# **TI FTOOL**

# Tutorial for creation and analysis of a plane truss and result visualization

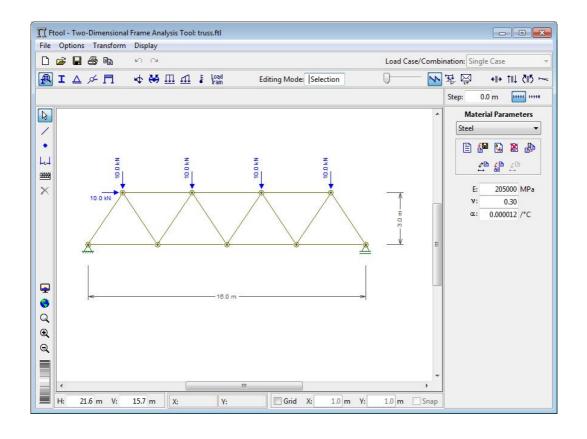
Educational Version 3.00
August 2012
http://www.tecgraf.puc-rio.br/ftool

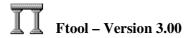
#### This file:

http://www.tecgraf.puc-rio.br/ftp\_pub/lfm/ftool300tutorialtruss.pdf

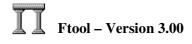
#### FTOOL model:

http://www.tecgraf.puc-rio.br/ftp\_pub/lfm/ftool300truss.ftl



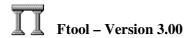


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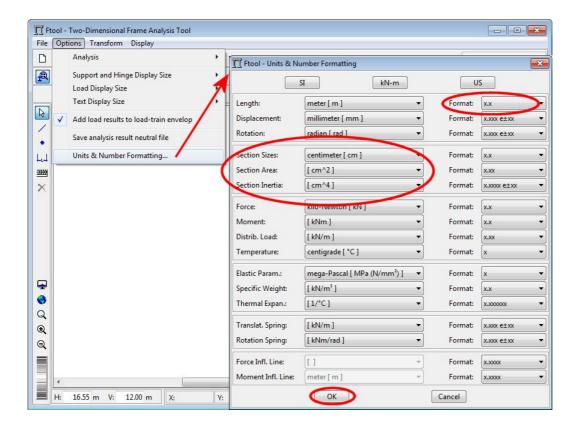


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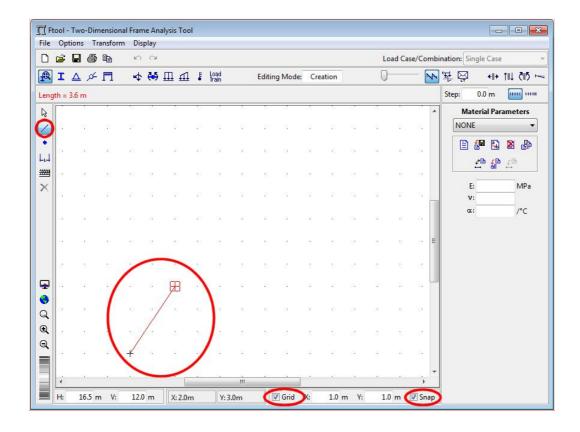
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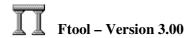


