
Chapter 1: HyperMesh Introduction

Getting Started

Opening and Saving Files

Working with Panels

Organizing a Model

Controlling the Display

HyperMesh Introduction: The User Interface

The screenshot shows the HyperMesh software interface with several key components labeled:

- File Edit View Collectors Geometry Mesh Connectors Materials Properties BCs Setup Tools Morphing Post XYPlots Preferences Applications Help** (Menu Bar)
- Session Model Mask Utility** (Tab Area)
- Entities Master Model 0** (Entity List)
- Toolbars** (Top and Left toolbars)
- Pull Down Menus** (Dropdown menus in the top toolbar)
- Graphics Area** (Central workspace)
- Tab Area:**
 - Utility Menu
 - Model Browser
 - Mask By Config
 - Etc.
- Panel** (Bottom toolbar)
- Menu Pages** (Right-side menu structure)
- Main Menu** (Bottom menu structure)
- Status Bar** (Bottom status bar)

planes	ruled	connectors	automesh	edit element	Geom
cones		HyperLaminate	shrink wrap	split	1D
spheres		composites	smooth	replace	2D
torus			qualityindex	detach	3D
			elem cleanup	order change	Analysis
				config edit	Tool
				elem types	Post

Status Bar

Modern GUI Environment: Menu Bar

The screenshot displays the HyperWorks software interface. At the top, a menu bar includes options like File, Edit, View, Collectors, Geometry, Mesh, Connectors, Materials, Properties, BCs, Setup, Tools, Morphing, Post, XYPlots, Preferences, Applications, and Help. Below this is a toolbar with various icons. The 'Mesh' menu is open, showing a list of actions and objects. A large blue arrow points from the top menu bar to the 'Mesh' dropdown menu.

Mesh Menu Items:

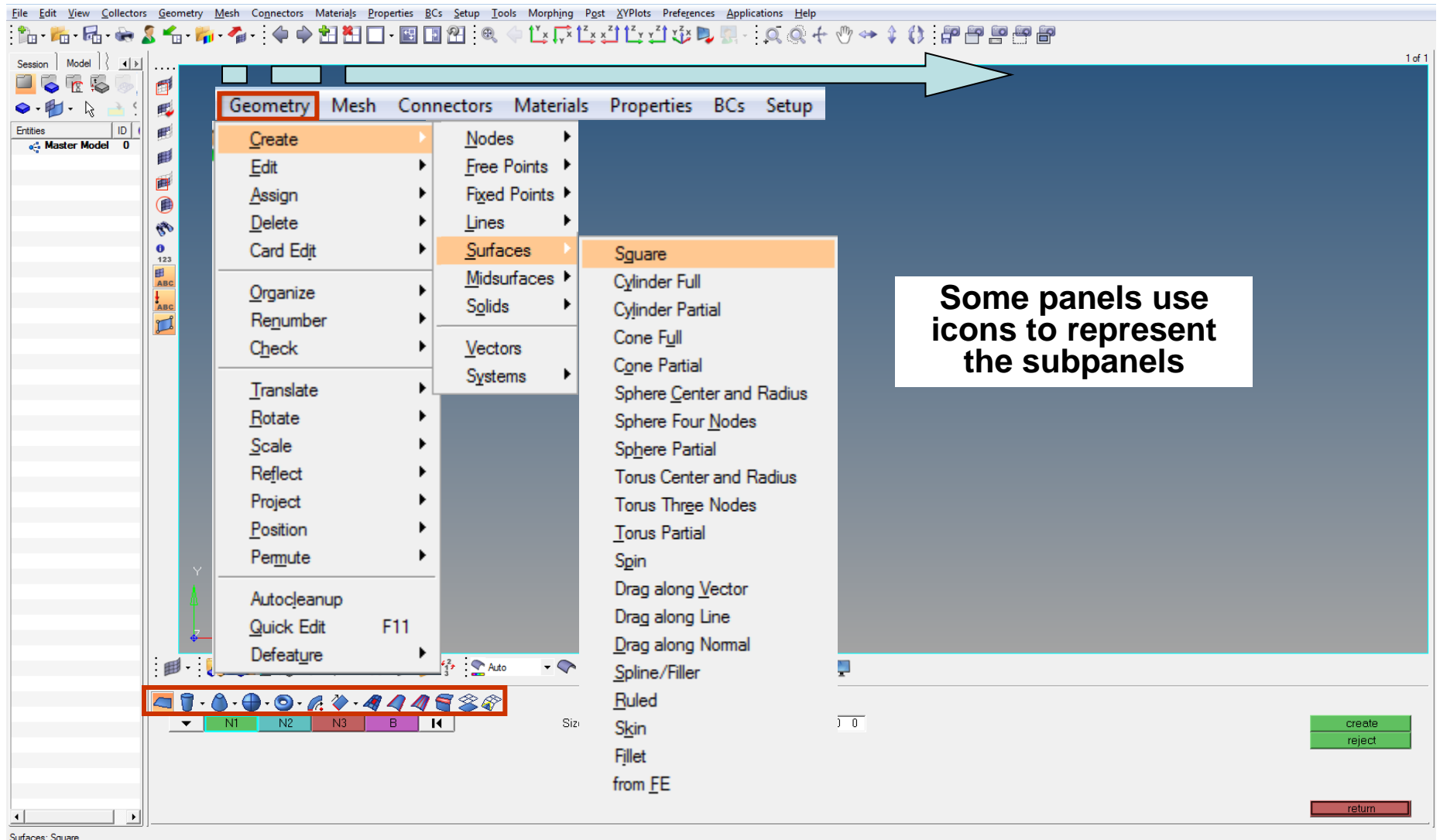
- Create
 - Line Mesh
 - 2D AutoMesh F12
 - Tetra Mesh
 - Solid Map Mesh
 - Voxel Mesh
 - Shrink Wrap Mesh
 - Acoustic Cavity Mesh
 - TetraMesh Process
- Edit
- Assign
- Delete
- Card Edit
- Organize
- Renumber
- Check
- Translate
- Rotate
- Scale
- Reflect
- Project
- Position
- Permute
- Quick Edit F11
- Cleanup Elements

Key Features of the Modern GUI Environment:

- Designed for “new” users to HyperMesh
 - Easily navigate to Panels
- Process Based Workflow
- Action / Object / Method Architecture
 - Action: Create, Edit, Delete, etc...
 - Object: on which to Perform Action
 - Method: by which to perform Action on Object
- Each menu controls specific HM Entities

The bottom of the interface shows a control panel for meshing, including options for element size, mesh type (quads), and various meshing parameters like 'elems to surf comp', 'first order', and 'keep connectivity'. There are also buttons for 'mesh', 'reject', 'unmeshed', 'failed', and 'return'.

Modern GUI Environment: Menu Bar



Some panels use icons to represent the subpanels

Standard Toolbar

The screenshot displays the HyperWorks software interface with the Standard Toolbar and several floating toolbars. The toolbars shown are:

- Standard**: Contains icons for file management (New, Open, Save, Import, Export, User Profile, Tci/Tk Tools).
- StandardViews**: Contains icons for standard, user-defined, and model view controls (Zoom, Rotate, Pan).
- 3DViewControls**: Contains icons for 3D view manipulation (Zoom, Rotate, Pan).
- HM-Checks**: Contains icons for various checks (Distance/Length, Mass Calc, Edges/Features/Faces, Normals, Penetration and Element Check).
- HM-Collectors**: Contains icons for creating/editing collectors (Delete, Card Edit, Organize, Renumber).
- BMPImageCa...**: Contains icons for the BMP Image Capture System (Copy to Clipboard or File, Capture Graphics Area, Capture Panel, Capture "free" Window, Capture Frame).

At the bottom of the interface, there is a table showing the structure of the Standard Toolbar:

nodes	lines	surfaces	solids	quick edit	Geom
node edit	line edit	surface edit	solid edit	edge edit	1D
temp nodes	length	defeature		point edit	2D
distance		midsurface		autocleanup	3D
points		dimensioning			Analysis
					Tool
					Post

• File Management (New, Open, Save, Import, Export, User Profile, Tci/Tk Tools)

• Standard, User Defined and Model View Controls (Zoom, Rotate, Pan)

• Not shown by Default, Customize from View Menu
 • Quick Access to Common "Checks" (Distance/Length, Mass Calc, Edges/Features/Faces, Normals, Penetration and Element Check)

• Suggested Method for Creating/Editing Collectors (Delete, Card Edit, Organize, Renumber)

• Not shown by Default, Customize from View Menu (Only on Win 32/64)
 • BMP Image Capture System (Copy to Clipboard or File, Capture Graphics Area, Capture Panel, Capture "free" Window, Capture Frame)

Display and Visualization Toolbars

- **Display controls *WHAT* is shown**
 - Mask Tools
 - Find
 - Element/Load Handles
- **Visualization controls *HOW* things are shown**
 - Color Modes
 - Shading Modes
 - 1D Beam Visualization
 - New Visualization Tab

nodes	lines	surfaces	solids	quick edit	<input checked="" type="checkbox"/> Geom <input type="checkbox"/> 1D <input type="checkbox"/> 2D <input type="checkbox"/> 3D <input type="checkbox"/> Analysis <input type="checkbox"/> Tool <input type="checkbox"/> Post
node edit	line edit	surface edit	solid edit	edge edit	
temp nodes	length	defeature		point edit	
distance		midsurface		autocleanup	
points		dimensioning			

