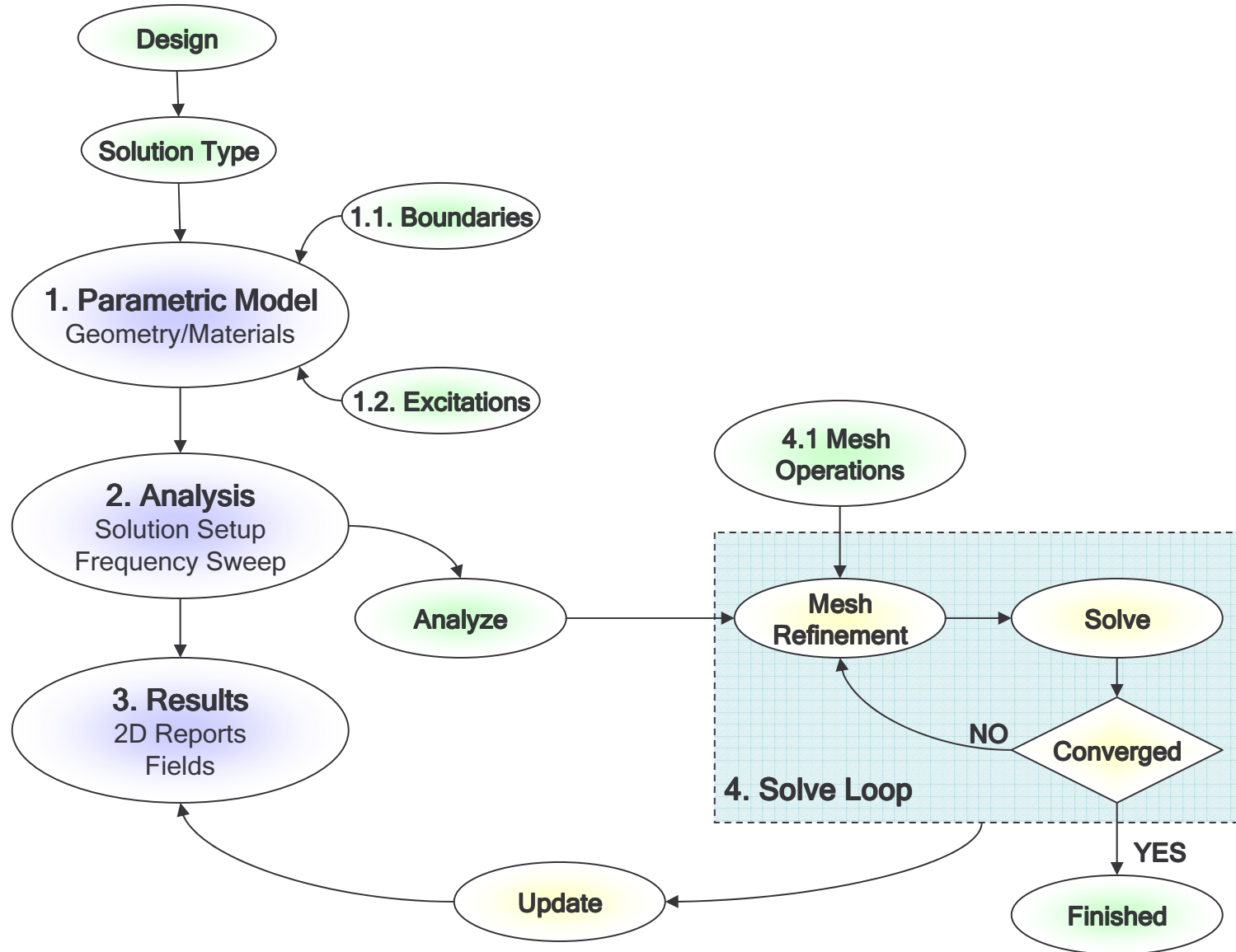
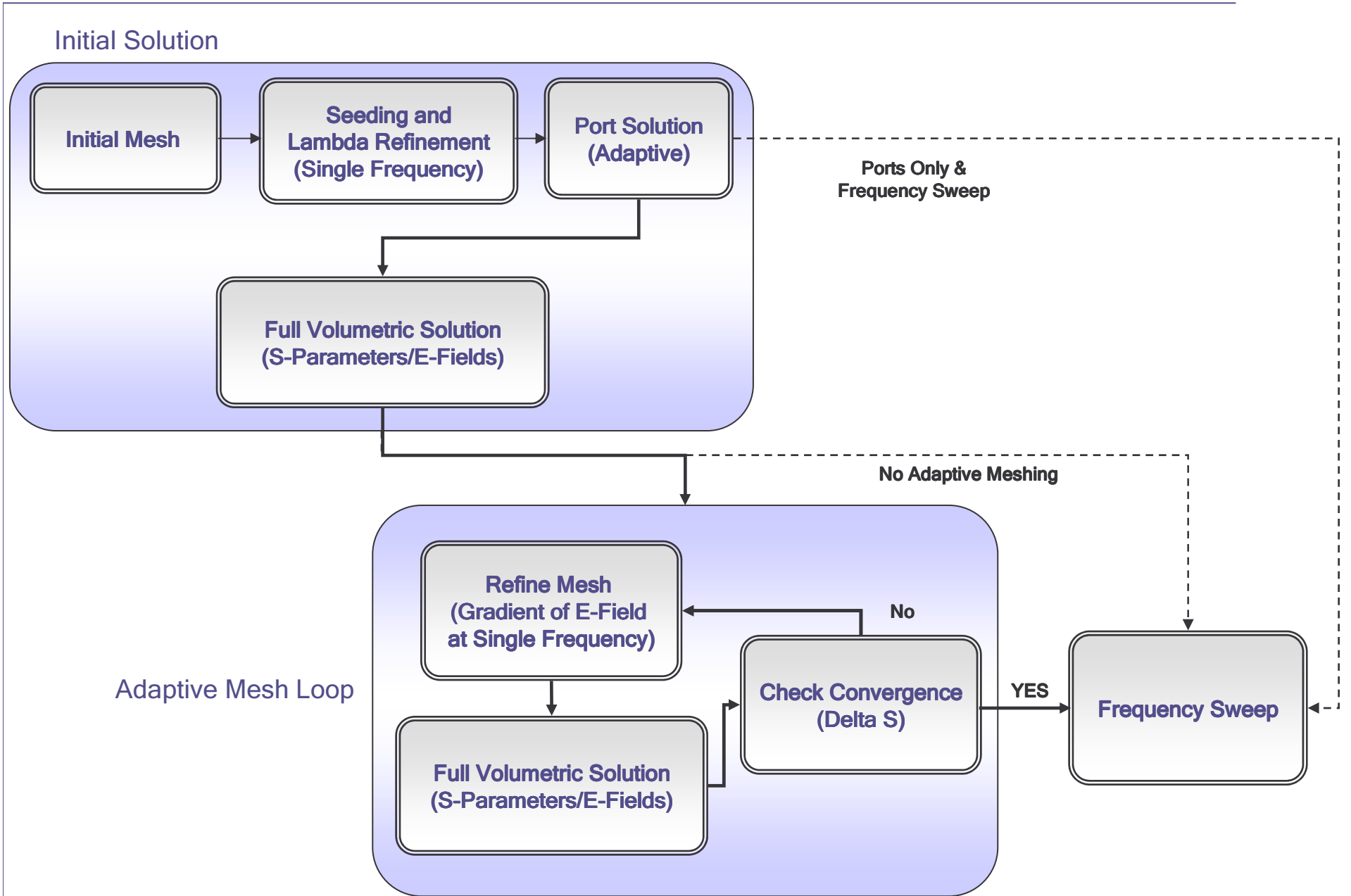