#### Specification of units and number formatting

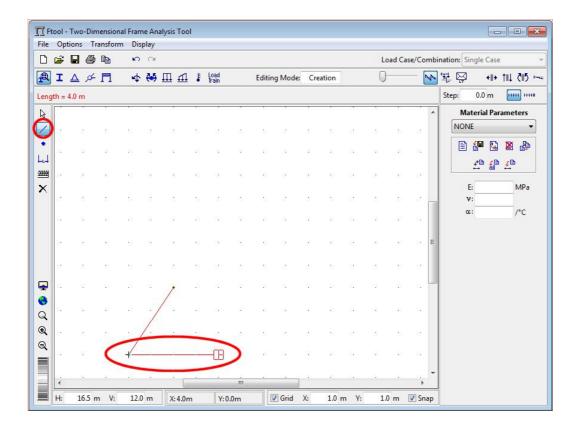


# Grid of coordinates and grid point spacing with attraction (*snap*); insertion of first member

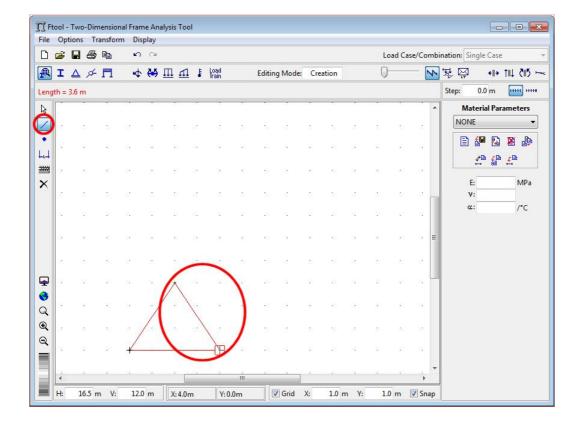


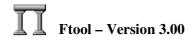


#### **Insertion of second member**

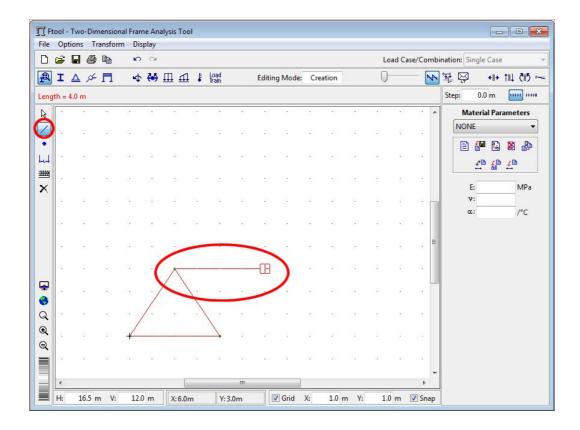


#### **Insertion of third member**

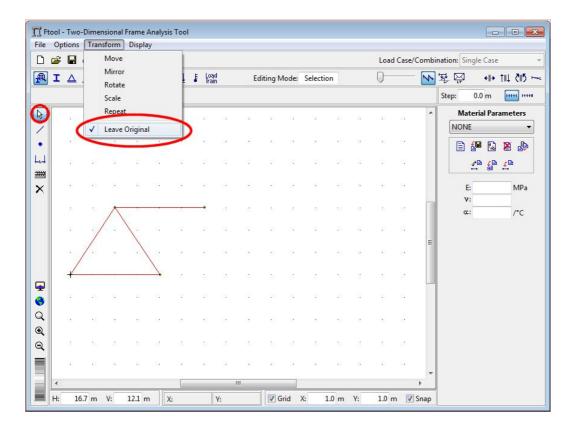


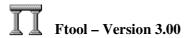


#### **Insertion of fourth member**

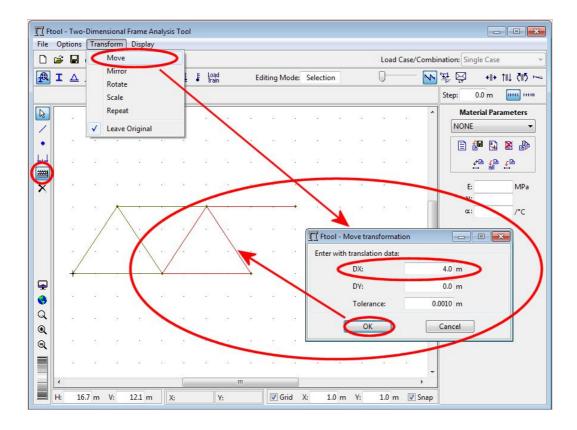


