ANSYS 12 - Beam - Step 4

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Step 4: Setup (Physics)

We need to specify point BC's at *A*, *B*, *C* and *D*.
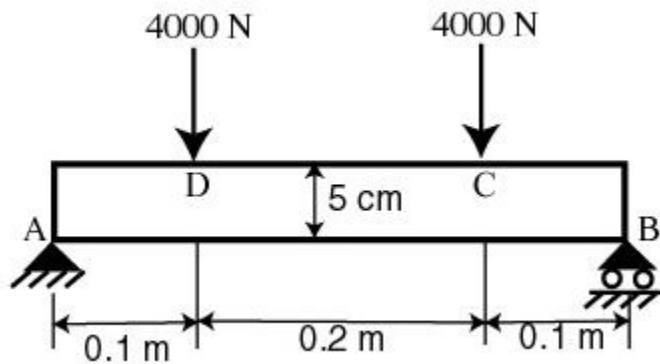
Let's start with setting up boundary condition at A.
Outline > Static Structural (A5) > Insert > Remote Displacement
Select point A in the *Graphics* window and click *Apply* next to Geometry under *Details of "Remote Displacement"*. Enter 0 for all UX, UY, UZ, ROTX and ROTY except for ROTZ. Let ROTZ to be free.

Details of "Remote Displacement"

Scope	
Scoping Method	Geometry Selection
Geometry	1 Vertex
Coordinate System	Global Coordinate System
☐ X Coordinate	0. m
☐ Y Coordinate	0. m
☐ Z Coordinate	0. m
Location	Click to Change

Definition	
Type	Remote Displacement
☐ X Component	0. m (ramped)
☐ Y Component	0. m (ramped)
☐ Z Component	0. m (ramped)
☐ Rotation X	0. ° (ramped)
☐ Rotation Y	0. ° (ramped)
Rotation Z	Free
Suppressed	No

Let's move on to setting up boundary condition B.

Outline > Static Structural (A5) > Insert > Remote Displacement

Select point B in the *Graphics* window and click *Apply* next to Geometry under *Details of "Displacement 2"*. Enter 0 for all UY, UZ, ROTX and ROTY except for ROTZ. Let UX and ROTZ to be free.

Details of "Remote Displacement 2"

Scope	
Scoping Method	Geometry Selection
Geometry	1 Vertex
Coordinate System	Global Coordinate System
☐ X Coordinate	0.4 m
☐ Y Coordinate	0. m
☐ Z Coordinate	0. m
Location	Click to Change

Definition	
Type	Remote Displacement
X Component	Free
☐ Y Component	0. m (ramped)
☐ Z Component	0. m (ramped)
☐ Rotation X	0. ° (ramped)
☐ Rotation Y	0. ° (ramped)
Rotation Z	Free
Suppressed	No

We can move on to setting up point force at point C and D.

Outline > Static Structural (A5) > Insert > Force

Select point C in the *Graphics* window and click *Apply* next to Geometry under *Details of "Force"*. Next to *Define By*, change *Vector* to *Components*. Enter -4000 for *Y Component*.

Details of "Force"

Scope	
Scoping Method	Geometry Selection
Geometry	1 Vertex
Definition	
Type	Force
Define By	Components
Coordinate System	Global Coordinate System
☐ X Component	0. N (ramped)
☐ Y Component	-4000. N (ramped) ▶
Suppressed	No

Do the same for point D.

Check that you have for all the boundary conditions. Click on *Static Structural (A5)* to view this in Graphics window.
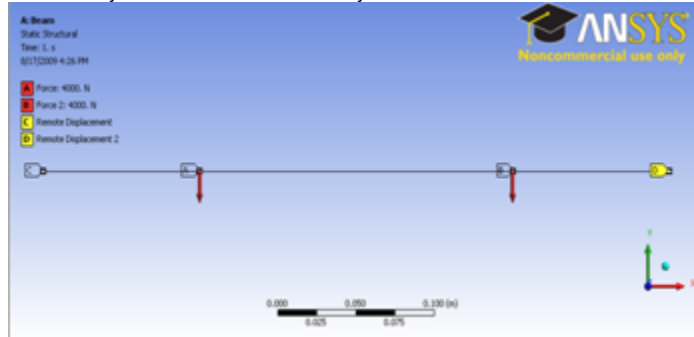
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