The Process





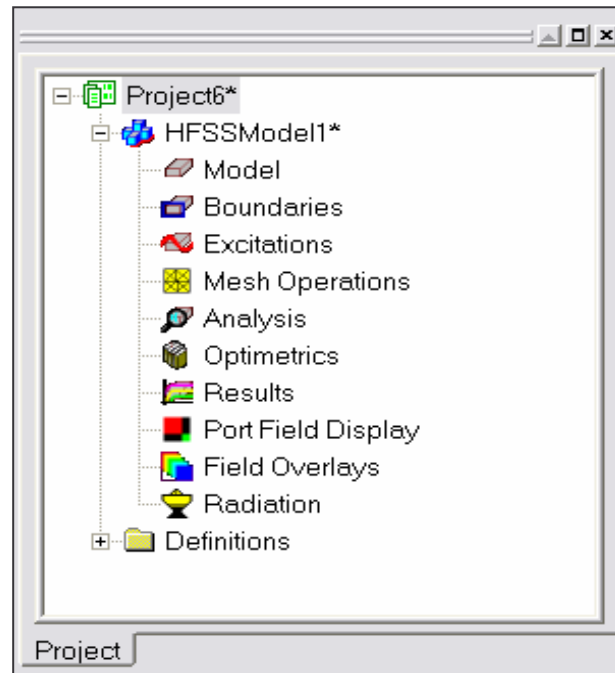
Starting HFSS

- Click the Microsoft **Start** button, select **Programs**, and select the *Ansoft > HFSS 9 > HFSS 9*.
- Or** Double click on the HFSS 9 icon on the Windows Desktop



