS2016.bat** or **Idea4AS2017.bat** (according to installed Advance Steel version) in the folder where IDEA StatiCa was installed (c:\Program Files\IDEA RS\StatiCa6).

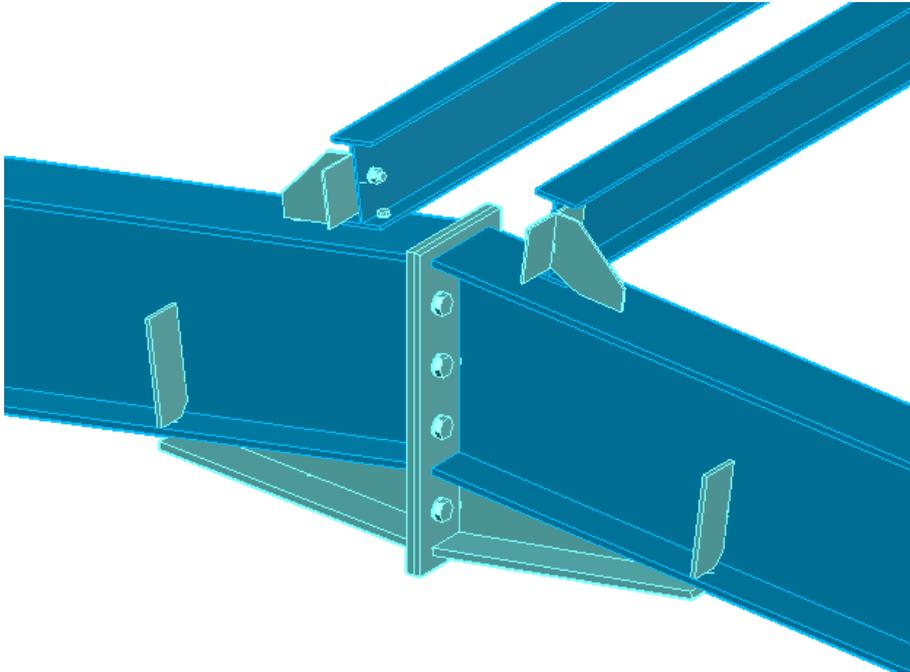
Windows administrator rights are necessary for proper processing of batch files.

Run this command again if you reinstalled either of the programs, moved the installation folder or when upgrading to a newer version of IDEA StatiCa.