## Selection transform operation with copy (Leave Original)

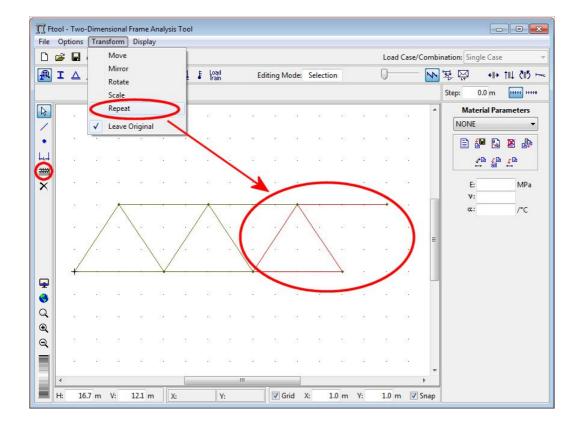


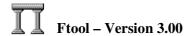


#### Translation operation (Move), with copy (Leave Original), in keyboard mode

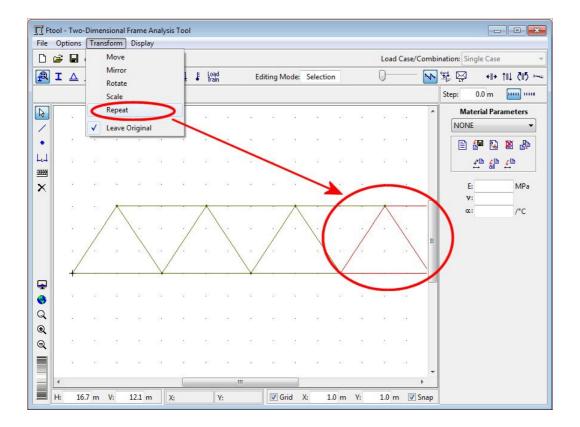


#### Repeat translation (Move) operation with copy (Leave Original)

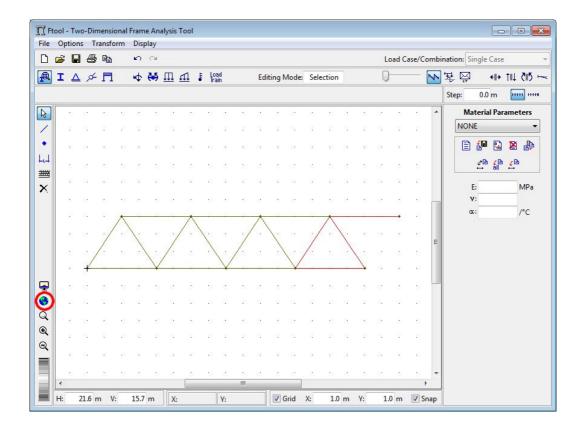


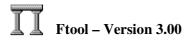


#### Repeat once more translation (Move) operation with copy (Leave Original)

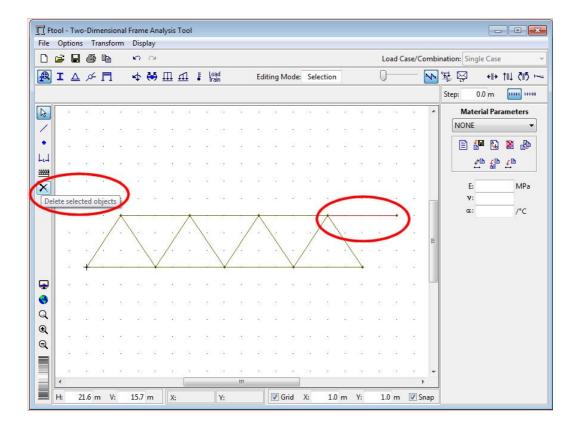


#### Fit image of entire model on screen

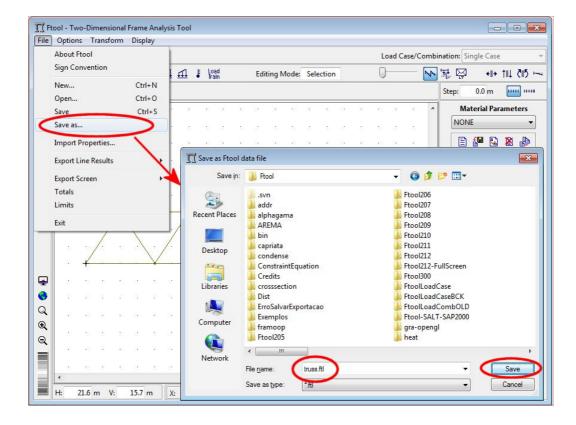


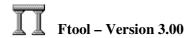