HyperMesh Introduction: The User Interface

- **Graphics area** – displays the model
- **Toolbar** – Gives access to commonly used tools via icons
- **Pull Down Menu** – places functionality into groups, accessible via pull downs
- **Menu Pages** – divides the main menu into groups based on function
- **Main Menu** – contains “panels” grouped in columns
- **Panels** – menu items / functions for interacting with HyperMesh
- **Sub-panels** – divides panel into similar tasks related to panel’s main function
- **Command Window** – lets the user type in and execute tcl commands
 - Available through the *View* drop down menu (turned off by default)
- **Tab Area** – contains the following tabs:
 - Solver, Model, Utility, Include, Import, Export, Connector, Entity State, etc.
- **Status Bar** – shows status of operations being performed
 - Indicates the “current” Include file, Component Collector, and Load Collector


File Operations

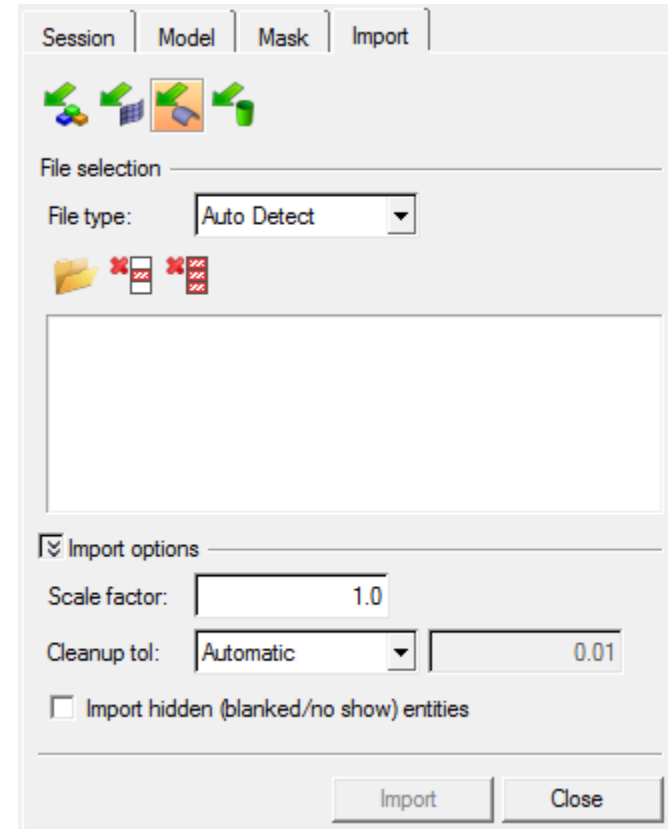
- **General terminology:**
 - ***Open*** : Loads a file into HyperMesh replacing the current session
 - ***Save*** : Saves the current session contents to the file name specified
 - ***Import*** : Loads a file into HyperMesh, merging with the current contents
 - ***Export*** : Saves data to the file name specified
 - Generally refers to file types other than a HyperMesh binary file

File Operations: The File Pull-down Menu

- **Open...** : Loads a HyperMesh file into current session
 - Replaces the model in current HyperMesh session
- **Save** : Saves the model in current HyperMesh session
 - File browser prompts for directory and file name if one doesn't exist
- **Save As...** : Opens file browser to specify directory and name to save current session
- **Import** : Merges / combines files with the model in the current HyperMesh session
 - Various types of files: HyperMesh, geometry (IGES, Step, etc.), finite element data (OptiStruct, Radioss, Nastran, Abaqus, Ansys, LS-Dyna, etc.)
 - Opens the Import browser
- **Export** : Writes data in current HyperMesh session to non-HyperMesh files types
 - IGES, OptiStruct, Radioss, etc.
 - Opens the Export browser allowing specification of directory and name
- **Recent Files** : A listing of HyperMesh files that have been worked on previously
 - Loads the file and replaces the model in the current session
- **Recent Imports** : A listing of files previously loaded into HyperMesh via Import

Importing Geometry

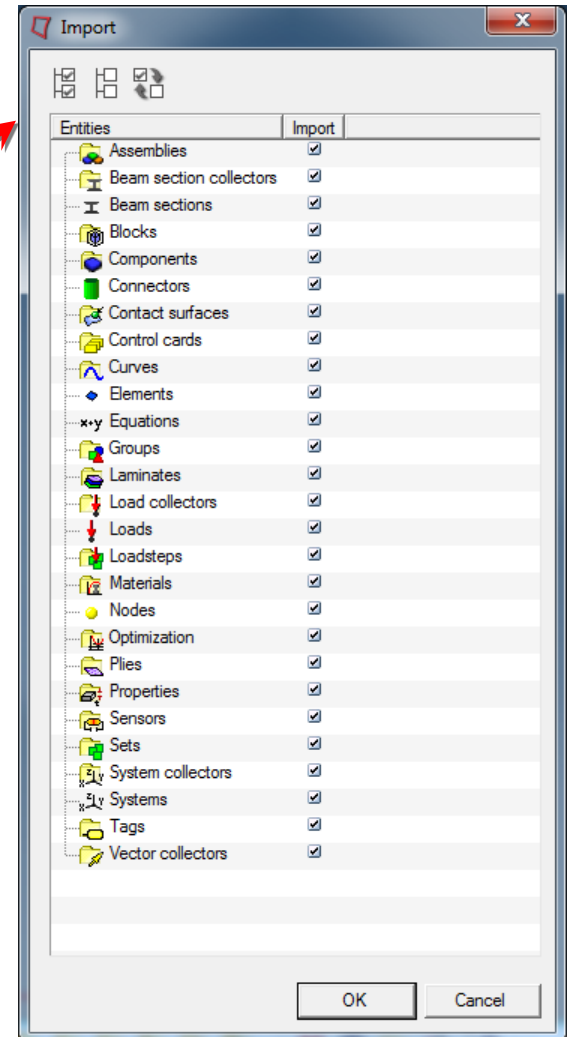
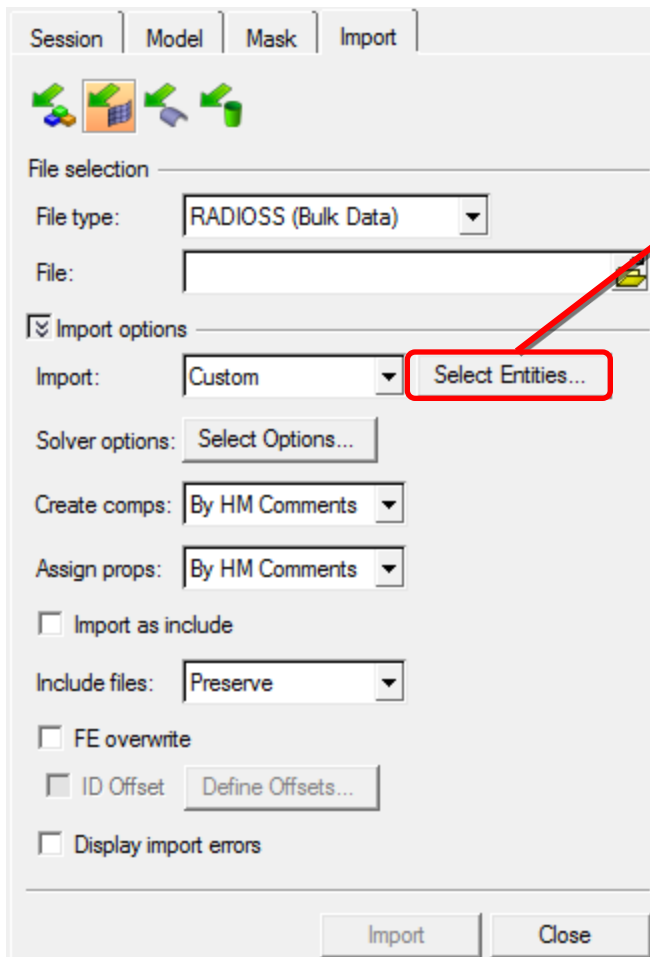
- Import geometry data via:
 - *File > Import > Geometry* drop-down menu
 - *Toolbar* >  > *Geometry*
- Common types of geometry files supported:
 - Unigraphics (NX2, NX3, NX4, NX5, NX6)
 - UG Part Browser
 - Import of *.prt files
 - Requires an installation of Unigraphics to be available
 - CATIA (V4 & V5)
 - import of *.model files
 - CATIA V5 license required to import V5 files
 - Pro/ENGINEER (Wildfire 2.0 & 3.0)
 - import of *.prt and *.asm files
 - IGES
 - Import of *.igs / *.iges files
 - STEP
 - import of *.stp files