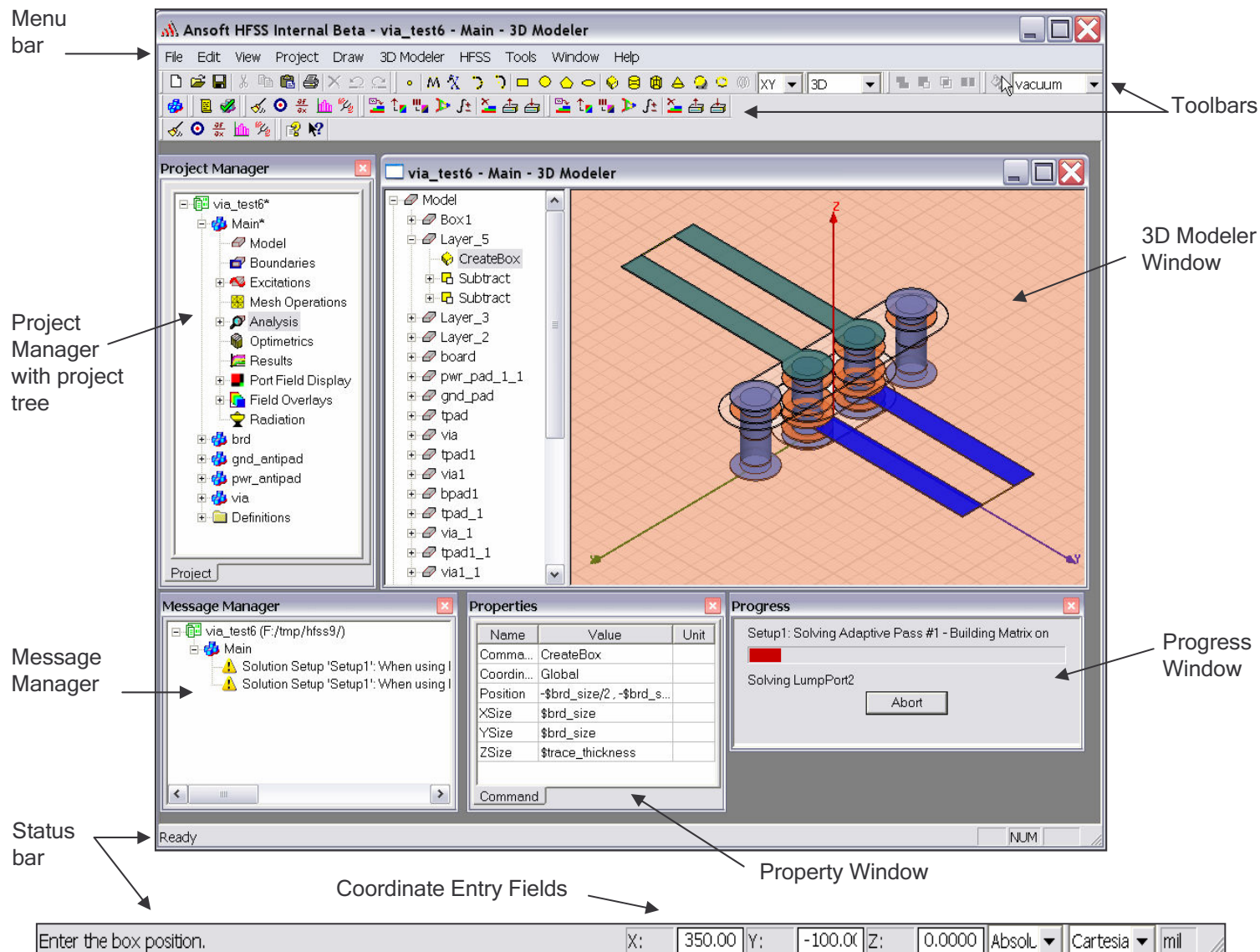
Adding a Design

- When you first start HFSS a new project will be automatically added to the Project Tree.
- To add an HFSS Design to the project, select the menu item *Project > Insert HFSS Design*