#### Delete dangling member remaining for last move-with-copy operation

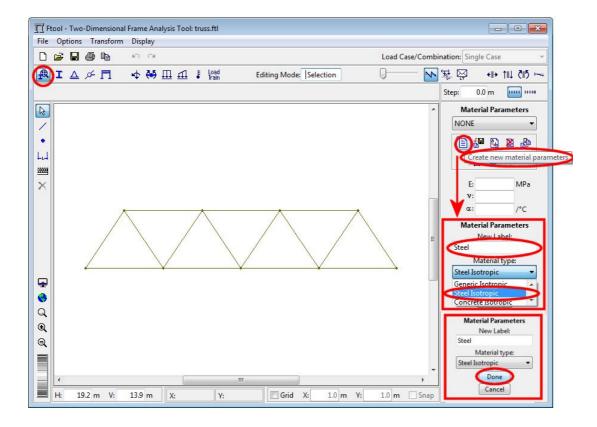


#### Create a file for truss model (command "Save as...")

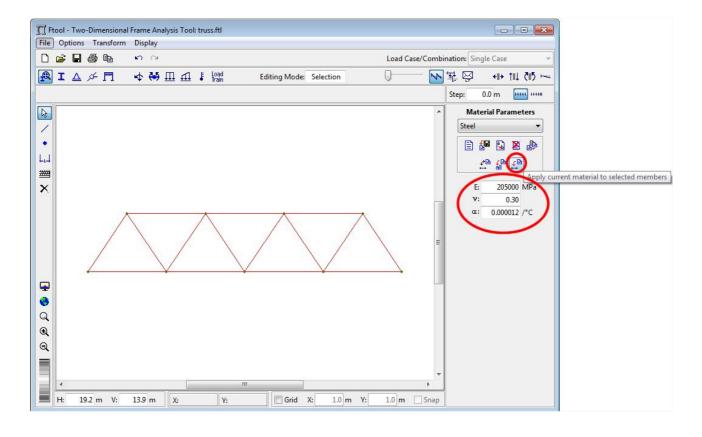


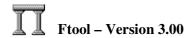


#### Creation of new material, selecting its type and name

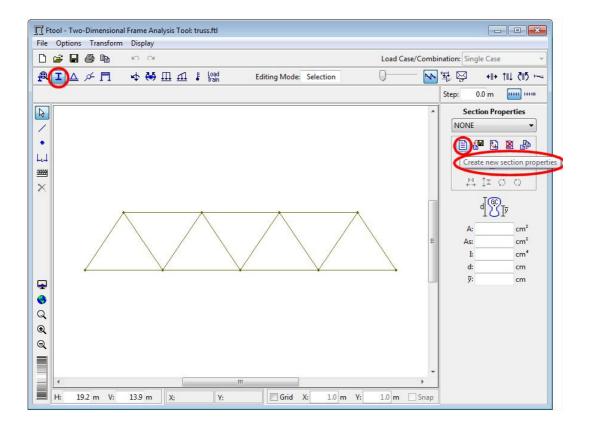


#### Assignment of created material to all selected members

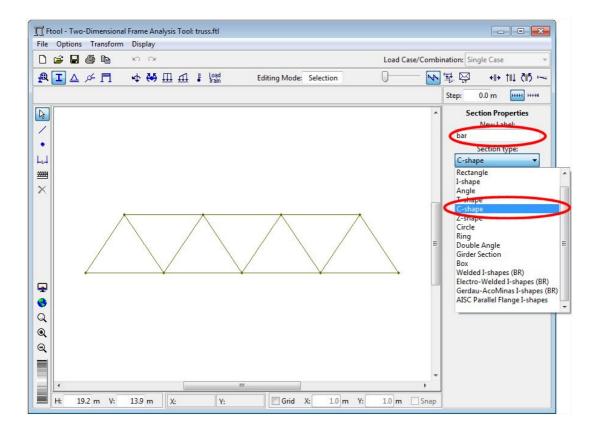


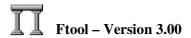


#### **Creation of new cross-section for all members**

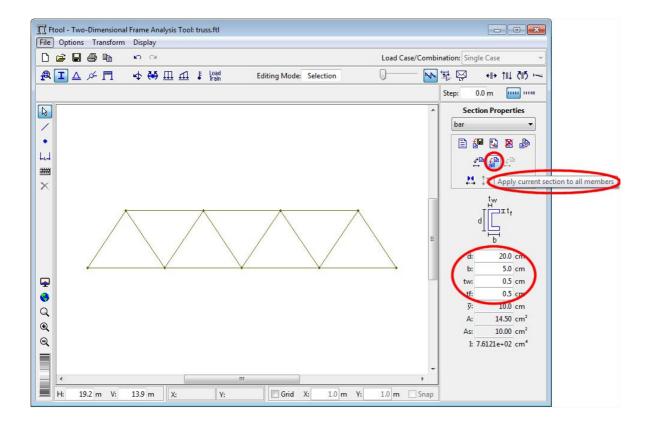