Custom Import

Import tab

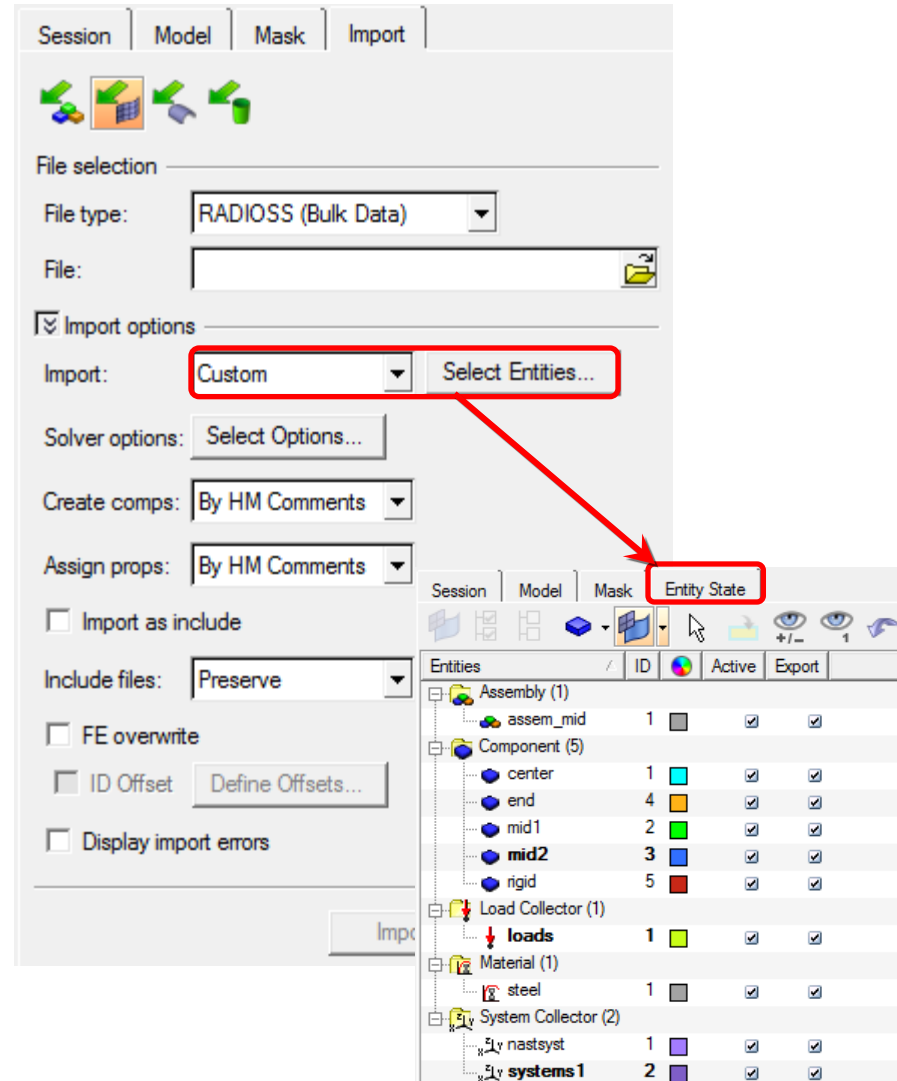
- Complete control over FE import
- Import multiple geometry files



Entity State Browser

Entity State Browser

- Available for all entities
- Removes inactive entities from any list in the browser and panels
- Removes inactive entities from display and they cannot be turned on until made active
 - Exception: Find brings inactive entities back onto the screen too and switches these entities to active
- Removes inactive entities temporarily from the "database"
- Selection by "all" selects only active entities



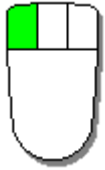
The screenshot displays the HyperWorks software interface. The top panel shows the 'Entity State Browser' dialog box with the following settings:

- File selection: File type: RADIOSS (Bulk Data), File: (empty)
- Import options: Import options, Import: Custom (highlighted with a red box), Select Entities... (highlighted with a red box and an arrow pointing to the Entity State panel)
- Solver options: Select Options...
- Create comps: By HM Comments
- Assign props: By HM Comments
- Import as include
- Include files: Preserve
- FE overwrite
- ID Offset Define Offsets...
- Display import errors

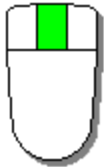
The bottom panel shows the 'Entity State' browser with the following table:

Entities	ID	Active	Export
Assembly (1)			
assem_mid	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Component (5)			
center	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
end	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
mid1	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
mid2	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
rigid	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Load Collector (1)			
loads	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Material (1)			
steel	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
System Collector (2)			
nastsyst	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
systems1	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

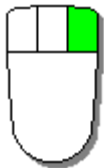
Display Control → Viewing: Mouse Buttons



- **Left mouse button**
 - +CTRL & drag for rotate
 - +CTRL & click on entity to change center of rotation
 - +CTRL & click in graphics area, off entities to reset center to middle of screen



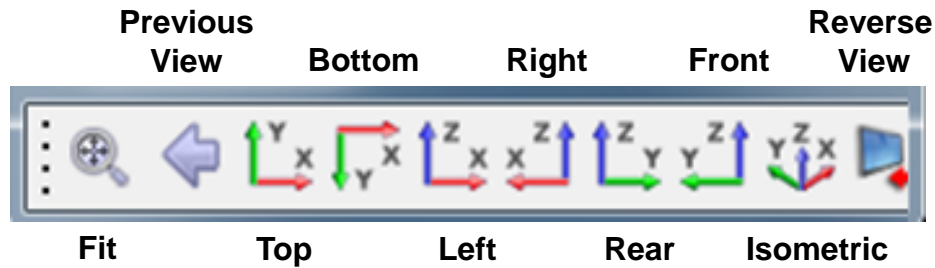
- **Middle mouse button**
 - +CTRL & drag for zoom
 - +CTRL & click for fit



- **Right mouse button**
 - +CTRL & drag for pan

Toolbars





Standard Views Toolbar







nodes	lines	surfaces	solids	quick edit	<input checked="" type="checkbox"/> Geom
node edit	line edit	surface edit	solid edit	edge edit	<input type="checkbox"/> 1D
temp nodes	length	defeature		point edit	<input type="checkbox"/> 2D
distance		midsurface		autocleanup	<input type="checkbox"/> 3D
points		dimensioning			<input type="checkbox"/> Analysis
					<input type="checkbox"/> Tool
					<input type="checkbox"/> Post

Display Control → 3D View Controls







  **Zoom In (+)**
  **Zoom Out (-)**





- Zoom in or out by dragging the mouse vertically

  **Circle Zoom (Z)**
  **Dynamic Zoom (S)**

- Draw a circle (freeform) around the area to be magnified
- Zoom into the center of the screen

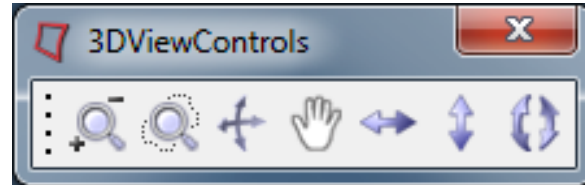
  **Dynamic Rotate**
  **Dynamic Spin**



- Dynamically rotate the model about defined center
- Dynamically spin the model about a defined center

  **Pan**
  **Center**




- Drag the model around in the graphics area
- Select a node/point to center of the model at that point

Display Control → 3D View Controls






  **Rotate Left**
 **Rotate Right**

•Rotate the model view Left or Right about an imaginary vertical axis in the middle of the graphics area

  **Rotate Up**
 **Rotate Down**

•Rotate the model view Up or Down about an imaginary horizontal axis in the middle of the graphics area

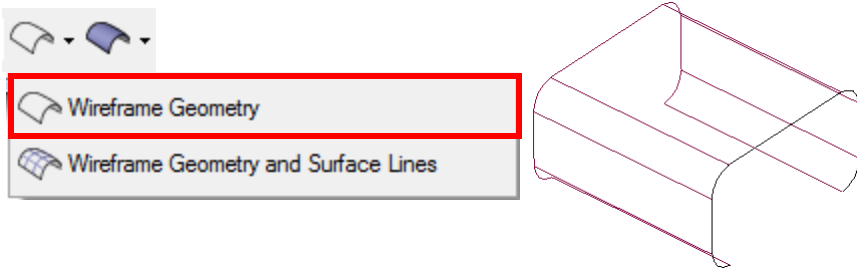
  **Rotate Clockwise**
 **Rotate Counter
Clockwise**

•Rotate the model view Clockwise or Counter Clockwise about an imaginary axis coming out of the graphics area

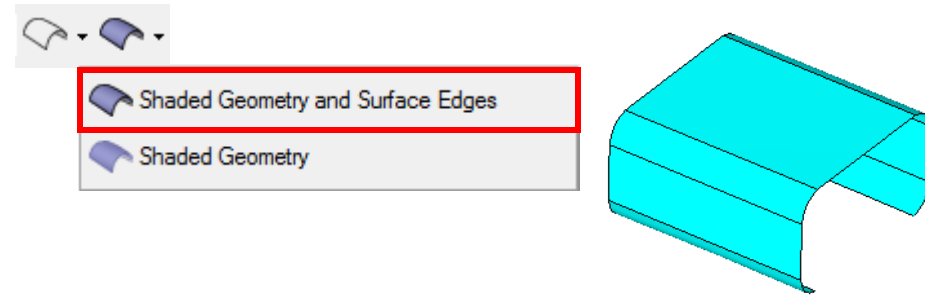
Display Control → Visualization: Surfaces

- Various surface shading options are available on the Toolbar:

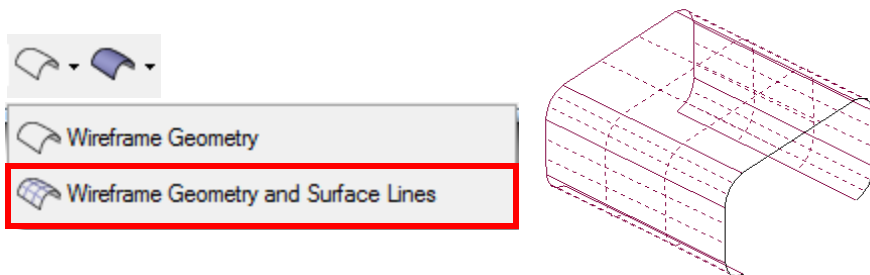
Wireframe



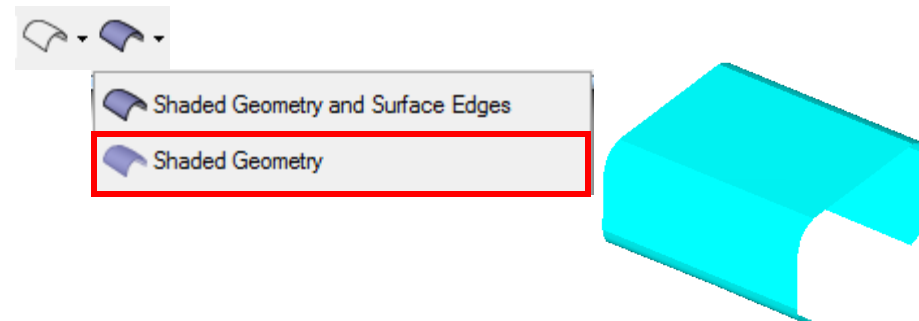
Shaded with Surface edges



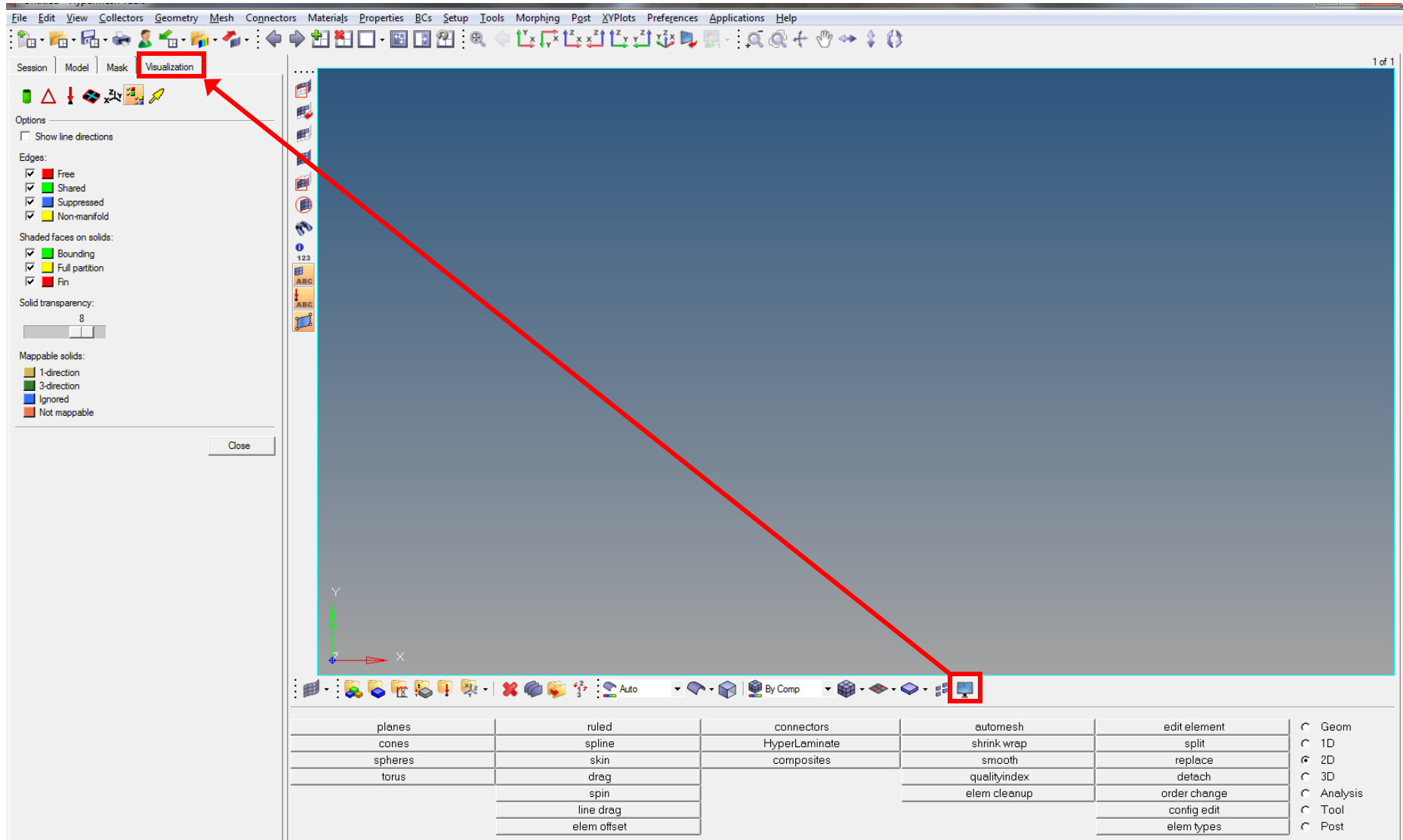
Wireframe with Surf lines



Shaded



Display and Visualization Toolbars



The screenshot displays the HyperWorks software interface. The main window shows a 3D model of a part. A red arrow points from the 'Visualization' tab in the top toolbar to the 'Visualization' options panel on the left. The options panel includes sections for 'Options', 'Edges', 'Shaded faces on solids', 'Solid transparency', and 'Mappable solids'. The bottom toolbar contains various visualization tools, with a red box highlighting the 'Display' icon. Below the main window is a table of visualization options.

planes	ruled	connectors	automesh	edit element	Geom
cones	spline	HyperLaminate	shrink wrap	split	1D
spheres	skin	composites	smooth	replace	2D
torus	drag		qualityindex	detach	3D
	spin		elem cleanup	order change	Analysis
	line drag			config edit	Tool
	elem offset			elem types	Post

Toolbars

File Edit View Collectors Geometry Mesh Connectors Materials Properties BCs Setup Tools Morphing Post XYPlots Preferences Applications Help

Session Model Mask

Entities ID

Master Model 0

Image Capture Toolbar

File / Clipboard Panel Area Frame Area

BMPIImageCa...

Graphics Area Rectangle Area

planes	ruled	connectors	automesh	edit element	Geom
cones	spline	HyperLaminate	shrink wrap	split	1D
spheres	skin	composites	smooth	replace	2D
torus	drag		qualityindex	detach	3D
	spin		elem cleanup	order change	Analysis
	line drag			config edit	Tool
	elem offset			elem types	Post

Ready

Panels: General Layout

- Panels often have sub-panels
 - Accessed by radio buttons on the left side of the panel
- Panels generally work from left to right
 - Example: *Project / to plane* sub-panel

1) What to do:

Pick a sub-panel for the function to be used

2) What to do it to:

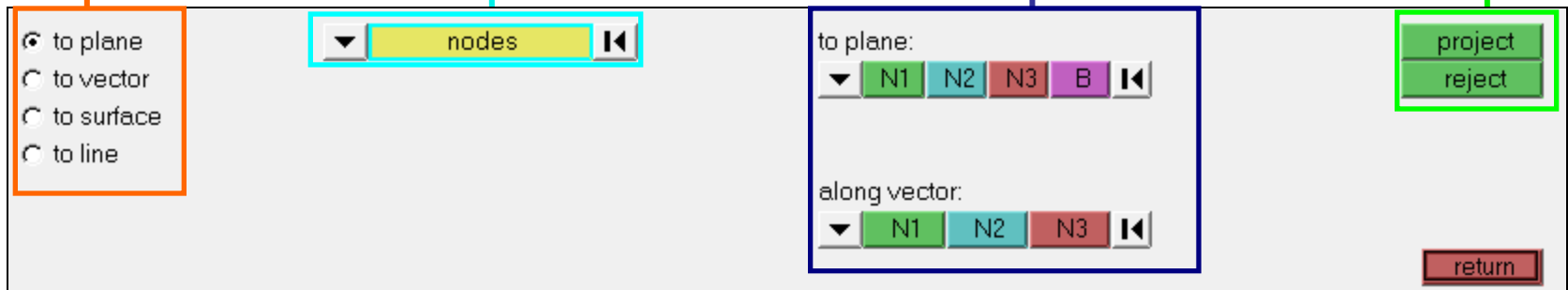
Select entities that will be affected

3) How to do it:

Give parameters that define how the function will be executed

4) Do the action:

Execute the function



to plane:
 to plane
 to vector
 to surface
 to line

nodes

to plane:
N1 N2 N3 B

along vector:
N1 N2 N3

project
reject

return

Panels: General Layout

- Some sub-panels are organized in columns
 - Each column is a different method
 - Work from top to bottom in the relevant column
 - Example: *surface edit : trim with surfs/plane* sub-panel