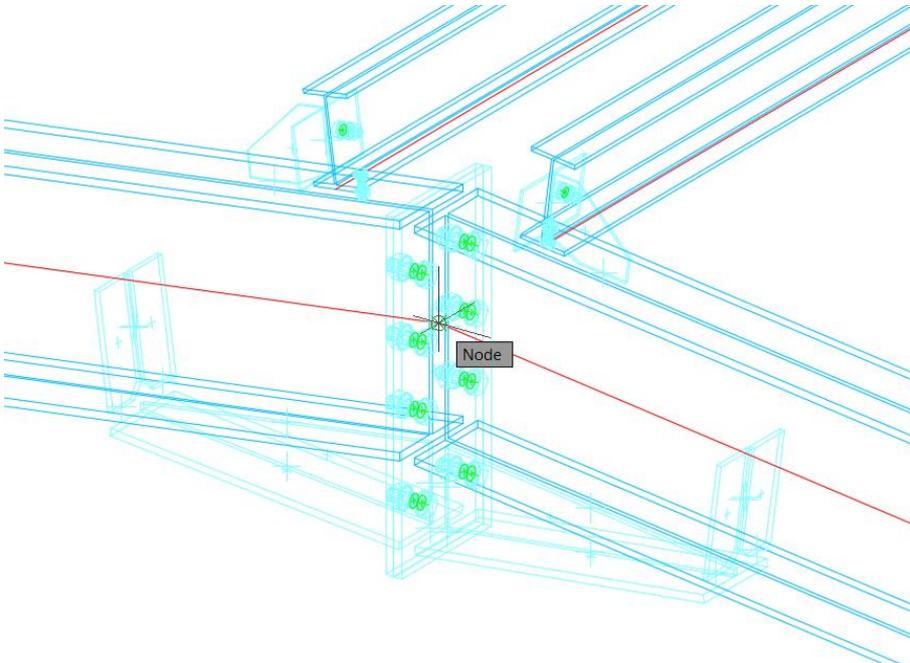


How to use the link

1. Open attached project in Advance Steel



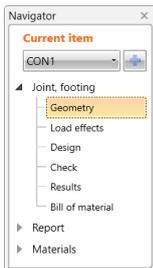
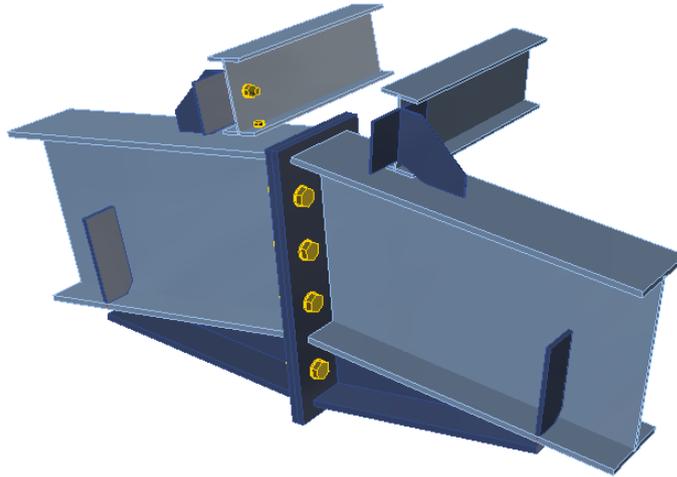
2. Start the link by typing of command CONCHECK
3. Select a joint **node**



4. Select **members** and finish selection by the right mouse button.
First selected member will be set as a bearing one in IDEA StatiCa Connection.
5. Select all joint **elements** (plates, bolts, welds) and finish by the right mouse button.

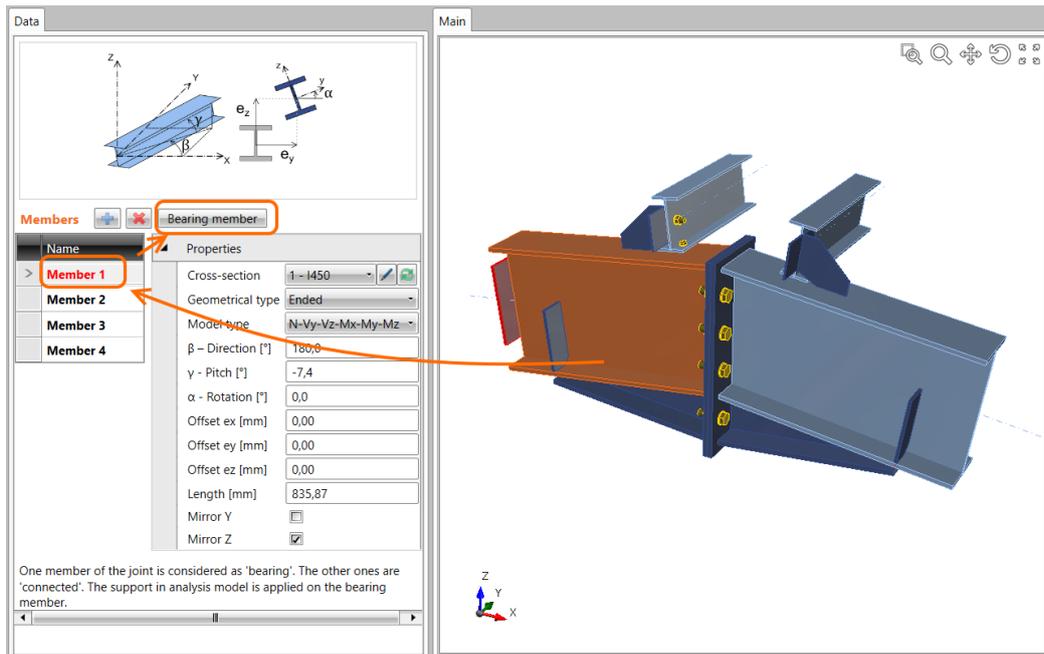
IDEA StatiCa Connection

Automatic data transfer is started and IDEA StatiCa Connection with generated project is launched.



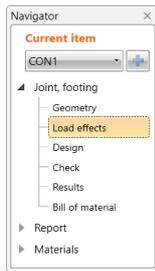
Geometry

All members were added automatically. We set column as **“bearing member”**.

