

LIVERMORE
SOFTWARE
TECHNOLOGY
CORPORATION

LSPOST
A New Post Processor For
LSDYNA

May 1999

File Misc. Toggle

Help

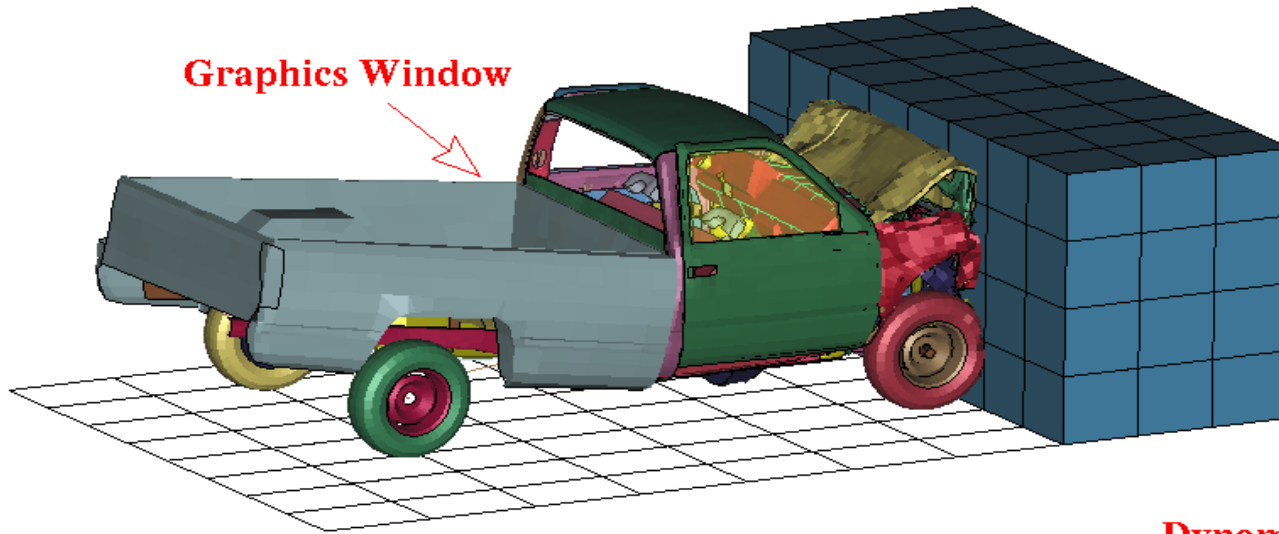
C2500 - DETAILED MODEL - FULL BARRIER

Time = 0.1

Pull Down Menu

Main Menu Area

Graphics Window



Dynamic Area

Online Button Description



Command Area

Rendering Hot Buttons

Viewing Hot Buttons

Follow	Splitw	
Output	Trace	Full
Anno	Light	Xyplot
SPlane	Setting	FLD
Range	Vector	State
Find	Ident	Measur
Fcomp	History	Ascii
Appear	Color	Views
Group	Blank	SelPar

- Annotation
- Dynamic Area
 - Viewing Hot Buttons
 - Rendering Hot Button
 - Command Area
 - Online Button Descrip
 - Pull Down Menu
 - Graphics Window

Text: Add Clr Del

- Position
- Move
- Highlight
- Arrow

Del Dall Set Font

Col [red square] Ang 0

Pts 24

Font Times

Reset Done

+10	Rx	Ry	Rz
//	T	F	R
Zin	Bt	Bk	Lf
Zout	Ac	Cen	Rset
Rpat	All	Anim	Usr1

help?

Hide Shad View Wire Feat Edge Grid Frin Isos Lcon Mesh Shrn Clp Redw Home

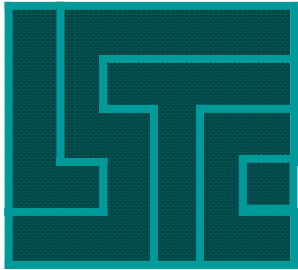
background 1.0 1.0 1.0; textcolor 0.0 0.0 0.0

First 1 Last 35 Inc 1

Time 0.1

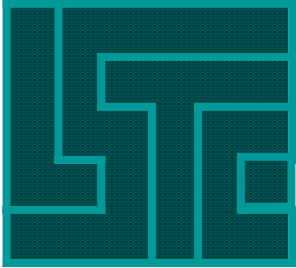
State# 35

Perf: 0.04 sec/frames



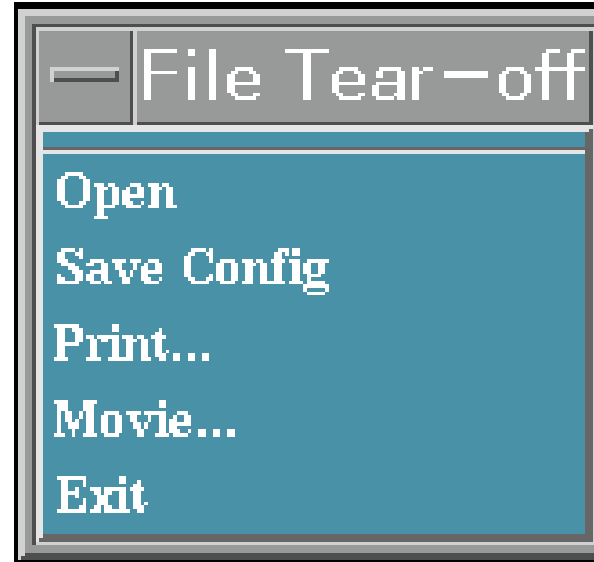
Keyboard and Mouse Operation

- Dynamic Model Operation
 - Rotation - Left mouse button + shift key
 - Translation - Middle mouse button + shift key
 - Scaling - Right mouse button + shift key
- Fast rendering mode - Use control key instead of shift key to render in edge mode
- Single pick - Left mouse button
- Area pick or windowing - Left mouse click and drag
- Polygon pick - Left mouse click, drag and click, right mouse button to terminate

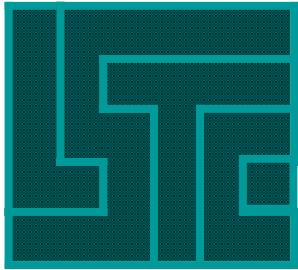


Menus and Buttons Layout

Pull Down Menu



- File
 - Open - file chooser to select and open files
 - Save Config - write configuration file .lspostrc
 - Print - activate print dialog
 - Movie - activate saving movie files dialog
 - Exit - terminate program



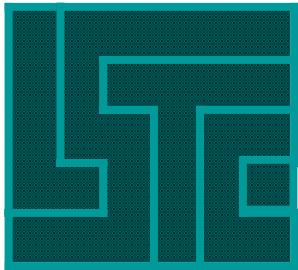
Menus and Buttons Layout

Pull Down Menu



- Misc

- Reflect - reflect model about a global plane
- Model Info - give model size information
- Swap byte on Title - Allow title in different byte order
- Mesh linewidth - specify mesh line width in pixel
- Edge linewidth - specify edge line width in pixel

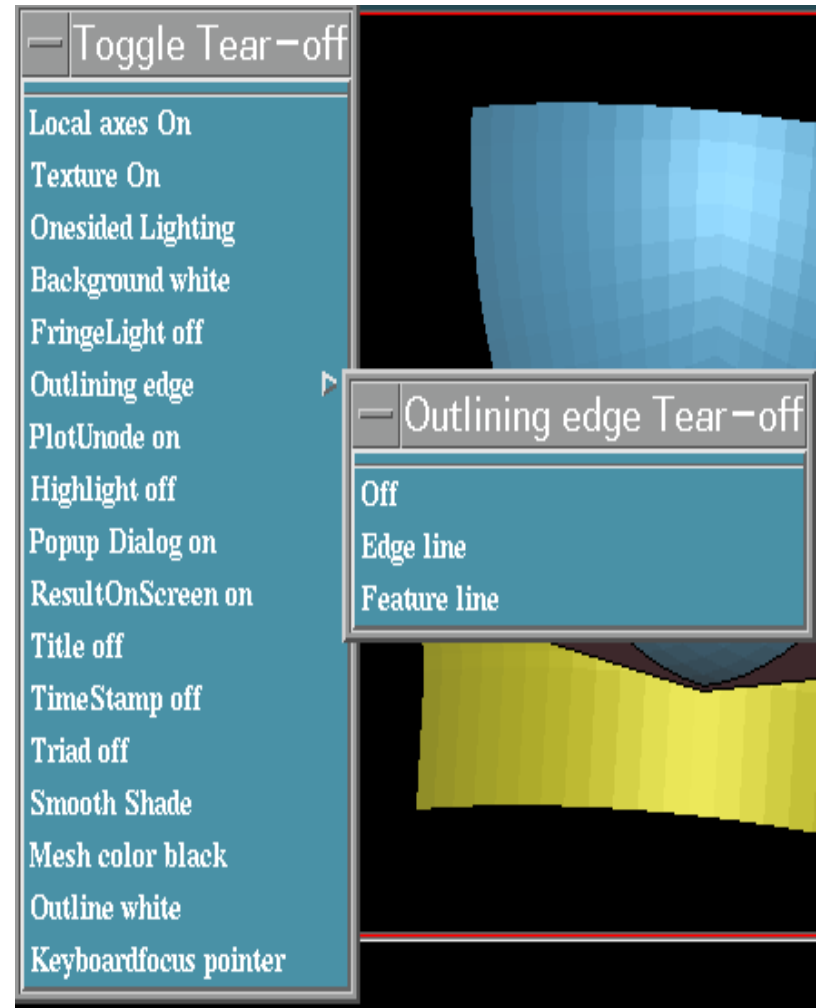


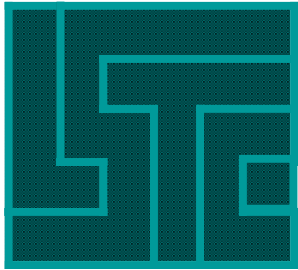
Menus and Buttons Layout

Pull Down Menu

Toggle

- Local axes on/off
- Texture on/off
- One-sided/two-sided Lighting
- Background white/back
- Fringe Light off/on
- Outlining options
 - off/edge/feature
- Plot unreferenced nodes on/off
- Highlight off/on
- Results on Screen on/off
- Title off/on