1) What to do:
Pick a sub-panel for the function to be used

2) Method to use:
Work in the appropriate column

3) What to do it to:
Select entities that will be affected

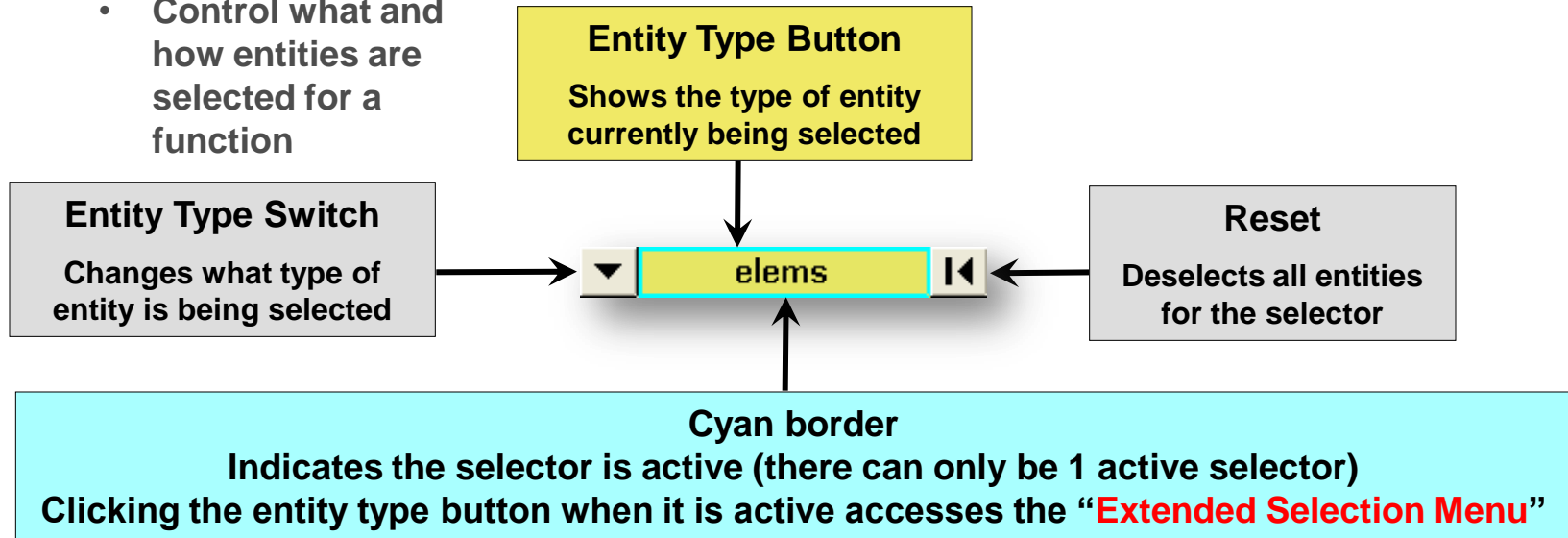
4) How to do it:
Give parameters that define how the function will be executed




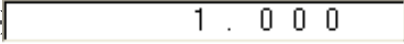
5) Do the action:
Execute the function

The diagram shows the 'trim with surfs/plane' sub-panel interface. It is divided into three columns: 'with plane', 'with surfs', and 'self intersecting surfs'. The 'with plane' column has a 'surfs' field with a dropdown menu and buttons for 'N1', 'N2', 'N3', and 'B'. The 'with surfs' column has two 'surfs' fields and a 'trim both' checkbox. The 'self intersecting surfs' column has a 'surfs' field. On the right, there are 'trim' and 'reject' buttons, and a 'return' button at the bottom right. A list of options is shown on the left: 'trim with nodes', 'trim with lines', 'trim with surfs/plane' (selected), 'untrim', 'offset', 'extend', and 'shrink'.

Panels: Selection

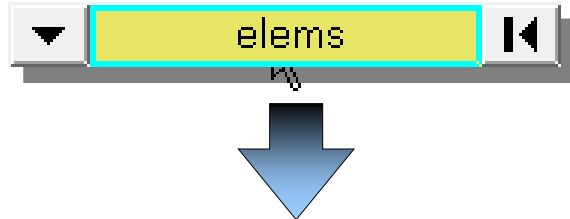
- Entity selectors
 - Control what and how entities are selected for a function



- Switches → 
 - Allows a choice of several options vis a pop-up menu
- Toggles → 
 - Allows a choice between 2 options
 - No pop-up; button label simply changes
- Reset → 
 - Allows to reset the entities selection
- Text input fields → 
 - Operate like text fields in most programs
 - Can use *Ctrl + C* and *Ctrl + V* to copy and paste between fields
 - Double clicking on a text field that requires numbers accesses the calculator
 - Uses “reverse notation”
 - Example: $1 + 1 = 2$
 $1 \langle \text{Enter} \rangle 1 +$ instead of $1 + 1 =$

Panels: Extended Selection Menu

- Click an active selector to access the extended menu selection

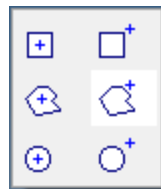


by window	on plane	by width	by geoms	by domains	by path
displayed	retrieve	by group	by adjacent	by handles	by include
all	save	duplicate	by attached	by block	
reverse	by id	by config	by face	by ply	
by collector	by assems	by sets	by outputblock	by laminate	

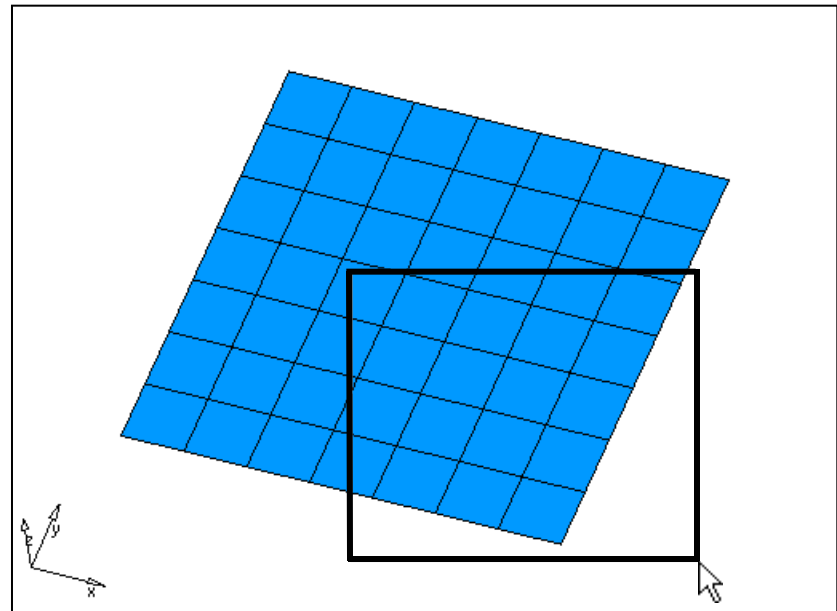
- The extended menu selection offers
 - Methods for selecting many entities at once
 - Tools for modifying an existing selection
 - Save an existing selection and retrieve it in any panel
- Multiple extended selection methods can be used on a selection
 - Allows you to easily select exactly what you want

Panels: Overview

- **Select entities with a window using Shift + mouse**
 - Left mouse drag – select entities
 - Right mouse drag – unselect entities
 - Left click – change window shape

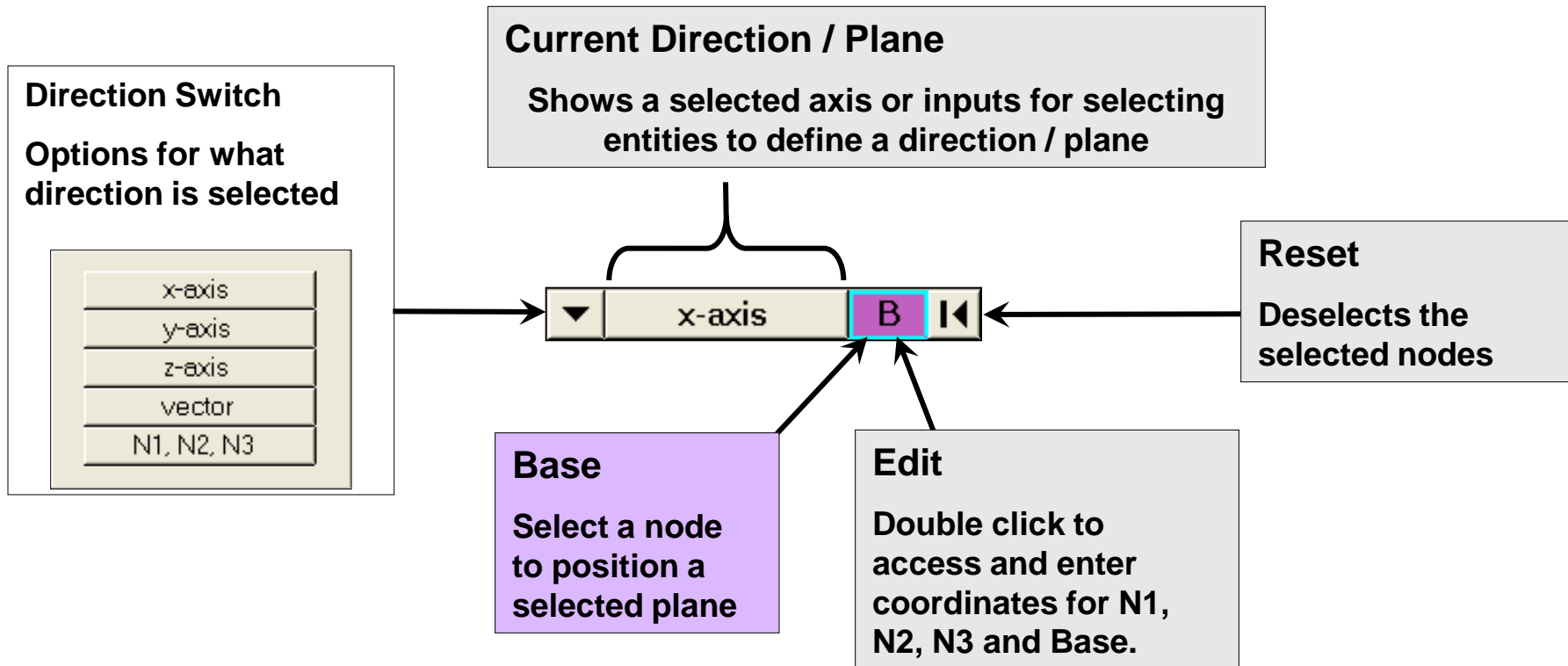


- Rectangle Inside
 - Rectangle Outside
 - Polygon Inside
 - Polygon Outside
 - Circle Inside
 - Circle Outside
- Entities are selected when mouse button is released