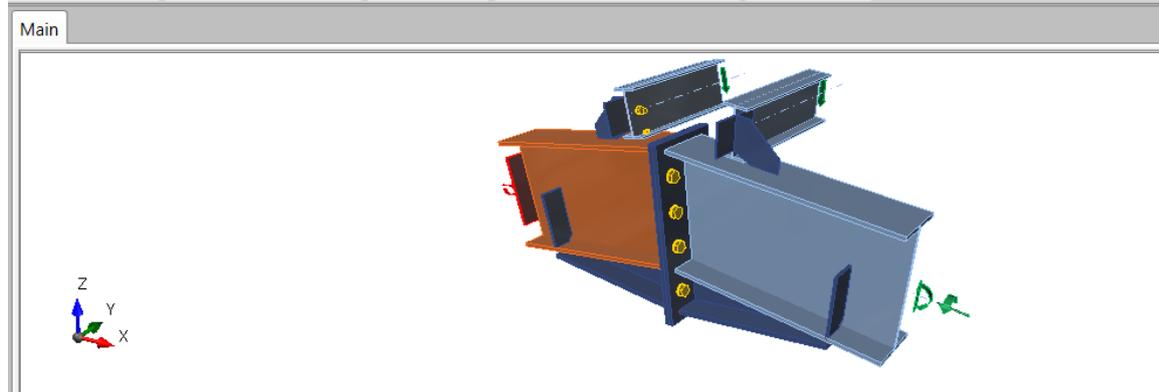


Steel connection design reinvented – any topology, any loading, in minutes. Check of joint/connections acc. to EC/AISC. Unique CBFEM method. Get more resources at www.idea-rs.com and www.ideastatica.com

Load effects



We add a new load effect by  icon and activate **Check equilibrium**. Next we define values of internal forces into the table. More load cases can be added.



Data

Load effects   Import

Internal forces Clean Copy X position

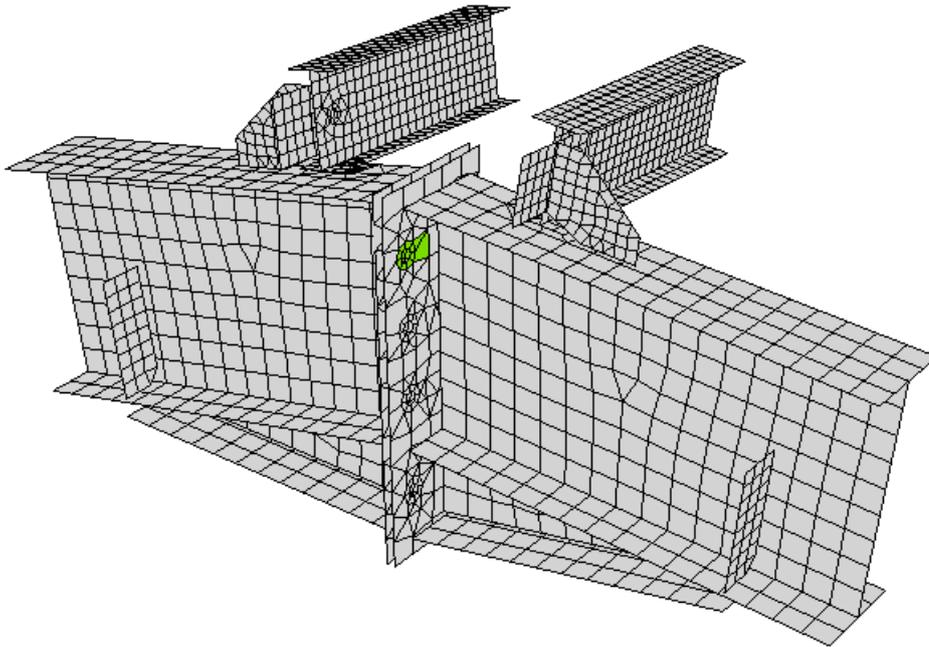
Name	Description	Member	Position	X [mm]	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
LE1		Member 1	End	0,00	-20,0	0,0	12,4	-0,9	90,0	0,0
		Member 2	End	0,00	-20,0	0,0	12,4	0,9	90,0	0,0
		Member 3	End	60,00	0,0	0,0	-15,0	0,0	0,0	0,0
		Member 4	End	60,00	0,0	0,0	-15,0	0,0	0,0	0,0