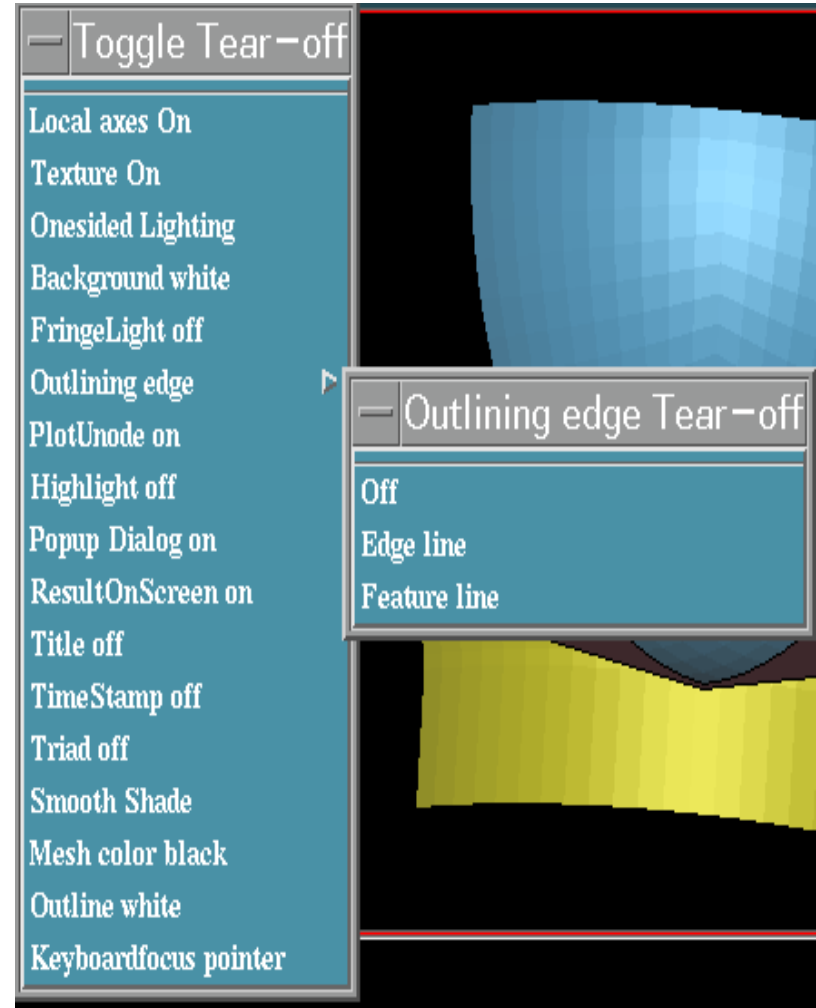


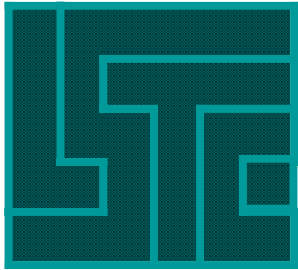
Menus and Buttons Layout

Pull Down Menu

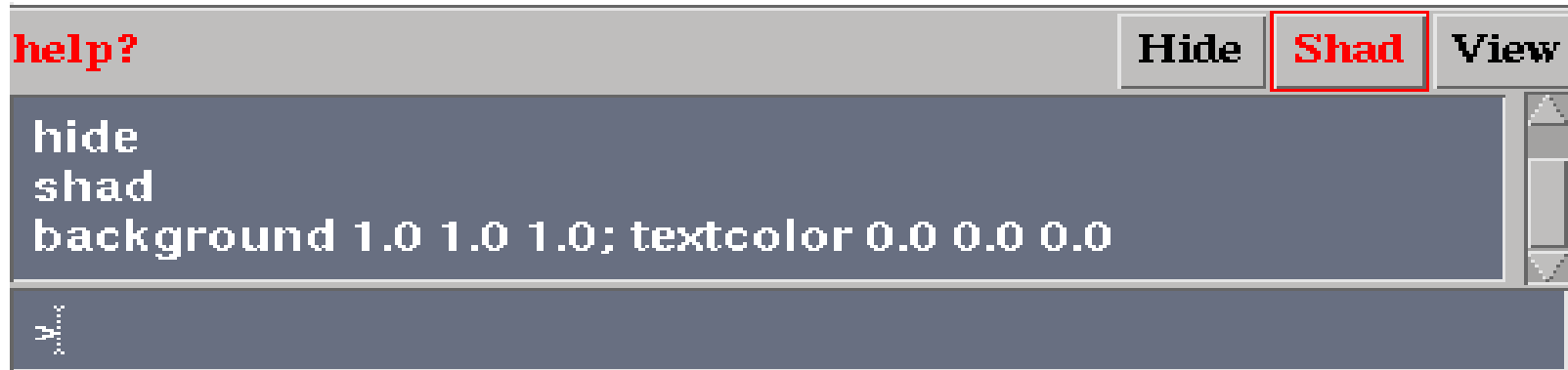
Toggle

- Time Stamp on/off
- Triad on/off
- Smooth/flat shading
- Mesh line color black/white
- Outline color black/white
- Keyboard focus pointer/explicit

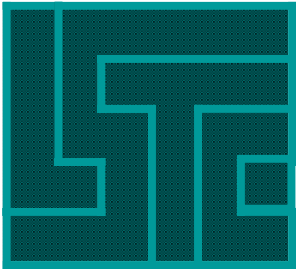




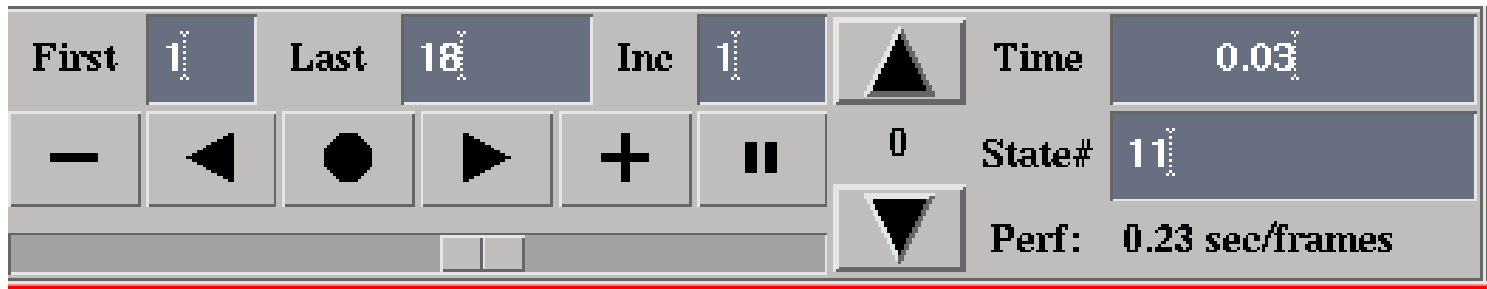
Command and Button Description



- Command line input - Can be typed in dialog area or graphics area
- help? - One line short description of most buttons and menu
- Session (command) file will be supported in the future

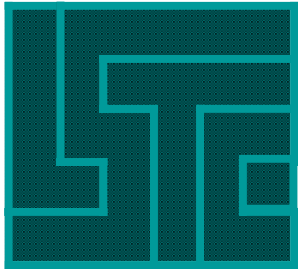


Animation Control



- First, Last, Inc - control first, last and increment of state, must press enter key after input to realize changes
- Time - the time value of the current state
- State# - current state number can be typed to a specified state

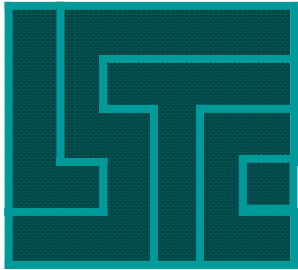




Rendering Hot Buttons



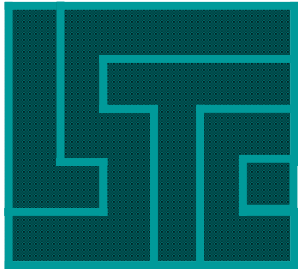
- Hide - hidden line removed
- Shade - color shading mode (flat or smooth)
- View - plain color mode
- Wire - wireframe mode
- Feat - feature line mode (default angle = 30)
- Edge - edge line mode
- Grid - draw nodal point with a color pixel



Rendering Hot Buttons



- Frin - color fringe contour
- Isos - iso-surface plot on 3D solid elements
- Lcon - color line contour
- Mesh - overlay mesh line on shade or color plot
- Shrn - draw element in shrunk mode (default = 0.85)
- Clp - clear all picked or highlighted information
- Redw - re-draw current model
- Home - set model in the home position

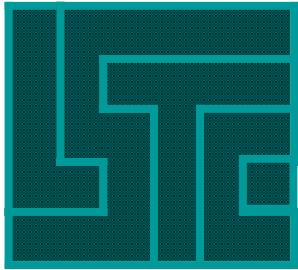


Viewing Hot buttons

+10	Rx	Ry	Rz
//	T	F	R
Zin	Bt	Bk	Lf
Zout	Ac	Cen	Rset
Rpat	All	Anim	Usr1

- +10, Rx, Ry, Rz - rotate 10 degrees about the global X,Y,Z, axes respectively
- T,Bt - top and bottom views
- F,Bk - front and back views
- R,Lf - right and left views
- Zin, Zout - zoom in the model using the Left mouse click and drag

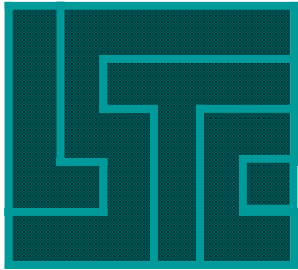
 // parallel and perspective view switch



Viewing Hot buttons

+10	Rx	Ry	Rz
//	T	F	R
Zin	Bt	Bk	Lf
Zout	Ac	Cen	Rset
Rpat	All	Anim	Usr1

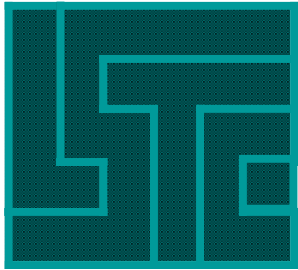
- Ac - automatically center the model to fit in window
- Cen - pick a node and move it to center of the window. Also rotation will be about this point
- Rset - reset the model to original setting
- Rpat - restore the last removed part
- Anim - turn on or off animation
- Usr1 - usr defined button (not yet implemented)