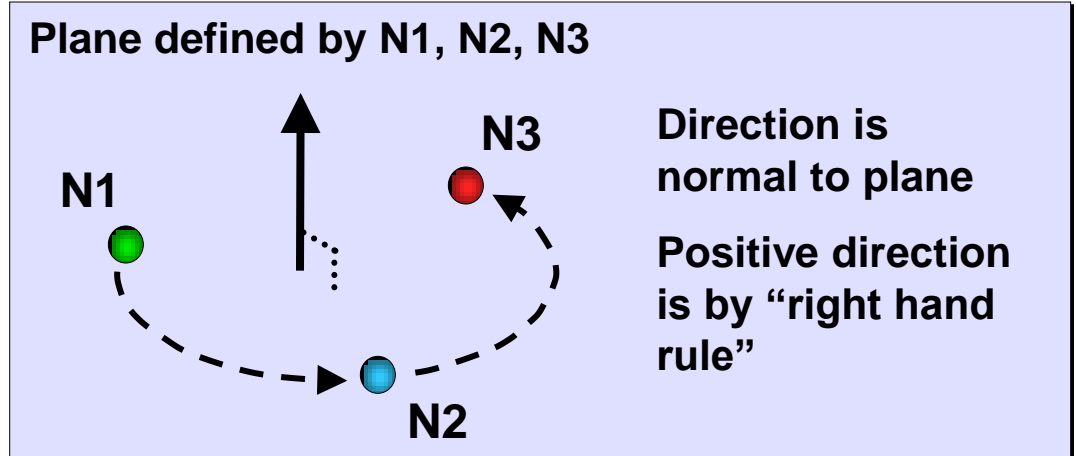
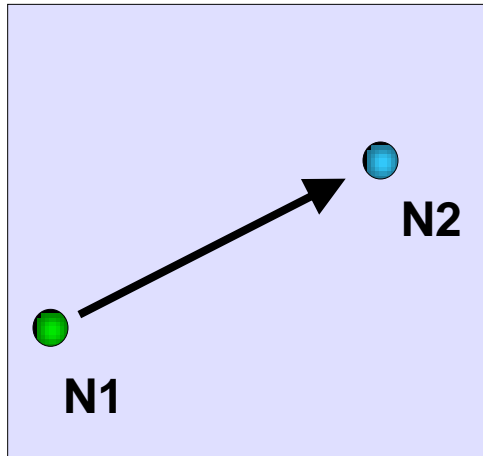
Panels: Direction Selection

- Used for input of directions or planes for a given function
 - Planes can be selected from a vector (normal to the vector)
 - Directions can be selected from a plane (normal to the plane)



Panels → Direction Selection: N1, N2, N3

- **N1, N2, N3 direction option allows nodes to be selected to define either a direction or a plane**
 - Select 2 nodes to define a direction (only N1 and N2)
 - Select 3 nodes to define a plane (N1, N2, and N3)



Display Control → Visibility: Mask Browser

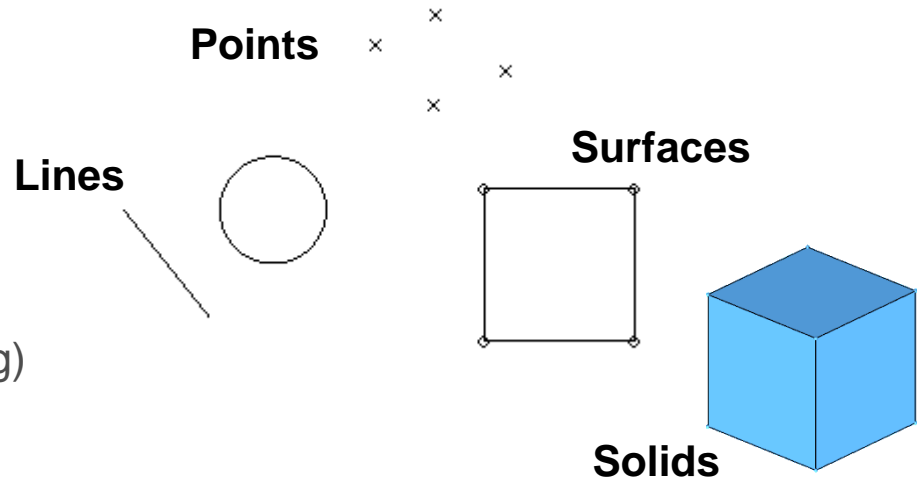
Session	Model	Mask	Show	Hide	Isolate
Entities					
[-]	Components		+	-	1
	Connectors		+	-	1
[-]	Elements		+	-	1
	0D/Rigids		+	-	1
	Springs/Gaps		+	-	1
	1D		+	-	1
	2D		+	-	1
	3D		+	-	1
[-]	Geometry		+	-	1
	Points		+	<input checked="" type="checkbox"/>	1
	Lines		+	-	1
	Surfaces		+	-	1
	Solids		+	-	1
[-]	Groups		+	-	1
	Master		+	-	1
	Slave		+	-	1
[-]	LoadCollectors		+	-	1
	Loads		+	-	1
	x-y Equations		+	-	1
[-]	Morphing		+	-	1
	Global Domains/Handles		+	-	1
	Local Domains/Handles		+	-	1
	Volumes		+	-	1
	Constraints		+	-	1
	Symmetries		+	-	1
	Shapes		+	-	1
[-]	Multibodies		+	-	1
	Ellipsoids		+	-	1
	Joints		+	-	1
	Planes		+	-	1
[-]	SystemCollectors		+	-	1
	Rectangular		+	-	1
	Cylindrical		+	-	1
	Spherical		+	-	1

- **Mask Browser– Control of visibility by entity type**
 - **+ :** Displays / un.masks all of the selected entity type
 - Added to whatever is already displayed
 - **- :** Switches off display or masks all of the selected entity type
 - **1 :** Displays only the selected entity type and switches off display of all other entity types.

Model Organization: HyperMesh Entity Types

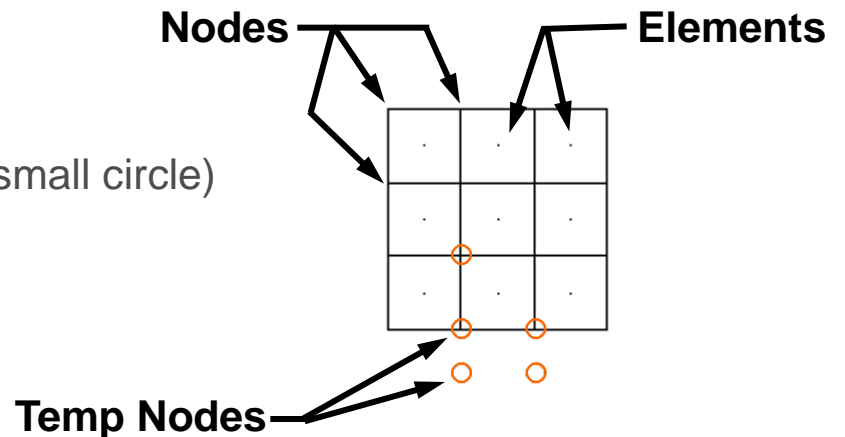
- **Geometry**

- Points
- Lines
- Surfaces
- Solids
- Connectors (used for welding)



- **FE Model**

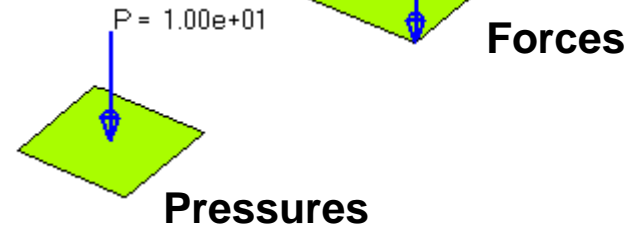
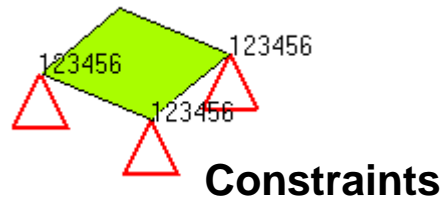
- Nodes
- Temp Nodes (marks a node with a small circle)
- Elements



Model Organization: HyperMesh Entity Types

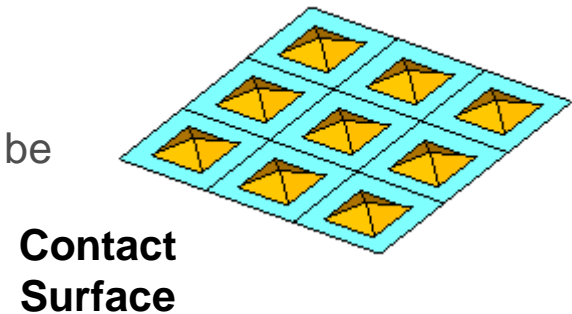
- **FE Loading**

- **Loads** (constraints, forces, pressures, etc.)
- **Equations** (mathematical link between nodes)



- **Contacts**

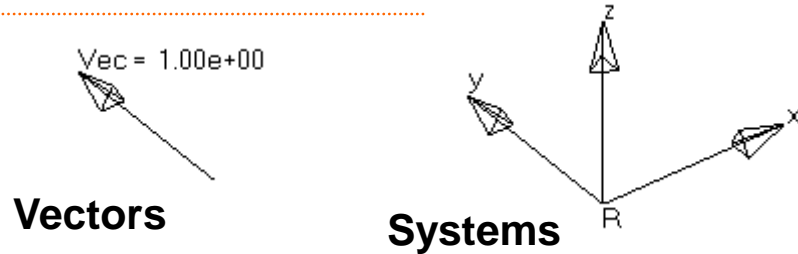
- **Group** (defines contact between entities)
- **Contact Surfs** (defines a list of entities that can be used as master or slave in a group)