Check of a structural steel joint

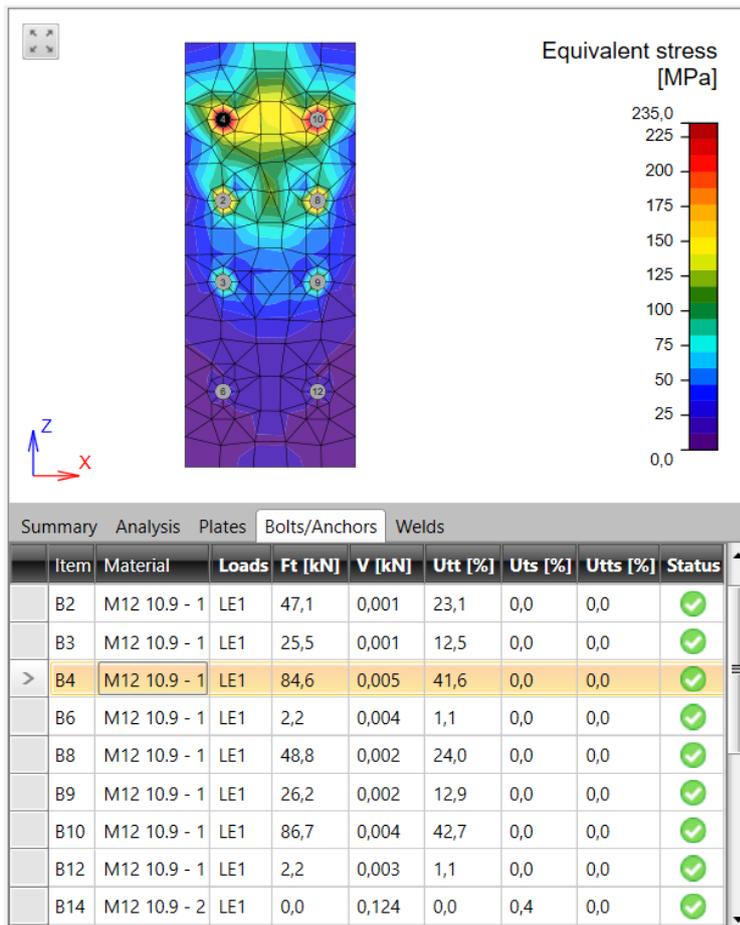


Nonlinear analysis is started by icon  from the top ribbon. Analysis model is automatically generated, calculation is performed and we can check results.

We activate **Strain check**, **Bolt forces**, **Mesh** and **Deformed** from the ribbon to get a full picture of what is happening in the joint. Everything is displayed in the 3D window.



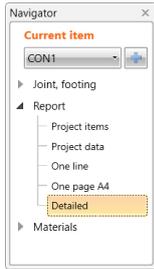
All values can be checked in detailed in the tables and 2D window. For example to display check of bolts we select tab **Bolts/Anchors** tab. We can also activate icon **Equivalent stress** from the ribbon.



Steel connection design reinvented – any topology, any loading, in minutes. Check of joint/connections acc. to EC/AISC. Unique CBFEM method. Get more resources at www.idea-rs.com and www.ideastatica.com

Report

IDEA StatiCa offers three types of output reports – one line, 1 page and detailed.



Beams and columns

Name	Cross-section	β -Direction [°]	γ -Pitch [°]	α -Rotation [°]	Offset ey [mm]	Offset ez [mm]
B1	3 - Iw700x600	0,0	0,0	0,0	0	0
B2	3 - Iw700x600	180,0	0,0	0,0	0	0

Material
Steel: S 235 (EN)
Bolts: M24 10.9

Load effects

Name	Member	Pos.	N [kN]	Vy [kN]	Vz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
LE 1	B2	End	2000,0	0,0	-60,0	0,0	150,0	0,0

Summary

Name	Value	Check status
Analysis	Applied loads : 100,0%	
Plates	1,6 < 5%	OK
Bolts	97,6 < 100%	OK
Welds	89,0 < 100%	OK

Code setting

Item	Value	Unit	Reference
γ_{M0}	1,00	-	
γ_{M1}	1,00	-	EN 1993-1-1: 6.1
γ_{M2}	1,25	-	EN 1993-1-1: 6.1
γ_c	1,50	-	EN 1993-1-1: 6.1
γ_{Mst}	1,20	-	EN 1992-1-1: 2.4.2.4
Joint coefficient β	0,67	-	ETAG 001-C: 3.2.1
Effective area - influence of mesh size	0,10	-	EN 1993-1-8: 6.2.5
Limit plastic strain	0,25	-	
Weld stress evaluation	0,05	-	EN 1993-1-8
Detailing	Average stress	-	EN 1993-1-5
Distance between bolts [d]	No	-	
Distance between bolts and edge [d]	2,20	-	EN 1993-1-8: tab 3.3
Concrete cone breakout resistance	1,20	-	EN 1993-1-8: tab 3.3
	Yes	-	ETAG 001-C

Value	Check status
Applied loads : 100,0%	OK
100%	OK
100%	OK
100%	OK

Load case	σ_{Ed} [MPa]	ϵ_{Pl} [1e-4]	Check status
20 LE 1	235,8	38,6	OK
20 LE 1	130,4	0,0	OK
12 LE 1	235,2	11,3	OK
20 LE 1	235,8	38,7	OK
20 LE 1	128,9	0,0	OK
12 LE 1	235,3	13,0	OK
20 LE 1	238,3	157,2	OK
20 LE 1	238,4	161,2	OK

f_y [MPa]	ϵ_{lim} [1e-4]
235,0	500,0

Strain check [%]

150%
100% (5,00)
1,91
0%

Structural steel joint was modelled, designed and checked

Thank you for spending time on this example. For further information please visit our website or drop us an email to info@idea-rs.com.

IDEA StatiCa team