Main Menu Area

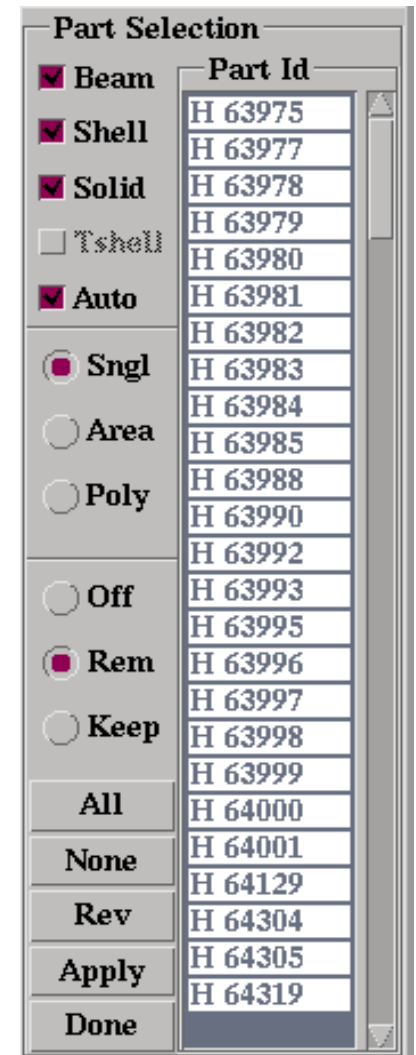
- Main Menu Buttons - each button in the main menu area activates a new interface in the dynamic area which is located below the main menu area

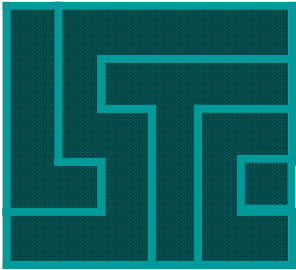
Follow	Splitw	
Output	Trace	Full
Anno	Light	Xyplot
SPlane	Setting	FLD
Range	Vector	State
Find	Ident	Measur
Fcomp	History	Ascii
Appear	Color	Views
Group	Blank	SelPar



Select Part Interface

- Part - is a unique entity made up of an element type and the material number
- Beam, Shell, Solid, Tshell buttons select or deselect that element type
- Auto - Model will be automatically redraw whenever selection has been made, otherwise need to press “Apply” button to update the window
- Singl - Pick one part with a single left mouse click
- Area - Pick multiple parts in an enclosed window area
- Poly - Pick multiple parts in an enclosed polygon area
- Part Id list - pick and drag for block-select or press down control key for multiple select

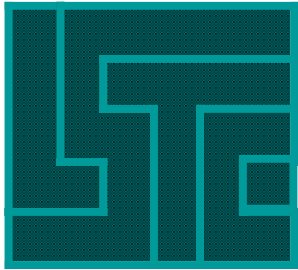




Select Part Interface

- Off - Disable picking
- Rem - Remove part(s)
- Keep - Keep part(s)
- All - Set all parts active
- None - Set all parts inactive
- Rev - Set inactive parts to be active, and active parts to be inactive
- Apply - Use this button to update screen when “Auto” button is off
- Done - Exit Select Part Interface

Part Selection	
<input checked="" type="checkbox"/> Beam	Part Id
<input checked="" type="checkbox"/> Shell	H 63975
<input checked="" type="checkbox"/> Solid	H 63977
<input type="checkbox"/> Tshell	H 63978
<input checked="" type="checkbox"/> Auto	H 63979
	H 63980
	H 63981
	H 63982
<input checked="" type="radio"/> Sngl	H 63983
<input type="radio"/> Area	H 63984
<input type="radio"/> Poly	H 63985
	H 63988
	H 63990
	H 63992
<input type="radio"/> Off	H 63993
	H 63995
<input checked="" type="radio"/> Rem	H 63996
	H 63997
<input type="radio"/> Keep	H 63998
	H 63999
All	H 64000
None	H 64001
Rev	H 64129
Apply	H 64304
Done	H 64305
	H 64319



Element Blanking

- Pick Elem - Blank a single element with pick
- Area - Blank a group of elements with an enclosed window area
- Poly - Blank a group of elements with an enclosed polygon area
- Unblank Part - Unblank an entire part which is partially blanked
- AutoUpdate - Automatically update solid element faces which were not shown due to internal faces elimination
- Surface Only - Blank only the surface layer of the solid elements when using Area or Poly

The dialog box titled "Element Blanking" contains the following options and controls:

- Pick Elem
- Area In
- Poly Out
- Unblank Part

Solid Options

- AutoUpdate
- Surface Only

Update Surf

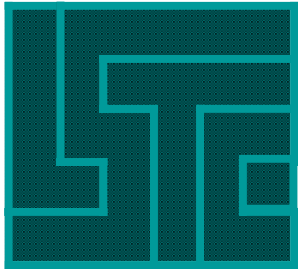
Blank AllVis

Unblank All

Reverse

UpdEdge

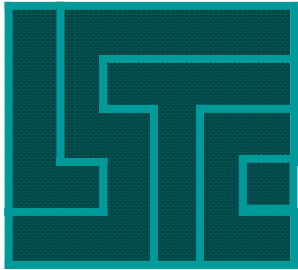
Done



Grouping

- Group - A collection of parts form a group
- Create - Create a new group with the current active parts (entire part)
- Delete - Delete a highlighted (selected) group
- Rename - Change the group name
- Select - Select a group to be the current active model
- Add - Add a selected group to the current active mode using Or/And/Xor operation

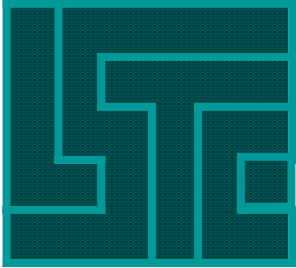
The screenshot shows a dialog box titled "Create/select Group". It contains a list of parts: "solid", "frame", "base", "tire", "front_engine", "body", and "windshield". The "frame" part is highlighted. Below the list is a "Group Name:" field containing "frame". At the bottom, there are three columns of buttons: "Create", "Delete", "Renam"; "Select", "Add", "Sub"; and "Save", "Load", "Done". Below the buttons are three radio buttons labeled "Or", "And", and "Xor", with "Or" selected.



Grouping

- Sub - Subtract a selected group from the current active model using Or/And/Xor operation
- Save - Save the grouping data into a user modifiable file
- Load - Load a saved group data from file into memory
- Done - Exit Group Interface

The screenshot shows a dialog box titled "Create/select Group". It contains a list of model components: "solid", "frame", "base", "tire", "front_engin", "body", and "windshield". The "frame" component is selected and highlighted. Below the list is a "Group Name:" field containing the text "frame". At the bottom, there are three buttons: "Create", "Delete", and "Renam". Below these are three more buttons: "Select", "Add", and "Sub". At the very bottom, there are three radio buttons labeled "Or", "And", and "Xor", with the "Or" button selected.



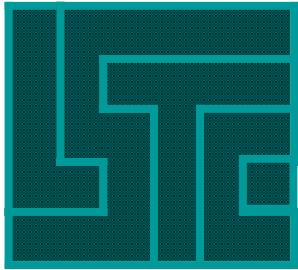
Set Part Appearance

- Each part can be rendered with a different drawing mode.
- When this interface is active, the global rendering hot buttons are disabled
- Pick Part - pick single part
- Area - select by area
- Poly - select by polygon area

The 'Set Part Appearance' dialog box contains the following options:

- Pick Part
- Area In
- Poly Out
- Off Feat
- Hide Edge
- Shad Grid
- View Frin
- Wire
- Mesh
- Shrn
- Isos
- Leon

Buttons: AllVis, Done

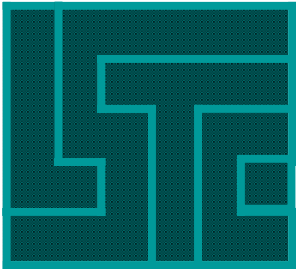


Save and Retrieve Views

- Save current view - including orientation, drawing mode, color and transparency scheme, part blanking, element blanking.
- Information is saved in database file lspost.db
- Retrieving view can apply to color, appearance, orientation or any combinations of the three
- View name cannot be blank or duplicate previously defined name

A screenshot of a software dialog box titled "Save/Retrieve Views". The dialog has a list of view names: View_01, View_02, View_03, View_04, and View_05. Below the list is a label "View Name_number:" followed by a text input field containing "View_06". Underneath the input field are three checked checkboxes: "Color", "Appearance", and "Orientation". At the bottom of the dialog are four buttons: "Save", "Retrieve", "Delete", and "Done".

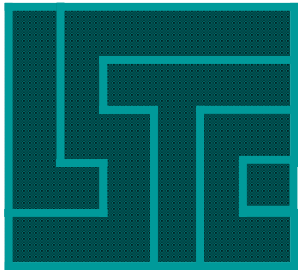
Save/Retrieve Views	
View_01	
View_02	
View_03	
View_04	
View_05	
View Name_number:	
View_06	
<input checked="" type="checkbox"/> Color	
<input checked="" type="checkbox"/> Appearance	
<input checked="" type="checkbox"/> Orientation	
Save	Retrieve
Delete	Done



Color and Transparency

- Pick Part, Area, Poly - Standard Ispost picking method.
- In - Apply to the inside of the window area or the polygon
- Out - Apply to the outside of the window area or the polygon
- Color - Activate color chooser interface
- Transp - Activate transparency interface
- Editmap - Edit the part color map
- Reset - Reset the part color map to default values
- App_map - Apply the part color map to model





Color and Transparency

- Reset_tran - Turn transparent parts back to opaque
- AllVis - Assign the current color or transparency value to all visible parts
- Red, Green, Blue color sliders - set values for each color component from 0 to 100
- Set - Select to apply current color to parts or other entities
- Show - Select to show part color as current color

Red 96

Green 34

Blue 12

Set Show

Backg Text

Mesh Label

Hilite outlin

Set Part Color

Pick Part

Area In

Poly Out

Color Transp

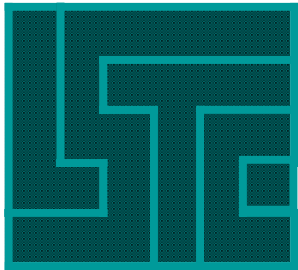
Part Colormap

Red	Blue	Green	Yellow	Brown
Magenta	Dark Blue	Light Green	Light Yellow	Light Brown
Light Red	Light Blue	Light Green	Light Yellow	Light Orange
Purple	White	White	White	White
Grey	Grey	Grey	Grey	Grey
Dark Grey	Dark Grey	Dark Grey	Dark Grey	Dark Grey

Editmap

App_map Reset_tran

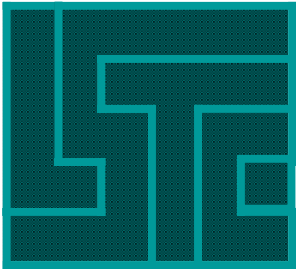
AllVis Done



Edit Part Colormap

- Click “Editmap” button on
- Click “Show” button on
- Use left mouse to pick a color from the colormap
- Use RGB slider bars to adjust color
- Click “Set” button on
- Click any color box in the Part Colormap to apply the color to that box
- Click “App_map” to apply colormap to model





Set Part Transparency

- Click “Transp” button in Set Part Color interface to bring up transparency interface
- Click “Set Transparency” button
- Use left mouse to pick a part to make it transparent
- Selecting a transparent part will make it opaque

Transparency Value SetTransparency
 GetTransparency

0.85

A horizontal slider bar is positioned below the text, with a vertical marker indicating the current transparency value of 0.85.