### Selection of C-shape cross-section type for all members

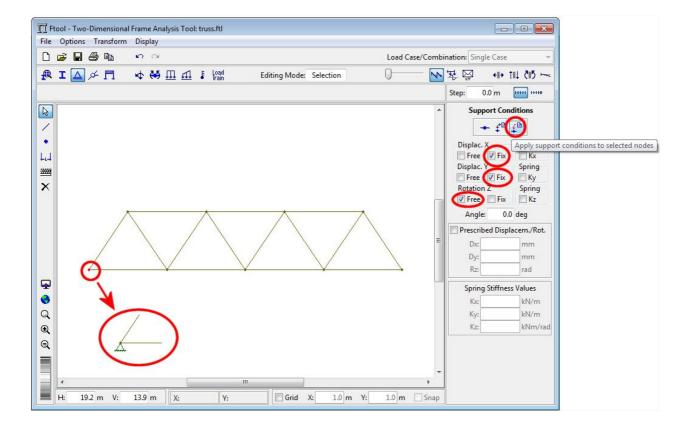


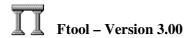


#### Definition of cross-section dimensions and assignment to all members

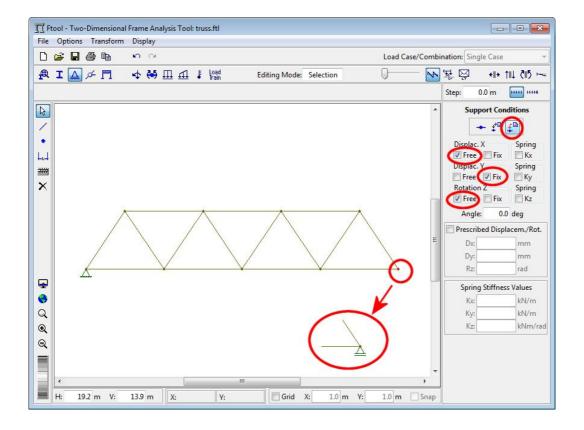


#### Definition of a pin support and assignment to left inferior node

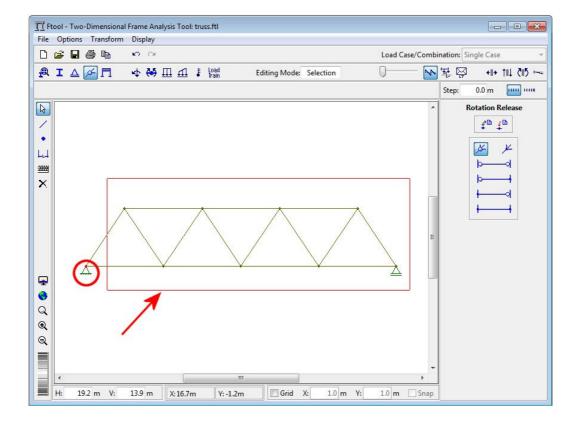


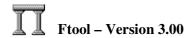


## Definition of a simple support and assignment to right inferior node

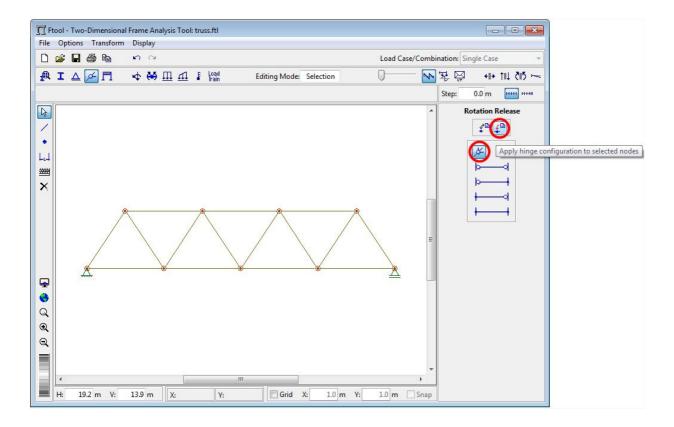