Model Organization: HyperMesh Entity Types

- **Coordinate Entities**

- **Systems** (coordinate axes)
- **Vectors**

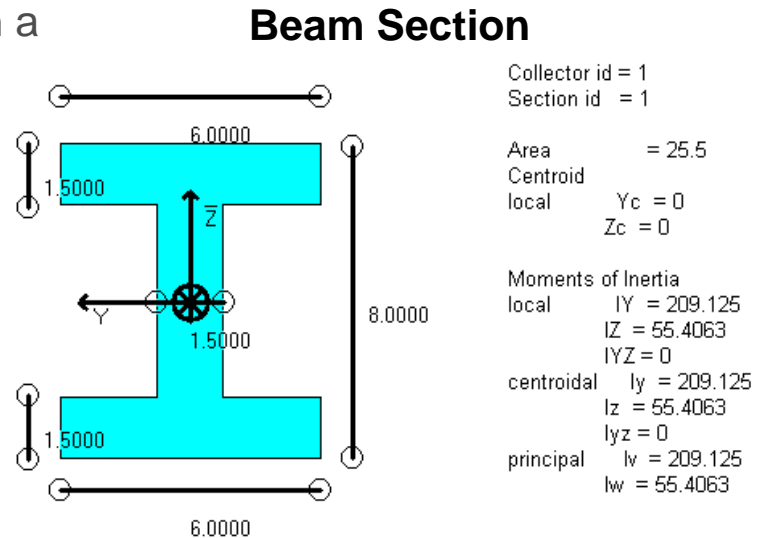


- **Reference Entities**

- **Sets** (a simple list of a particular type of entity)
- **Blocks** (a list of entities contained within a box shape)

- **1D Element Cross Sections**

- **Beam Sections** (cross sectional properties for a property collector)



Model Organization: HyperMesh Entity Types

- **Plotting**

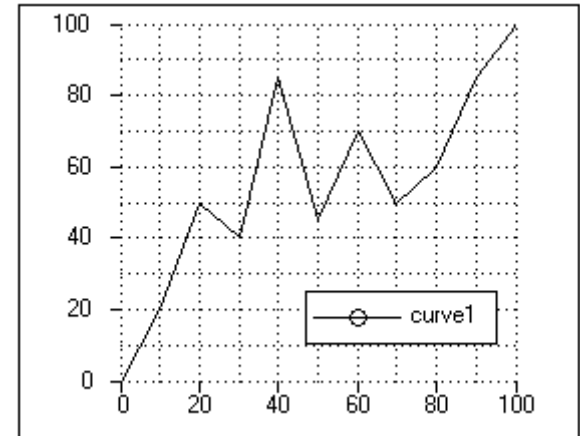
- **Curves** (X-Y data)
- **Plots** (a display of curves with axes)

- **Output Requests**

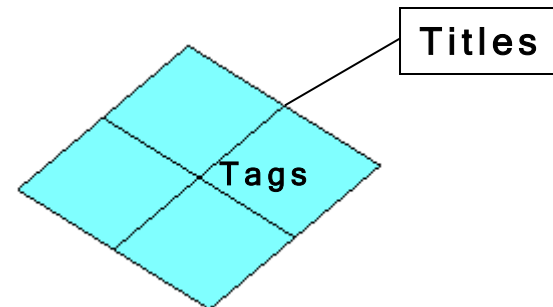
- **Loadsteps** (combinations of load collectors)
- **Output Blocks** (request output from an analysis for certain entities)

- **Labels**

- **Titles** (label for a displayed item)
- **Tags** (assigns a name to an entity)



Plot with a Curve



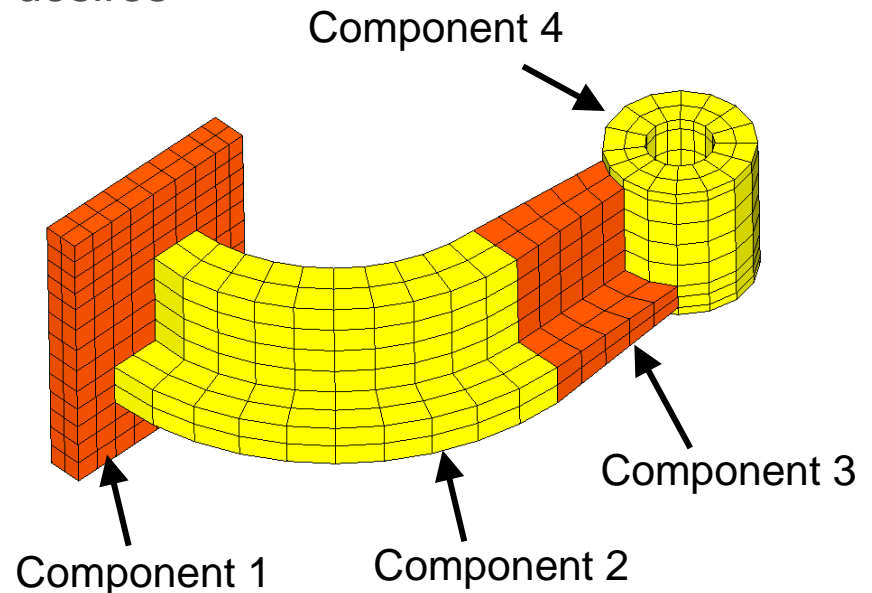
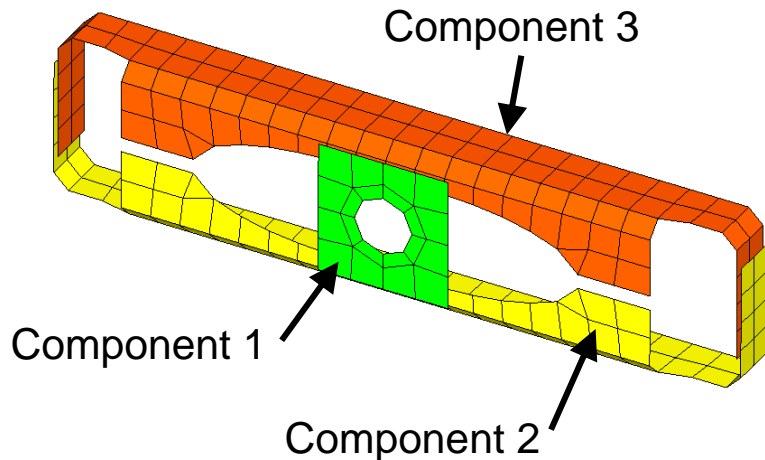
Model Organization: Collectors

- The HyperMesh model is organized using “collectors”
- There are many types of collectors
- Most entities in HyperMesh must be placed in a collector
- Each collector type holds a specific type of entity

Collector Types	Can contain entity types:
Component	Elements, Points, Lines, Surfaces, Connectors
Multibody	Ellipsoids, Mbjoints, Mbplanes, Sensors
Assembly	Components, Multibodies, Assemblies
Load Collector	Loads, Equations
Material	none (materials and properties don't contain other entities but are still treated as collectors)
Property	
System Collector	Systems
Vector Collector	Vectors
Beam Section Collector	Beam Sections

Model Organization: Collectors

- An entity can usually only belong to 1 collector of a given type
 - Ex: an element can only be in 1 component collector
- Can create many collectors of the same type
- All entities in a collector are the same color
- Organization can be however the user desires



Toolbars

Collectors Toolbar

The screenshot shows the HyperWorks software interface. The main window displays the 'HM-Collectors' toolbar with several icons. Purple arrows point from text labels to specific icons in the toolbar:

- Assemblies** points to the folder icon with a green cube.
- Materials** points to the folder icon with a blue cube.
- Components** points to the folder icon with a blue cube.
- Properties** points to the folder icon with a red cube and a plus sign.
- System Collector and Options** points to the folder icon with a red cube and a plus sign.
- Load Collectors** points to the folder icon with a red cube and a plus sign.
- Delete Panel (F2)** points to the red 'X' icon.
- Card Edit** points to the folder icon with a red cube and a plus sign.
- Organize** points to the folder icon with a red cube and a plus sign.
- Renumber** points to the folder icon with a red cube and a plus sign.