Set Part Color

Pick Part

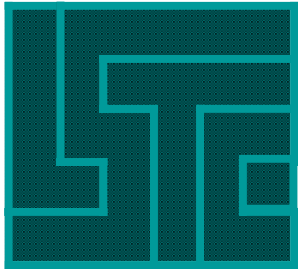
Area In
 Poly Out

Color Transp

Part Colormap

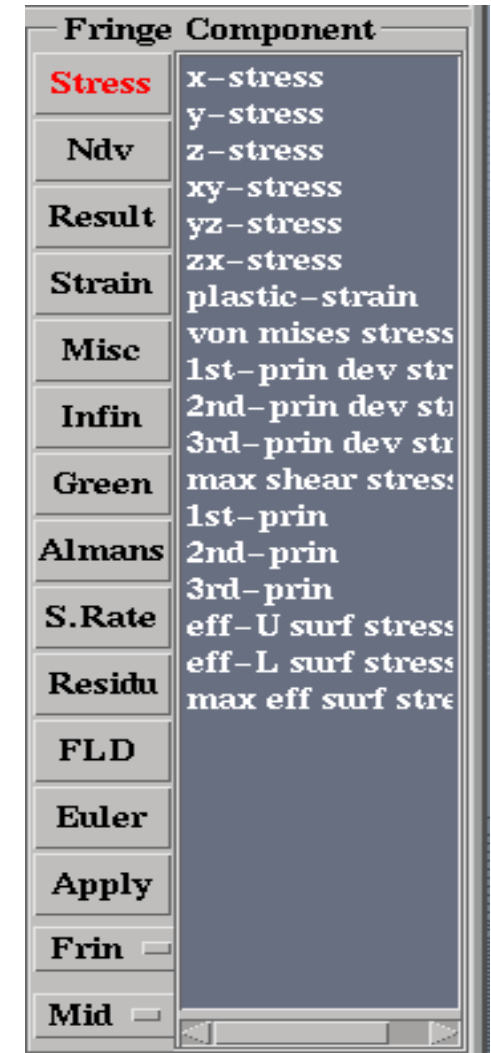
Red	Blue	Green	Yellow	Brown
Magenta	Dark Blue	Light Green	Light Yellow	Light Brown
Light Red	Light Blue	Light Green	Light Yellow	Light Orange
Light Purple	White	White	White	White
Light Gray	Light Gray	Light Gray	Light Gray	Light Gray
Dark Gray	Dark Gray	Dark Gray	Dark Gray	Dark Gray

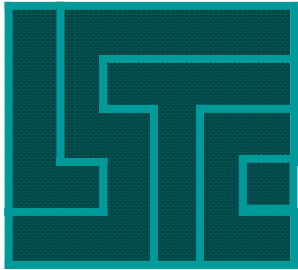
Editmap



Fringe Component Selection

- Fringe components are divided into several categories:
 - Stresses - global stress components and principal stresses
 - Ndv - nodal displacement, velocity
 - Result - resultant forces
 - Strain - strains at different surfaces
 - Misc - temperature, pressure, shell thickness, Internal energy, etc.
 - Infin, Green, Almans - are different type of strains
 - S.Rate - stress rate
 - Residu - Residual strain
 - Apply - Apply the selected component and display the fringe results





Find Node, Element or Part

- Node - find a node, given a node ID
- Elem - find an element, given an element ID. Specify the element type will speed up the find process, “Any” will match whatever type that have that ID
- Part - find a part, given the material ID
- Show Only - blank all entities except the found entity
- Highlight - highlight the entity
- Find - activate the find process
- Neighbors - find neighbors of the current active entity

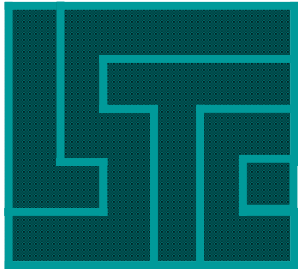
The screenshot shows a dialog box titled "Find Ele/Node/Mat". It contains several radio button options for selection. The "Elem" option is selected. Below the options, there are two more radio buttons: "Show Only" and "Highlight", with "Highlight" selected. At the bottom, there is a text input field labeled "Node/Elem/Part Id" with a small cursor icon on the left. Below the input field are three buttons: "Find", "Neighbors", and "Done".

Find Ele/Node/Mat	
<input type="radio"/> Node	<input checked="" type="radio"/> Any
<input checked="" type="radio"/> Elem	<input type="radio"/> Beam
<input type="radio"/> Part	<input type="radio"/> Shell
	<input type="radio"/> Solid
	<input type="radio"/> Tshell

<input type="radio"/> Show Only
<input checked="" type="radio"/> Highlight

Node/Elem/Part Id

Find
Neighbors
Done

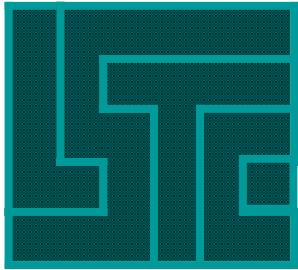


Identify Node, Element or Part

- Node - highlight node(s)
- Element - highlight element(s)
- Part - highlight part(s)
- Pick - single pick top layer in the screen Z coordinate
- Area, Poly - area selection through all layers along the screen Z coordinate
- In/Out - inside or outside the area
- Clear Node, Ele, Part - clear the highlighted entities
- AllVis - highlight all visible entities

The screenshot shows a dialog box titled "Identify ele/node/mat". It contains several radio button options: "Pick Entity" (selected), "Area", "Poly", "Node", "Element", and "Part". Under "Pick Entity", there are sub-options "In" (selected) and "Out". A "Show Results" checkbox is checked and highlighted with a red border. At the bottom, there is a grid of buttons: "Clear Node", "AllVis", "Clear Ele", "Clear All", "Clear Part", and "Done".

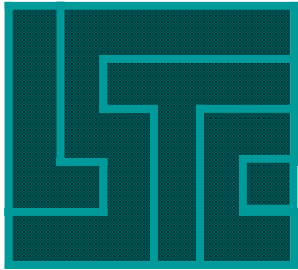
Identify ele/node/mat	
<input checked="" type="radio"/> Pick Entity	
<input type="radio"/> Area	<input checked="" type="radio"/> In
<input type="radio"/> Poly	<input type="radio"/> Out
<input checked="" type="radio"/> Node	
<input type="radio"/> Element	
<input type="radio"/> Part	
<input checked="" type="checkbox"/> Show Results	
Clear Node	AllVis
Clear Ele	Clear All
Clear Part	Done



Measure Interface

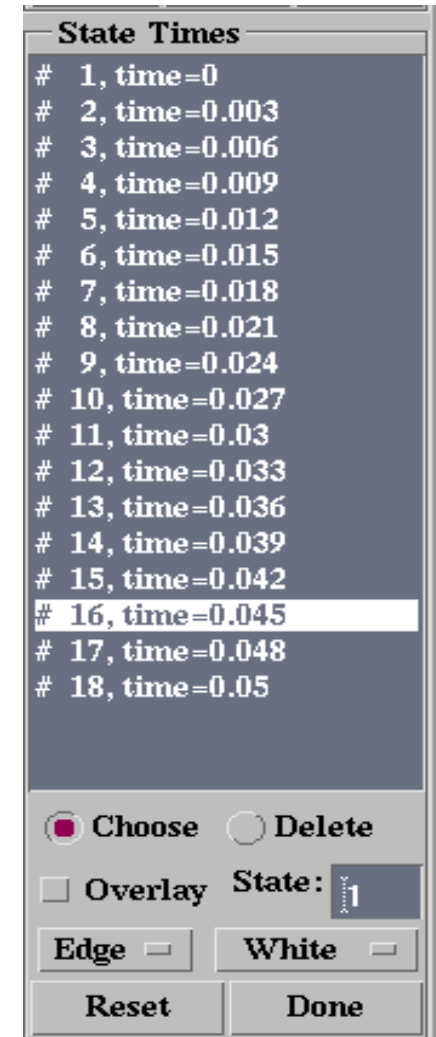
- Coordinate - report the coordinates of a node by picking a node
- Distance - report the distance between 2 nodes (need to pick 2 nodes)
- Ang-3node - report the angle between 3 nodes (need to pick 3 nodes)
- Ang-4node - report the angle between 2 lines formed by 4 nodes
- Area - report area of an element or a part
- Volume - report volume of an element or a part
- Mass - report mass of an element or part

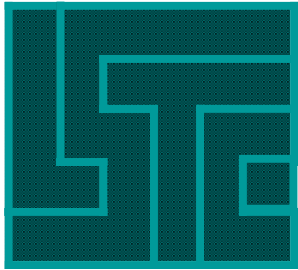
A screenshot of a software dialog box titled "Measure". The dialog box has a light gray background and a red border. It contains two sections of radio buttons. The first section is for measuring geometric properties: "Coordinate" (selected with a red square), "Distance", "Ang-3node", "Ang-4node(2line)", "Area", "Volume", and "Mass". The second section is for measuring element or part properties: "Element" (selected with a red square) and "Part". At the bottom of the dialog box are two buttons: "Cancel" and "Done".