#### Selection of all nodes through a rectangular fence using the mouse

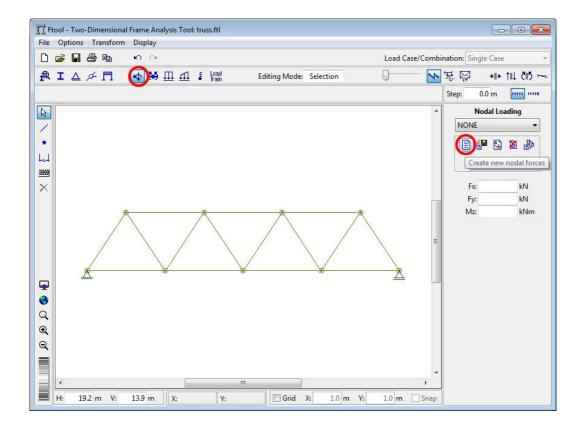




#### Application of a complete hinge to all selected nodes

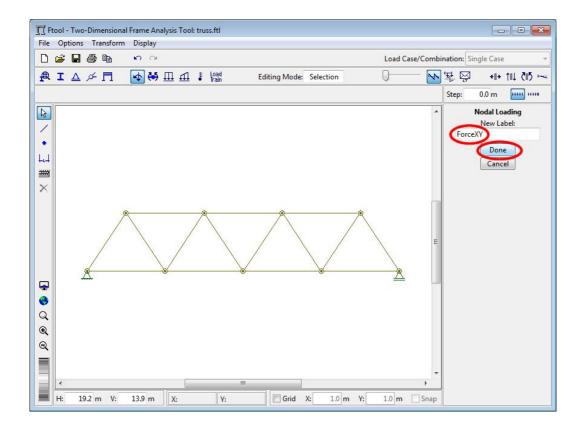


#### Creation of a concentrated force load for left superior node

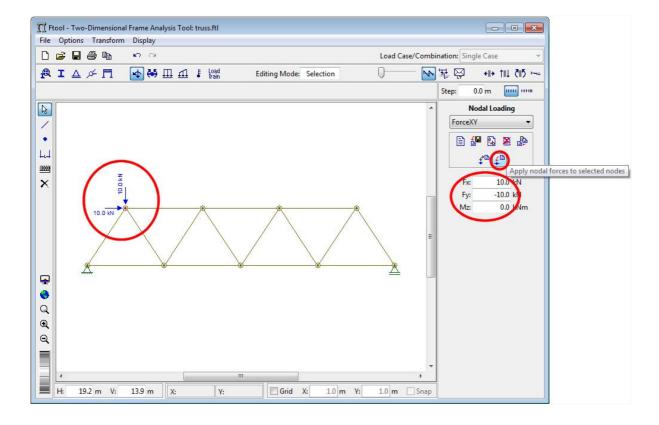


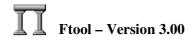


#### Definition of name of concentrated force load at left superior node

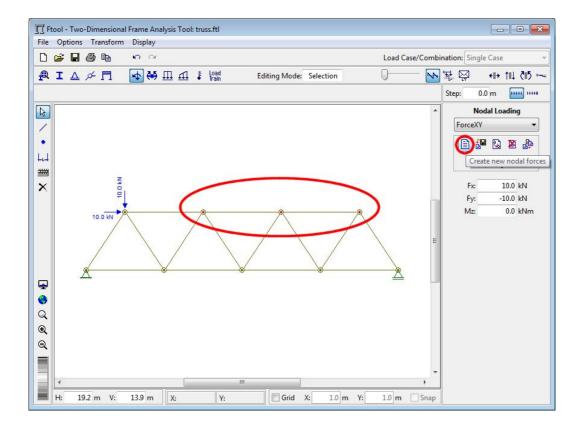


# Definition of X and Y component values of concentrated force load and application to left superior node

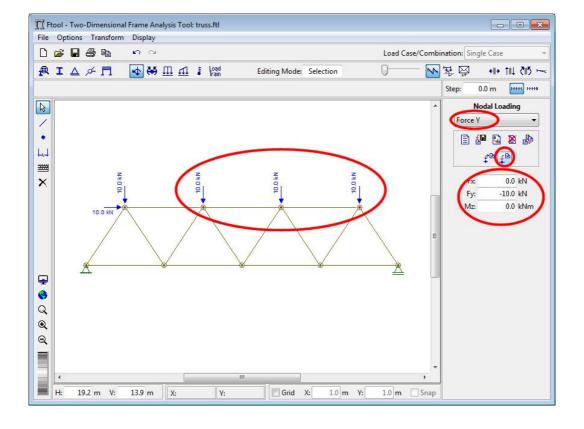


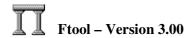