The toolbar also includes a red 'X' icon in the top right corner. The bottom of the interface shows a list of model entities:

planes	ruled	connectors	automesh	edit element	<input type="checkbox"/> Geom
cones	spline	HyperLaminate	shrink wrap	split	<input type="checkbox"/> 1D
spheres	skin	composites	smooth	replace	<input type="checkbox"/> 2D
torus	drag		qualityindex	detach	<input type="checkbox"/> 3D
	spin		elem cleanup	order change	<input type="checkbox"/> Analysis
	line drag			config edit	<input type="checkbox"/> Tool
	elem offset			elem types	<input type="checkbox"/> Post

Model Organization: Collectors

• Model browser

- View collectors and assemblies in a hierarchical tree format
- Create, delete, and rename collectors
- Edit collector attributes
- Organize collectors into assemblies
 - Drag and drop
- Also available using toolbar “Collectors”



create comp name =

update color

assign card image =

 property =

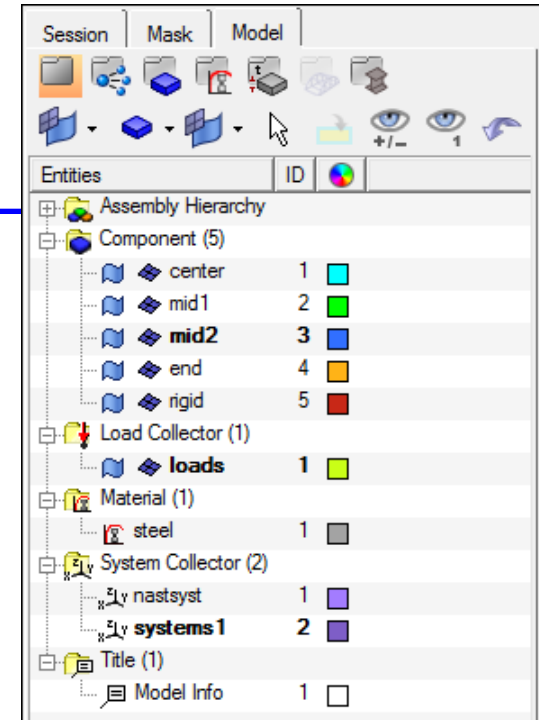
 card image =

 material =

 card image =

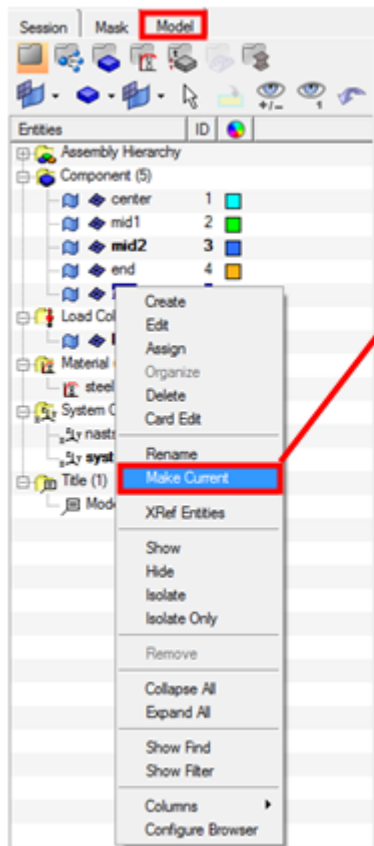
Right-Click on Collector for advanced options

- Create
- Edit
- Assign
- Organize
- Delete
- Card Edit
- Rename
- Make Current
- XRef Entities
- Show
- Hide
- Isolate
- Isolate Only
- Remove
- Collapse All
- Expand All
- Show Find
- Show Filter
- Columns
- Configure Browser



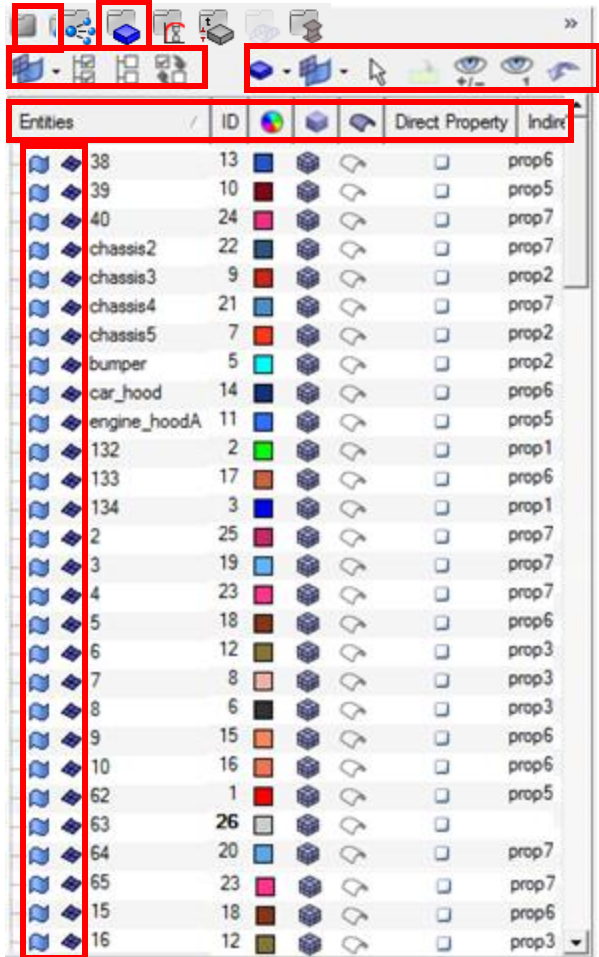
Model Organization: Collectors

- New entities are created in the “current collector”
 - Creating a new collector automatically sets the current collector to that new collector
 - *Model Browser* used to change the current collector
 - *Organize* panel can be used to move entities into a different collector



Bold “Current Collector”

Browsers



Model Browser

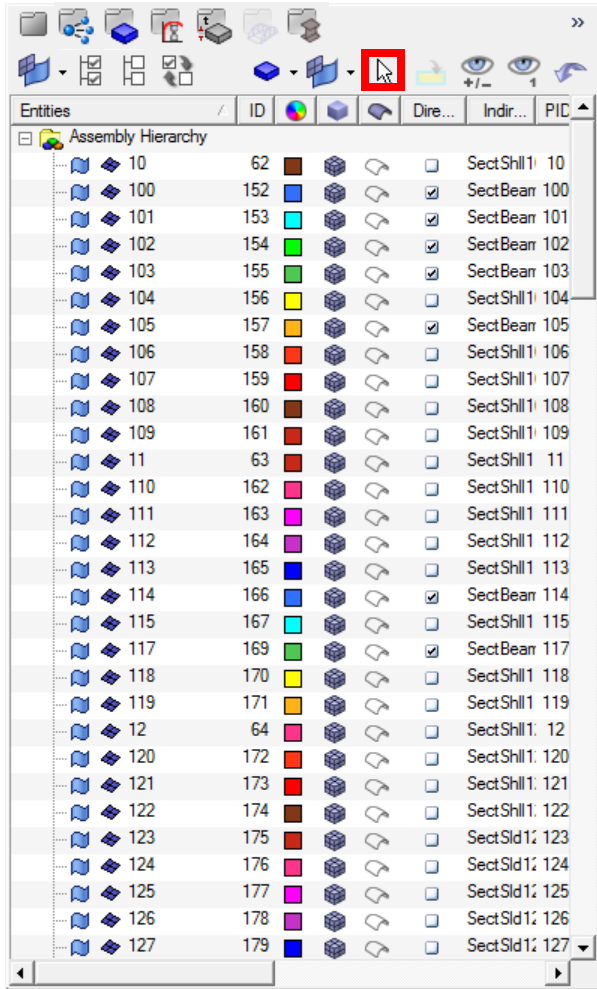
- Complete Listing of all HyperMesh Entities in Model
- Each “Collector” is expandable and lists all contained “Entities”

Component Browser

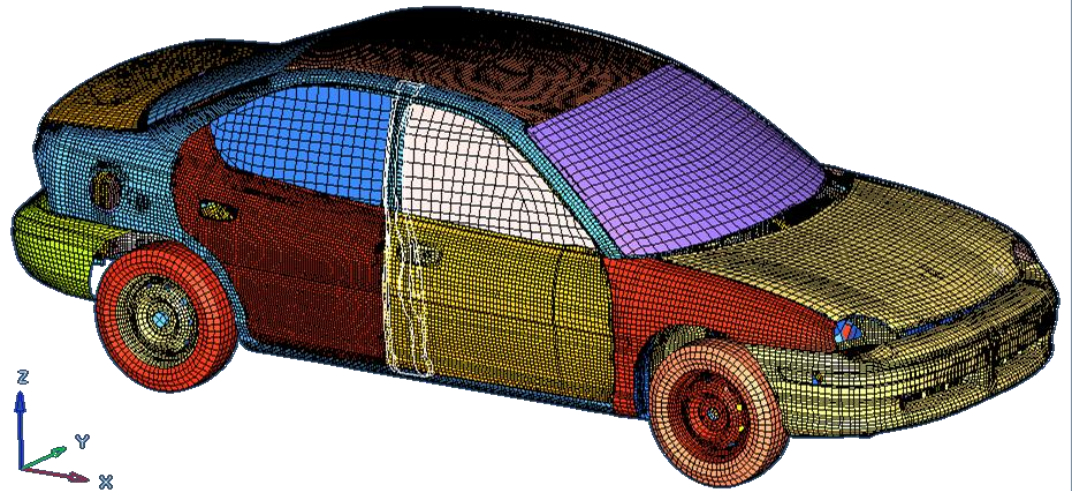
- Lists All Components in Model
- Colors Model “by Component”
- Quickly Sort by Name, ID, Color, or Property
- Display State Icons
 - Geom ON/OFF Single Picking
 - FE ON/OFF Single Picking
- Global Controls to Operate on all Components
 - All
 - None
 - Reverse
- Browser Modes
 - Graphics/Browser List Picking for:
 - Select
 - Show/Hide
 - Isolate



Browser Modes – Select



	Graphics Area	Browser Area
Add	Left mouse click	Left mouse click
Remove	Right mouse click	Ctrl + Left mouse click
Multiple	Shift + Left mouse click (drag and select)	Shift + Left mouse click
Advance	Left mouse click + Wheel	-



Model Organization: Tools

- Panels
 - **Collectors** – Create new collectors
 - **Model Browser** – Set the current collector for various entity types
 - **Organize** – Move entities into a different collector than the one they are currently contained in
 - **Rename** – Change the name of an existing collector
 - **Reorder**
 - Collectors appear in a certain order when presented in a list to pick from
 - **Reorder** allows the order the collectors appear in to be changed
 - **Delete** – Delete entities or collectors