State List and Overlay

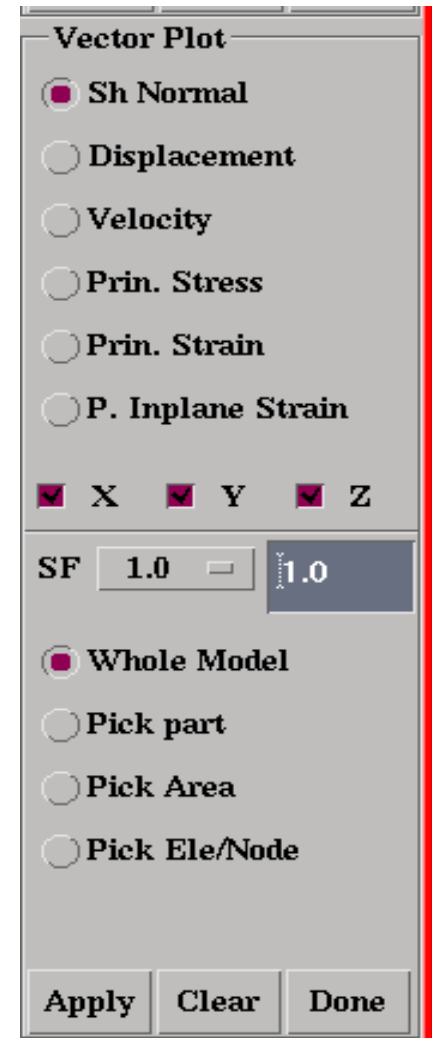
- State list - list all time steps in the output
- Choose - quick way to access a state
- Delete - turn a state on or off from rendering
- Overlay - turn overlay mode on, the selected state becomes the overlay state
- Overlay state can also be typed in
- Overlay state can only be drawn in Edge, Feature, or wireframe mode
- Overlay state can have different colors
- Reset button to turn all states on

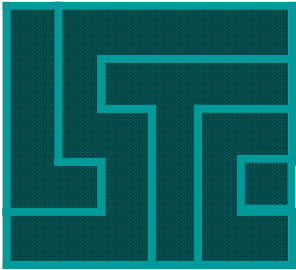




Vector plot

- Sh Normal - plot shell normals
- Displacement - plot displacement vector
- Velocity - plot velocity vector
- Prin. Stress - plot principal stresses
- Prin. Strain - plot global principal strains
- Prin. Inplane Strain - plot in-plane principal strains
- Options to plot whole model, or pick a single part, or an area or a single element or node
- Must click “Apply” before picking



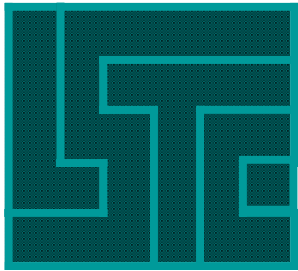


Fringe Range Setting

- Dynamic Range - ranges calculated based on each individual state
- Static Range - ranges calculated based on all states
- User Defined - user enter the Min. and Max. values for ranges
- Show Range - show only elements that are within the ranges
- Entire Model - ranges calculated based on entire model
- Active part Only - ranges calculated based on the active parts (visible parts)
- No Average - one color per element

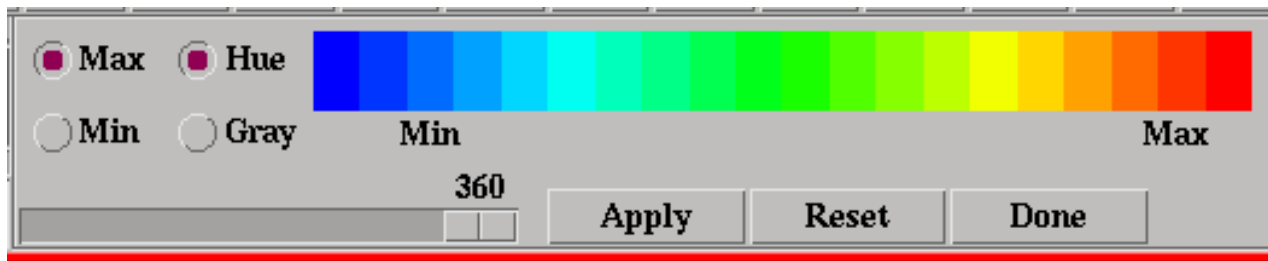
The screenshot shows a dialog box titled "Set Fringe Range". It contains several options and input fields:

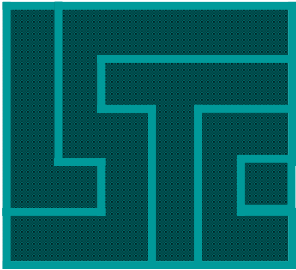
- Dynamic Range
- Static Range
- User Defined
- Show Range
- Entire Model
- Active part Only
- Min:
- Max:
- Blank out of range
- No Average
- No. of Levels:
- Buttons: Palette, Update, Done



Fringe Range Setting

- Blank out of range - blank those elements that are not within the range
- No.of Levels - 6, 10, 20, or 30
- Palette - activate fringe levels color palette
- Use slider bar to adjust color palette
- Click “Apply” to realize palette
- Done - return to previous interface





Section Plane

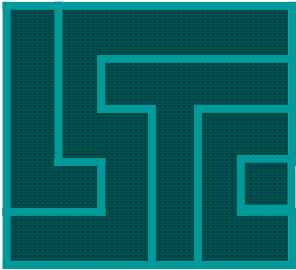
Two kind of section planes

- FixSp - section plane fixed in space
- FixMd - section plane fixed to model

Three ways to define a plane

- 1pt + Normal - 1 point and a normal
 - BasePt - a point defined by X,Y, Z coord
 - BaseNd - a point defined by picking a node or enter a node number (ID)
 - Normal is defined by the 3 components of the direction cosine
 - Centroid - will use the centroid of the active model (AC) as the base point
 - Reset - clear all definitions

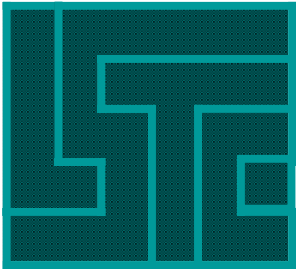
The screenshot shows a software dialog box titled "Section Plane". It contains several radio buttons for selection: "FixSp" (selected), "FixMd", "1pt + Normal" (selected), "N1-N2", and "N1-N2-N3". Below these are checkboxes for "BasePt" (checked) and "BaseNd". There are three input fields for X, Y, and Z coordinates with values 1711.817, 0.00088500977, and 394.12 respectively. A "Node" field is also present. At the bottom, there are buttons for "NormX", "NormY", "NormZ" (with values 0.0, 0.0, 1.0), "Centroid", "Reset", "Cut", "Mvp", "Win2", "Model", "Opt", and "Done".



Section Plane

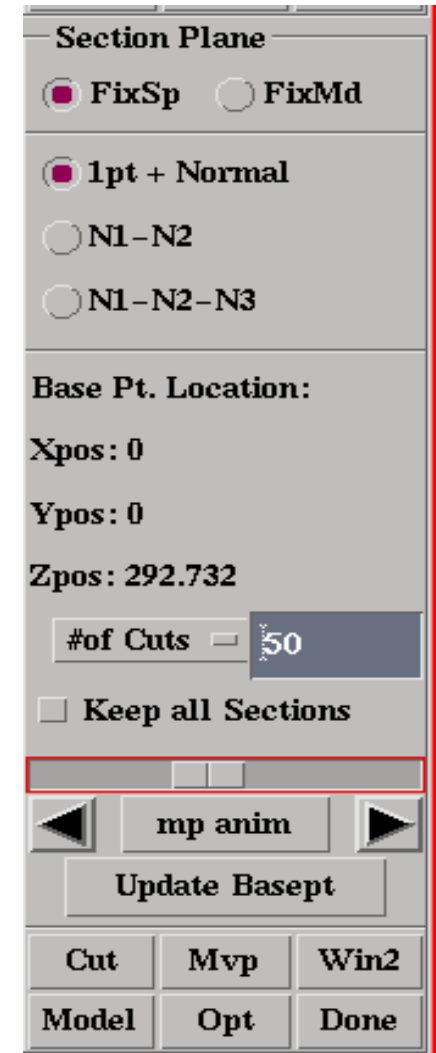
- N1-N2 - Pick or enter 2 nodes to define a plane, N1 is the base point, vector from N1 to N2 is the normal of the plane
- N1-N2-N3 - Pick or enter 3 nodes to define a plane. N1, N2, N3 form a plane, vector N1-N2 cross vector N1-N3 gives the normal of the plane
- Cut - once the plane is defined, “Cut” will display the cross section of the model
- Model - return to the uncut display of the model

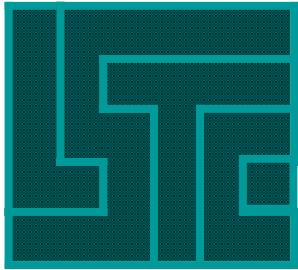
The image shows a software dialog box titled "Section Plane". It contains several options for defining a plane: "FixSp" (selected with a red dot), "FixMd" (unselected), "1pt + Normal" (unselected), "N1-N2" (unselected), and "N1-N2-N3" (selected with a red dot). Below these is a section titled "Define Plane:" with three input fields for "Node1", "Node2", and "Node3", each with a small "x" icon to its right. Underneath are three numerical input fields for "NormX", "NormY", and "NormZ", all showing "0.00". A "Reset" button is located below these fields. At the bottom of the dialog are two rows of buttons: "Cut", "Mvp", "Win2" in the first row, and "Model", "Opt", "Done" in the second row.



Section Plane

- Mvp - move the cutting plane along its normal direction
- #of Cuts - divide the entire length along the normal direction into N divisions
- mp anim - animate the moving plane along the entire length in the direction of the normal
- Update Basept - take the current plane location and make it the base point



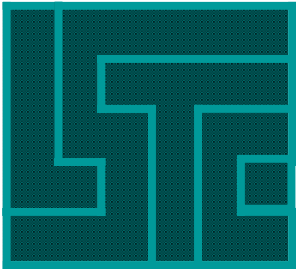


Section Plane

- Opt - active option dialog menu
- ShowPl - turn on or off the semi-transparent plane in the model view
- Outline - turn on or off the outlining of the solid parts when the section plane cuts through the parts
- Line width of the cross section can be from 1 to 5 pixel wide
- Line color - default each part uses its material color for the cut section, or choose one color for the entire cross section
- Write - write out the cross section in beam (from shell) or shell (from solid) element