#### Creation of concentrated force load for the other superior nodes

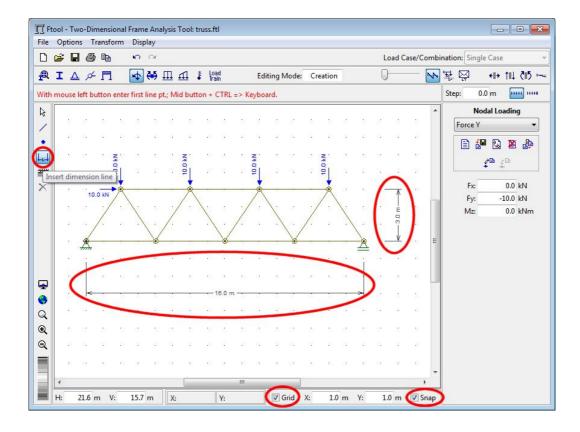


Definition of name and Y component value of concentrated force load and application to other superior nodes

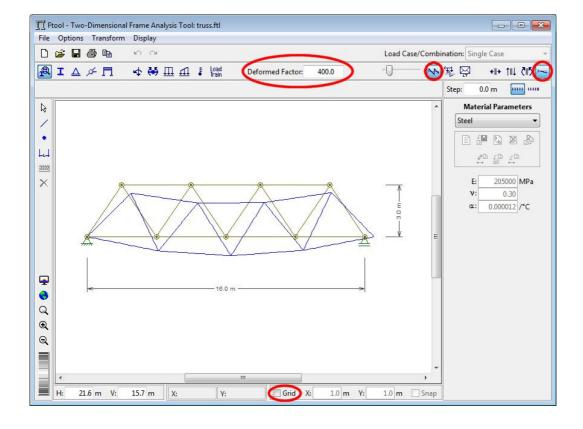


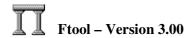


#### Creation of dimension lines to indicate model global dimensions

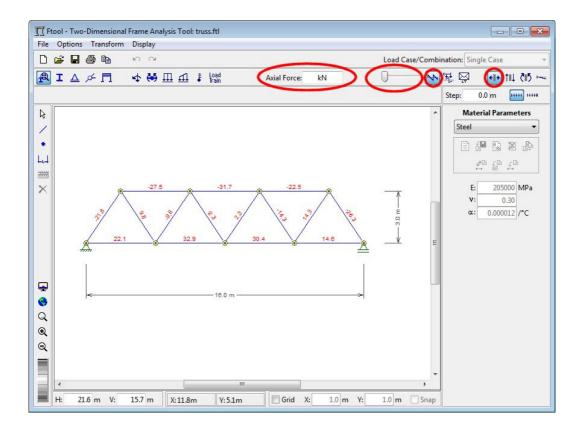


#### Visualization of model deformed configuration response





#### Visualization of axial force result in truss members



#### Visualization of support reactions