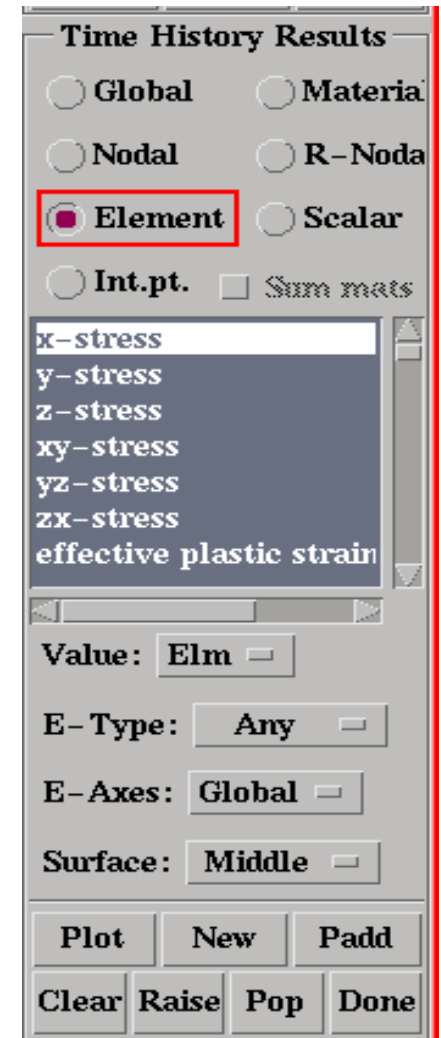
The image shows a software dialog box titled "Section Plane". It contains several options and controls:

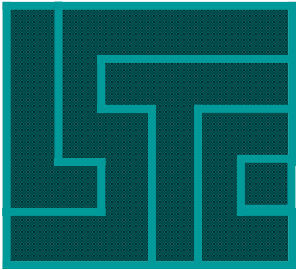
- Radio buttons for **FixSp** (selected) and **FixMd**.
- Radio buttons for **1pt + Normal** (selected), **N1-N2**, and **N1-N2-N3**.
- Checked checkboxes for **ShowPl** and **Outline**.
- A **Line Width** spinner box set to **1**.
- A **Line Color** dropdown menu set to **Part color**.
- A **state no.:** text box with a small grid icon.
- Write** and **Curr State** buttons.
- A grid of buttons at the bottom: **Cut**, **Mvp**, **Win2**, **Model**, **Opt**, and **Done**.



Time History Data

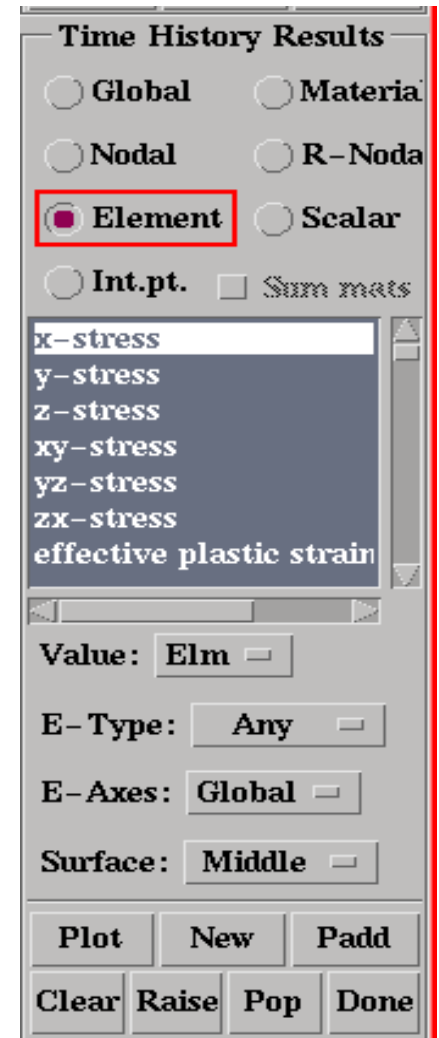
- Global - global variables such as internal energy, kinetic energy, rigid body displacement, velocity, acceleration; rigid wall forces, etc.
- Nodal - nodal coordinates, displacement, velocity, acceleration, etc.
- Element - element stresses/strains
- Material - material (part) energies, and rigid body displacement, velocity, acceleration, etc.
- Scalar - scalar value that was selected in the “Fcomp” interface

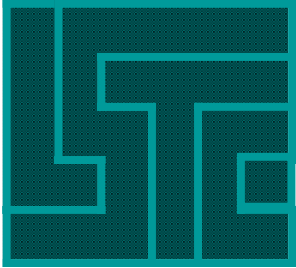




Time History Common Interface

- Plot - plot the selected data in the current xy graph window
- New - plot the selected data in a new xy graph window
- Padd - add the selected xy data to the current window
- Clear - clear selection
- Raise - raise all xy graph windows from behind the main graphics window
- Pop - popup those closed xy graph windows
- Done - exit the Time History Interface





FLD Interface

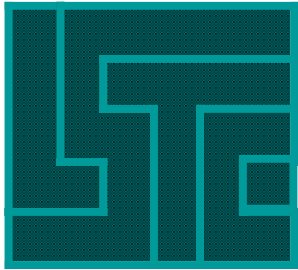
- 't_n' - construct FLD curve based on t and n values
- File - user supplied FLD curve data
- t - shell thickness in mm
- n - FLD criteria formula index

To plot FLD data:

- Enter values for t and n
- Click "Plot" to general FLD curves
- Choose shell surface for FLD results
- Pick an element to show the values

The screenshot shows a dialog box titled "Forming Limit Results". It contains the following elements:

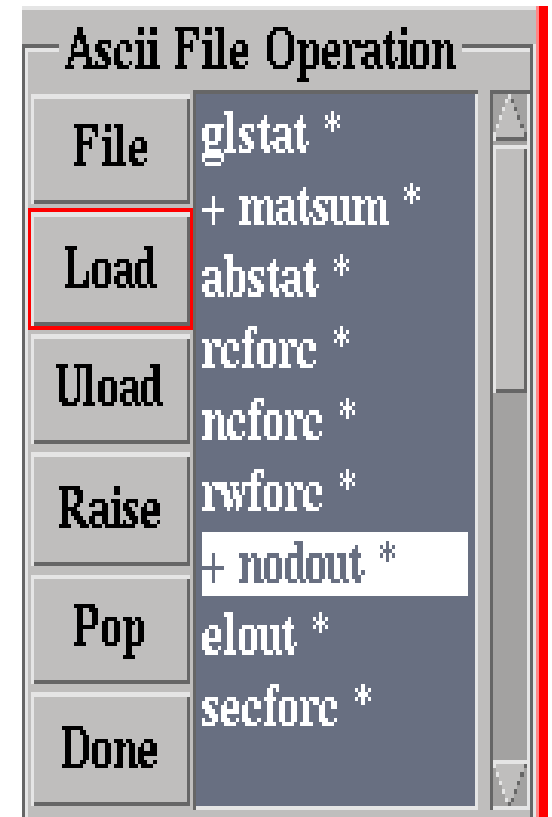
- Forming Limit Results**
- Calculated FLD Curve:**
- Input fields for **t=** (value: 2) and **n=** (value: 0.15).
- Radio buttons for **'t_n'** (selected) and **File**.
- Last picked values:**
- Text area containing: **El#=-38880, Con=32**, **T=0.946, %R=5.65**, **Major strain: U=7.17, L=7.03**, **Minor strain: U=7.17, L=2.4**.
- Position:** Lower (with a dropdown arrow).
- Buttons: **Plot**, **New**, **Padd**, **Clear**, **Raise**, **Pop**, **Done**.

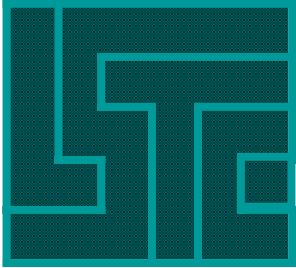


ASCII Data Files Interface

The ASCII file list contains the names of the 22 ascii database output by LS-DYNA

- A name with an asterisk (*) means the file exists in the current directory
- A name with a plus (+) sign means the data of this file is already loaded into memory
- File - use file selection box to enter the file name to be open
- Load - open and load the ascii data, when the name has an asterisk (*) with it
- Uload - unload data from memory
- Raise - raise all obscured xy graph windows
- Pop - popup all closed xy graph windows
- Done - exit ASCII Interface

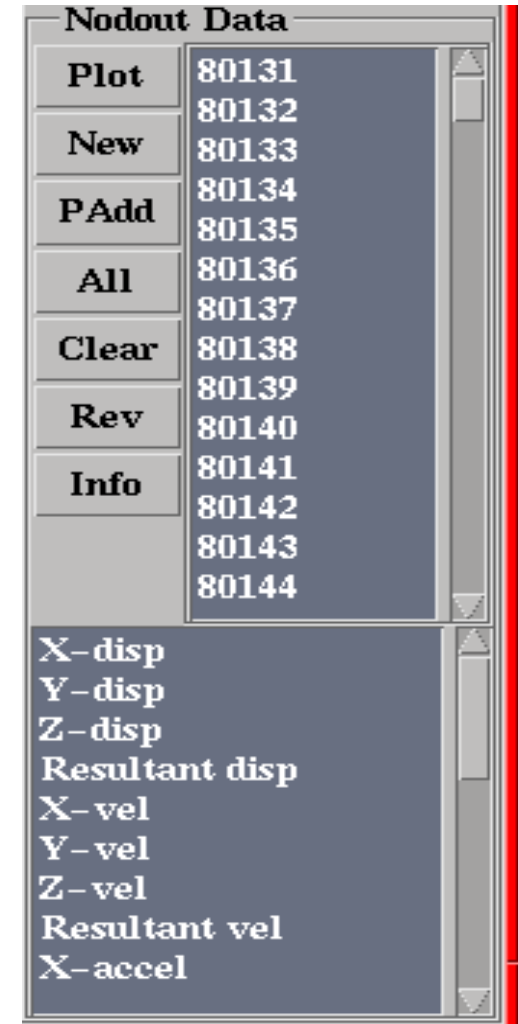


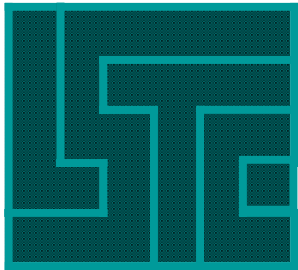


ASCII Data File Interface

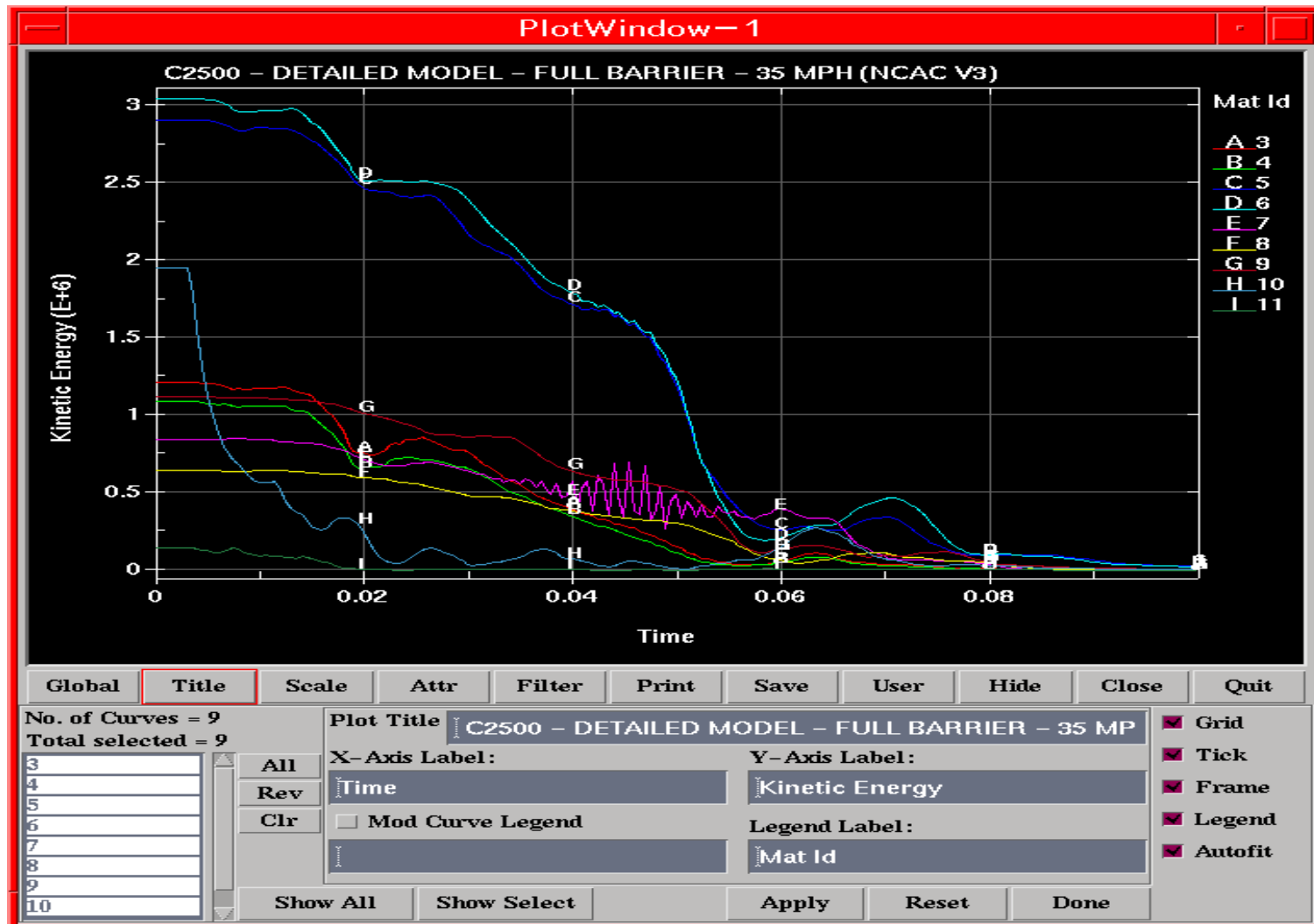
To plot ascii file data:

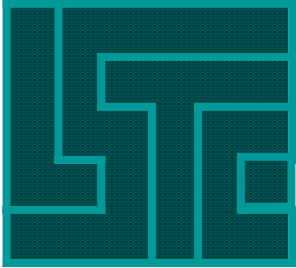
- Select one of the ascii name in the list
- Click “Load” if this name has (*), else click “File” to bring up the file selection box
- After data is loaded, select one or several component(s) from the component list
- Select one or several data entities from the data list
- Click “Plot” or “New” to plot the data





The XY Graph Window

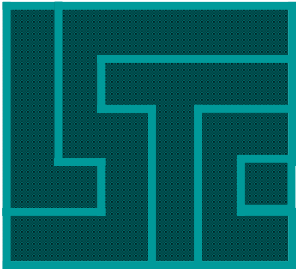




The XY Graph Window

The XY Graph windows contain XY plots and buttons for changing various parameters of the plot

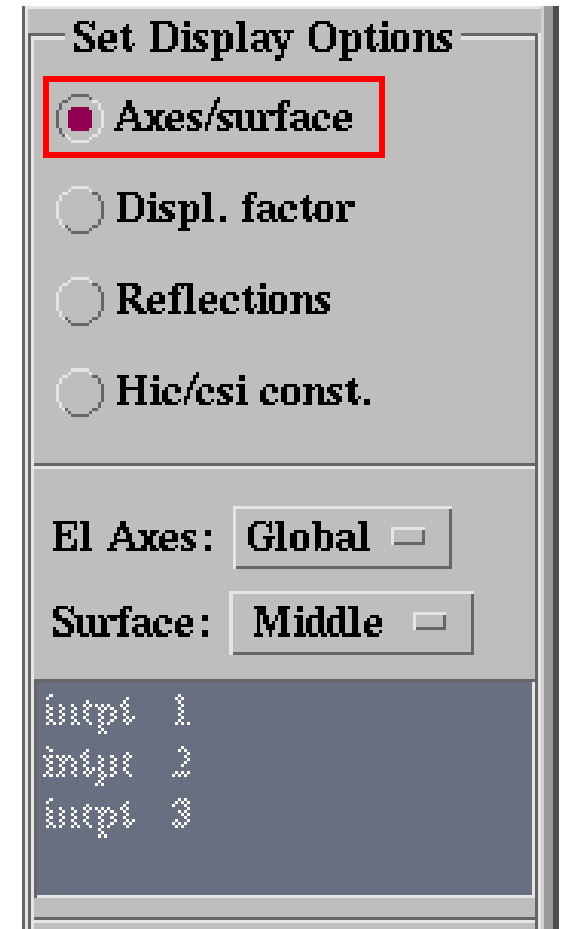
- Global - old style dialog interface (will be obsolete soon)
- Title - change title of the graph
- Scale - change min/max, offsets, and scale of the graph
- Attr - change attributes of xy graphs such as color, line width, symbol, and style
- Filter - provides filtering to xy graph using SAE, Butterworth, and Fir filtering scheme
- Print - print the xy graph window in various format
- Save - save the xy data into a file
- User - load user xy data (ascii format only)
- Hide - hide interface buttons

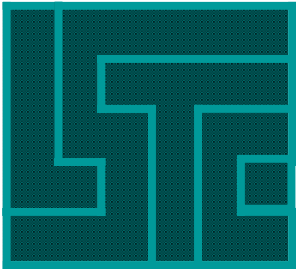


Setting

The current interface provides 4 different options:

- Axes/surface - to define element axes (global or local) and surface location (top, middle, bottom, maxima, or integration points)
- Displ. Factor - to define displacement scaling factors
- Reflections - to reflect the model with a global plan, using the whole model or part of the model
- Hic/csi const - to define the Head Injury Criteria constants

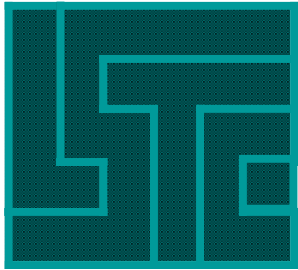




Displacement Scaling

- Displacement scale factor can be applied to the whole model or a single part.
- Scale factor can be typed in or choose from a preset list
- Scale factor can apply to any combination of the global X,Y,Z direction

The screenshot shows a software dialog box titled "Set Display Options". It contains several radio button options: "Axes/surface", "Displ. factor" (which is selected and highlighted with a red box), "Reflections", and "Hic/csi const.". Below these are two more radio button options: "Whole" (selected) and "Part". Underneath is a section labeled "Displacement Scale:" with a numeric input field containing "1.0" and a small square button to its right. At the bottom, there are three checked checkboxes labeled "X", "Y", and "Z".



Annotation Interface

Annotation allows users to put labels and arrows on the graphics window

- First enter the labeling text in the text field and press return or click “Add” button
- Select the text from the list
- Select label size from “Pts” button
- Select label color from “Col” button
- Select rotation angle if it applies
- Click “Position” and use the left mouse to position the text on the graphics window
- Click “Move” and use the left mouse to click the label to move it
- Click “Highlight” then use left mouse to click the label, a box will surround the text, you may delete a highlighted label

Labeling

AN98 FRONT IMPACT
This is a Nic Truck
Use Solid element For Ti

Text: Add Clr Del

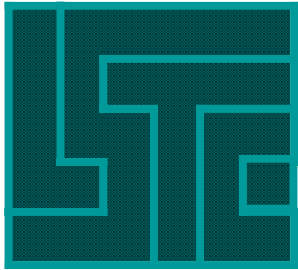
Door Not Included

Position Move
 Highlight Arrow

Del Dall Set Font

Col ■ Ang 90
Pts 24
Font Helvetica

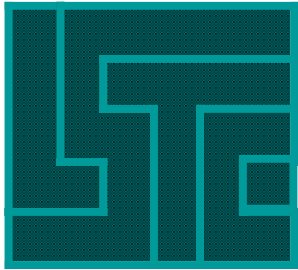
Reset Done



Output Formatted Data

Output allows user to write geometry and result data to a file. The user can select which type of output to save: element connectivity, nodal coordinates, nodal displacements, element or nodal results. The element and nodal results are defined by the component selected in the “Fcomp” interface. The user can also write data for the entire model or just the active (visible) parts in either the user’s numbering system(model) or internal numbering system(LS-DYNA).

A screenshot of the 'Formatted Output' dialog box. The dialog has a title bar 'Formatted Output'. It contains several options: 'Active parts only' (selected with a radio button), 'Entire Model' (unselected), 'User Number' (selected with a radio button), and 'Internal Number' (unselected). Below these are checkboxes for 'Element' (checked), 'Node Coord' (checked), 'Node Disp' (unchecked), 'Element Results' (unchecked), and 'Nodal Results' (unchecked). There is a 'state no.:' label followed by a text box containing the number '1'. Below the text box is a 'Curr State' button. At the bottom of the dialog are 'Write' and 'Done' buttons.



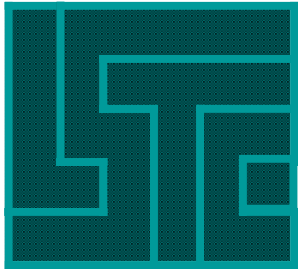
Node Trace

Trace - a node or a group of nodes can be activated to show their travelling path during the deformation of the model.

- Trace lines can have a width from 1 to 5 pixels wide. They can be drawn in 8 different colors.
- The user can also write the nodal deformation path data to a file.

The control panel for the Node Trace feature, titled "Node Trace". It contains the following elements:

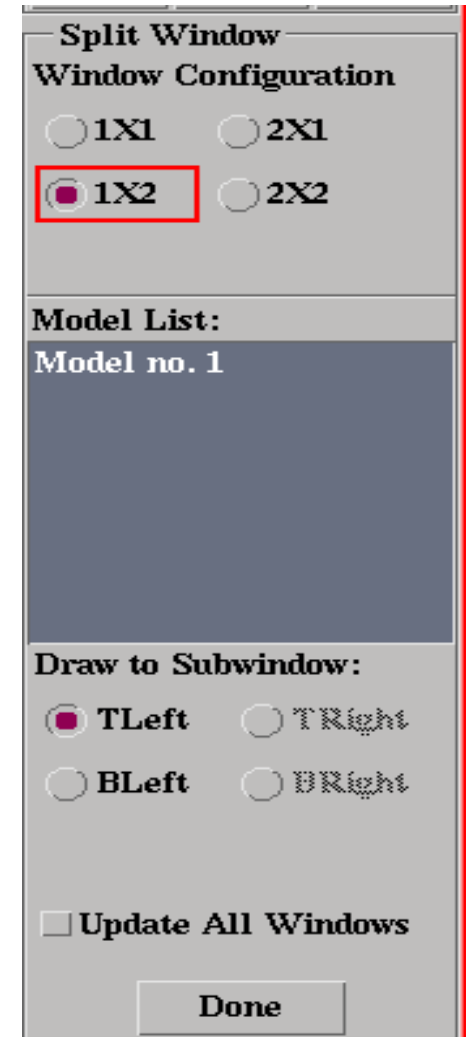
- Pick Node
- Area
- Poly
- In
- Out
- Node Label
- LineWidth: 3
- Color: Red
- Write Trace button
- Clear Trace button
- Done button

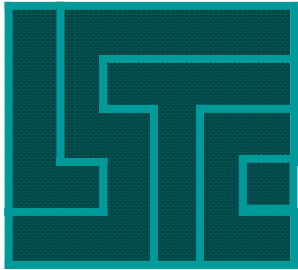


Split Graphics Windows

Split Window allows multiple views of the same model or different models to be viewed at the same time. There are 4 different configurations:

- 1x1 - single window
- 1x2 - window divided into top and bottom
- 2x1 - window divided into left and right
- 2x2 - window divided into 4 quadrants
- Multiple models will be implemented soon
- Use right mouse click to activate a window or click the corresponding button
- Update All Windows - draw all windows for rotation or animation





Follow Node or Plane

- View Ref. Point - pick a nodal point and make it the stationary point at the center of the window. Click “Apply” to activate the follow command
- Camera Position - not yet implemented
- View Up Vector - not yet implemented

Follow Options

View Ref. Point
 Camera Position
 View Up Vector

Xvrp: 0.0
Yvrp: 0.0
Zvrp: 0.0

N1: []

Distance factor:
[] 1.0 []

No of frames []

Apply	Clear	Key Pt
Anim	Reset	Done

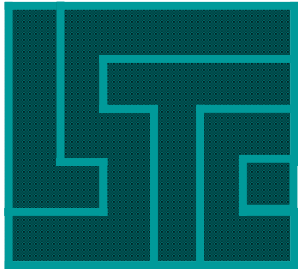
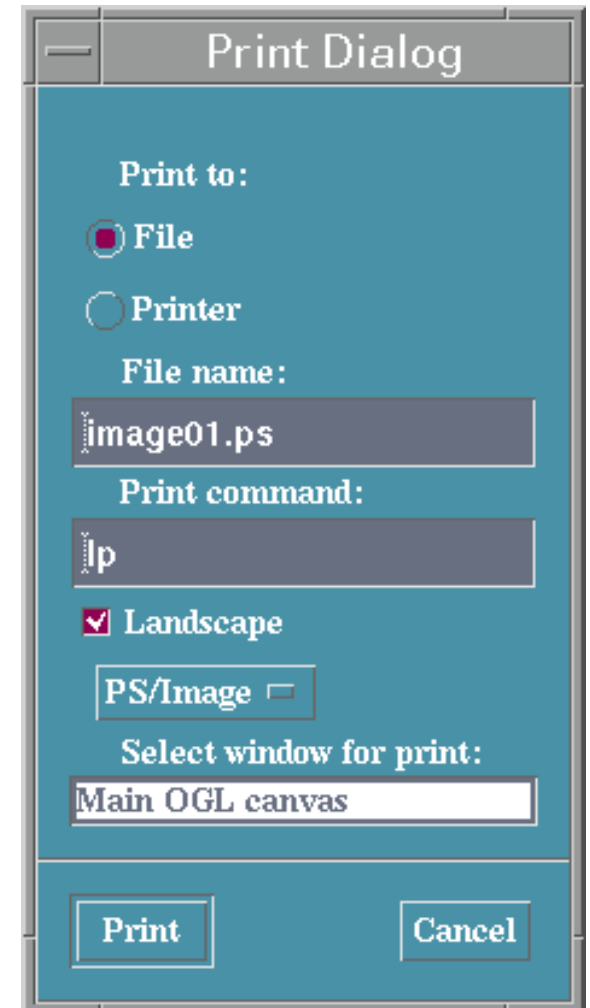
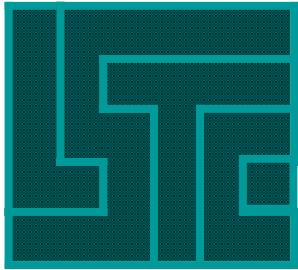


Image Printing

Graphical images can be printed to a file or printer in the following formats:

- PS/image - postscript image
- PS - postscript vector plot
- TIFF
- PPM
- Pict
- GIF
- JPEG
- BMP
- VRML2





Making Movie

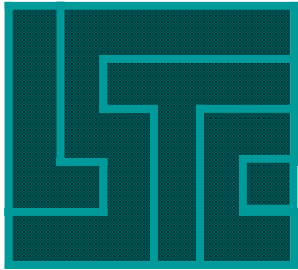
Animation sequence can be generated using the Movie Dialog. The supported formats are:

AVI (rle) - avi file with run length encoded

AVI(24bits) - avi file with 24bit color

MPEG - this is a public domain version which may not work well

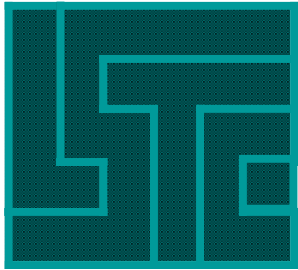




Configuration Parameters

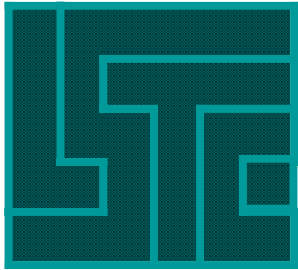
Configuration file (.lspostrc):

- Format - Keyword followed by equal sign (=) and parameters (values). Parameters can be separated by blanks or comma
- Order is not important
- Not all parameters have to be defined
- Comment lines start with an asterisk (*)
- Search path:
 - Current directory
 - User's home directory (\$HOME)
 - LSTC_FILE directory (\$LSTC_FILE)
- The best way to customize the configuration file is to modify the one that is written by lspost



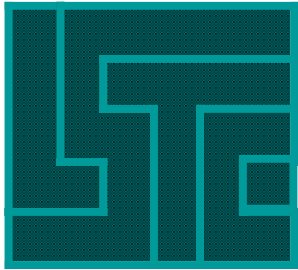
Configuration Parameters (1)

```
*
* LSPOST configuration
*
texture = off
twoside_lighting = on
background_color = 0.000, 0.000, 0.000
text_color      = 1.000, 1.000, 1.000
mesh_color      = 0.000, 0.000, 0.000
label_color     = 1.000, 1.000, 1.000
hilite_color    = 0.500, 0.500, 0.500
outline_color   = 0.000, 0.000, 0.000
triad_color    = 1.000, 1.000, 1.000
edgewidth = 1
meshlwidth = 1
fringe_light = on
plotunode = off
outlining = edge
shade_mode = flat
highlight_node = off
result_onscreen = off
```



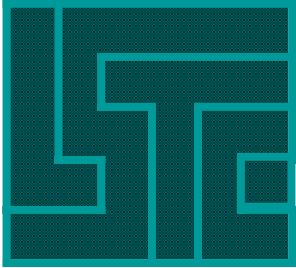
Configuration Parameters (2)

```
highlight = on
popup_dialog = off
mat_ambient = 0.100000
mat_diffuse = 0.200000
mat_specular = 0.700000
mat_shininess = 20.000000
light_ambient.1 = 0.300, 0.300, 0.300
light_ambient.2 = 0.300, 0.300, 0.300
light_diffuse.1 = 0.700, 0.700, 0.700
light_diffuse.2 = 0.700, 0.700, 0.700
light_specular.1 = 0.500, 0.500, 0.500
light_specular.2 = 0.500, 0.500, 0.500
light_position.1 = 0.000, 0.000, 1.000
light_position.2 = 0.000, 0.000, -1.000
transparency_value = 0.850
```

Configuration Parameters (3)

```
mat_color.1 = 0.769, 0.004, 0.110
mat_color.2 = 0.251, 0.635, 0.843
mat_color.3 = 0.153, 0.510, 0.271
mat_color.4 = 0.824, 0.804, 0.000
mat_color.5 = 0.604, 0.333, 0.137
mat_color.6 = 0.761, 0.000, 0.227
mat_color.7 = 0.129, 0.102, 0.376
mat_color.8 = 0.200, 0.624, 0.376
mat_color.9 = 1.000, 0.922, 0.404
mat_color.10 = 0.659, 0.502, 0.310
mat_color.11 = 0.788, 0.161, 0.243
mat_color.12 = 0.659, 0.824, 0.847
mat_color.13 = 0.153, 0.604, 0.404
mat_color.14 = 0.808, 0.847, 0.106
mat_color.15 = 0.851, 0.643, 0.388
mat_color.16 = 0.667, 0.329, 0.525
fringe_level = 10
```



Configuration Parameters (4)

```
vect_plotscale = 1.000
shrink_factor = 0.800
rotate_angle = 10.0
feature_angle = 30.0
default_light = 0.300, 0.700, 0.400
help_label = off
mainmenu_on = right
fld_tvalue = 2.000000
fld_nvalue = 0.150000
mainwindow_x = 1125
mainwindow_y = 900
plotwindow_x = 0
plotwindow_y = 0
xyplotlegend = on
init_path =
```