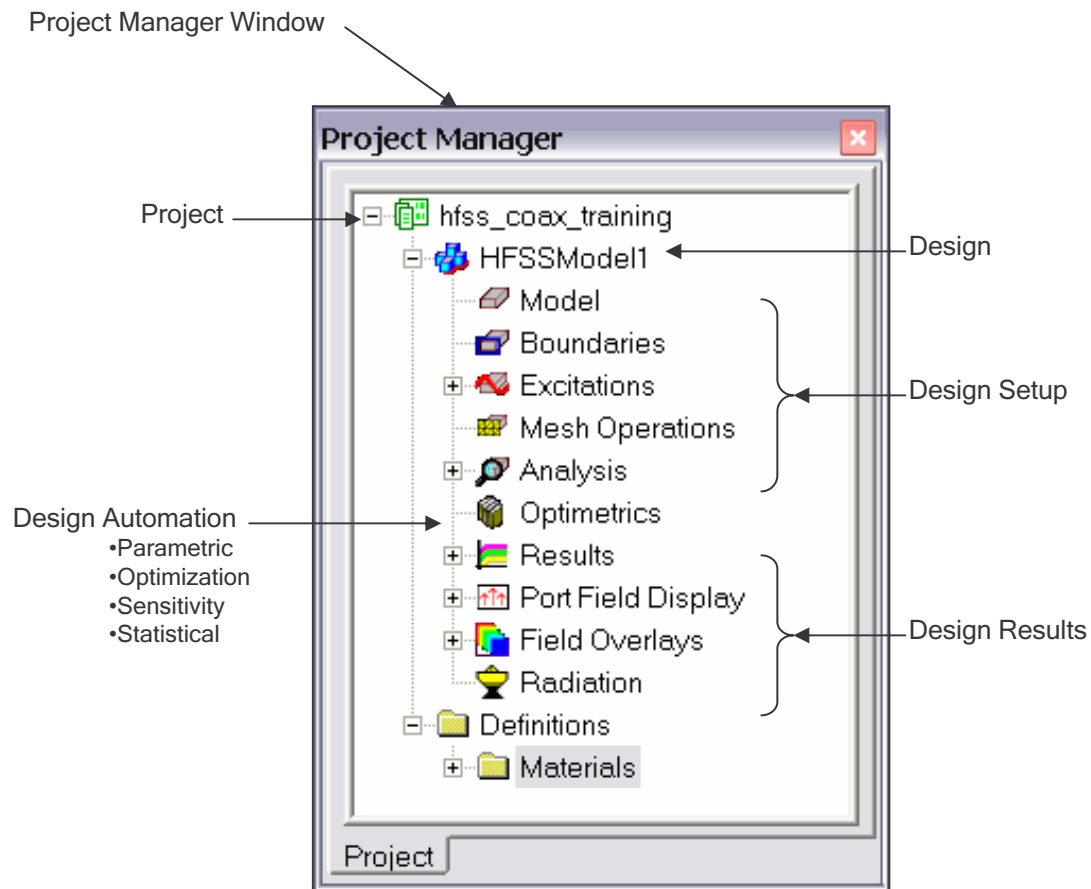
Toolbar: Insert HFSS Design

Ansoft Desktop

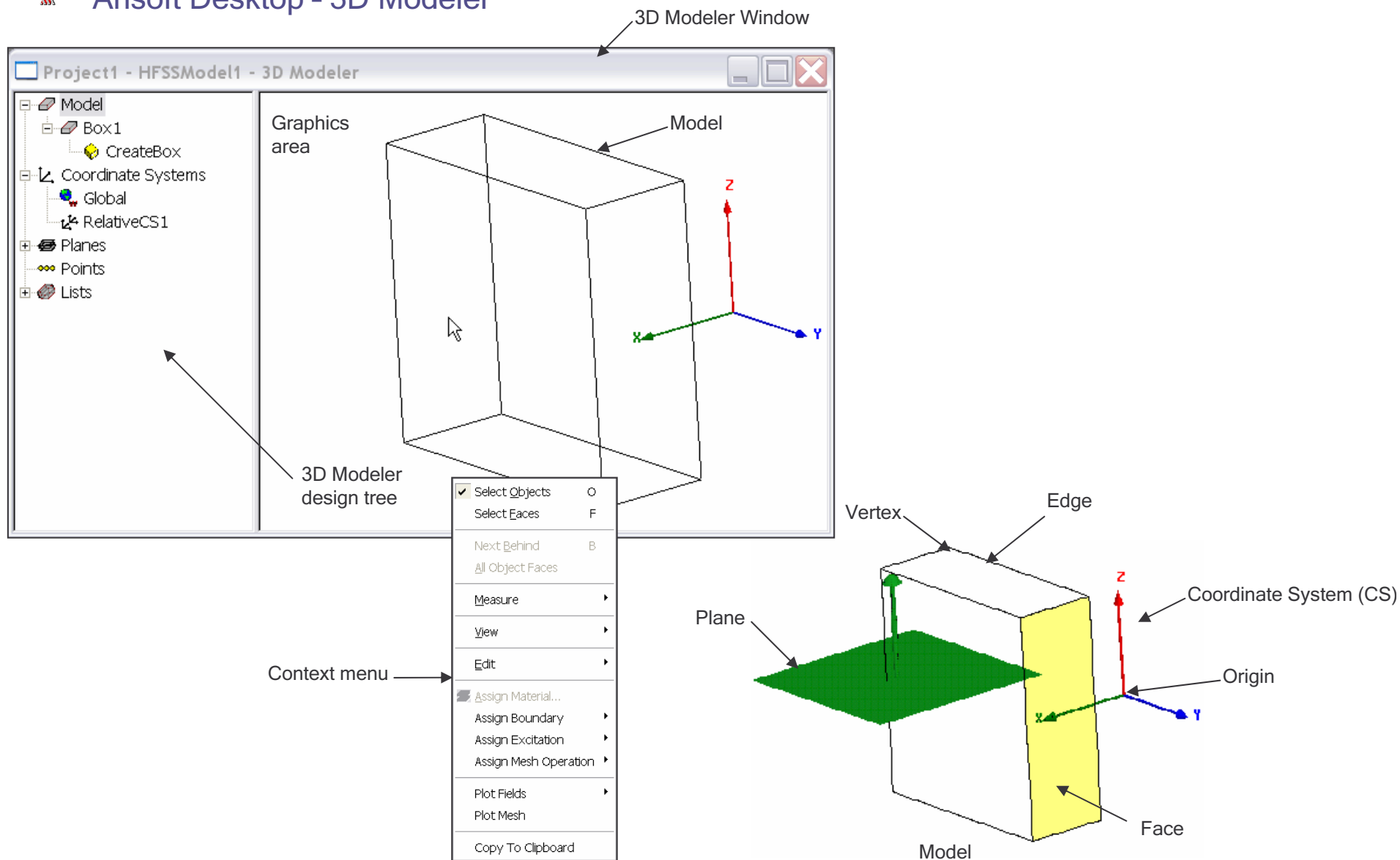


▲ Ansoft Desktop - Project Manager

- ▲ Multiple Designs per Project
- ▲ Multiple Projects per Desktop
- ▲ Integrated Optimetrics Setup
 - ▲ Requires License for Analysis



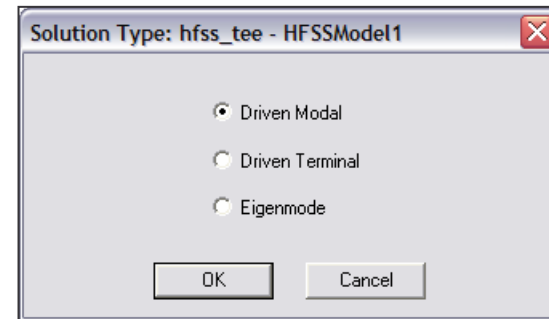
Ansoft Desktop - 3D Modeler



Set Solution Type

To set the solution type:

1. Select the menu item **HFSS > Solution Type**
2. Solution Type Window:
 1. Choose **Driven Modal**
 2. Click the **OK** button



HFSS - Solution Types

- ▶ **Driven Modal** - calculates the modal-based S-parameters. The S-matrix solutions will be expressed in terms of the incident and reflected powers of waveguide modes.
 - ▶ Generalized S-parameters
 - ▶ **Driven Terminal** - calculates the terminal-based S-parameters of multi-conductor transmission line ports. The S-matrix solutions will be expressed in terms of terminal voltages and currents.
 - ▶ **Eigenmode** - calculates the eigenmodes, or resonances, of a structure. The Eigenmode solver finds the resonant frequencies of the structure and the fields at those resonant frequencies.
-
- ▶ **Convergence**
 - ▶ **Driven Modal** - Delta S for modal S-Parameters. This was the only convergence method available for Driven Solutions in previous versions.
 - ▶ **Driven Terminal**^{New} - Delta S for the single-ended or differential nodal S-Parameters.
 - ▶ **Eigenmode** - Delta F

Set Model Units

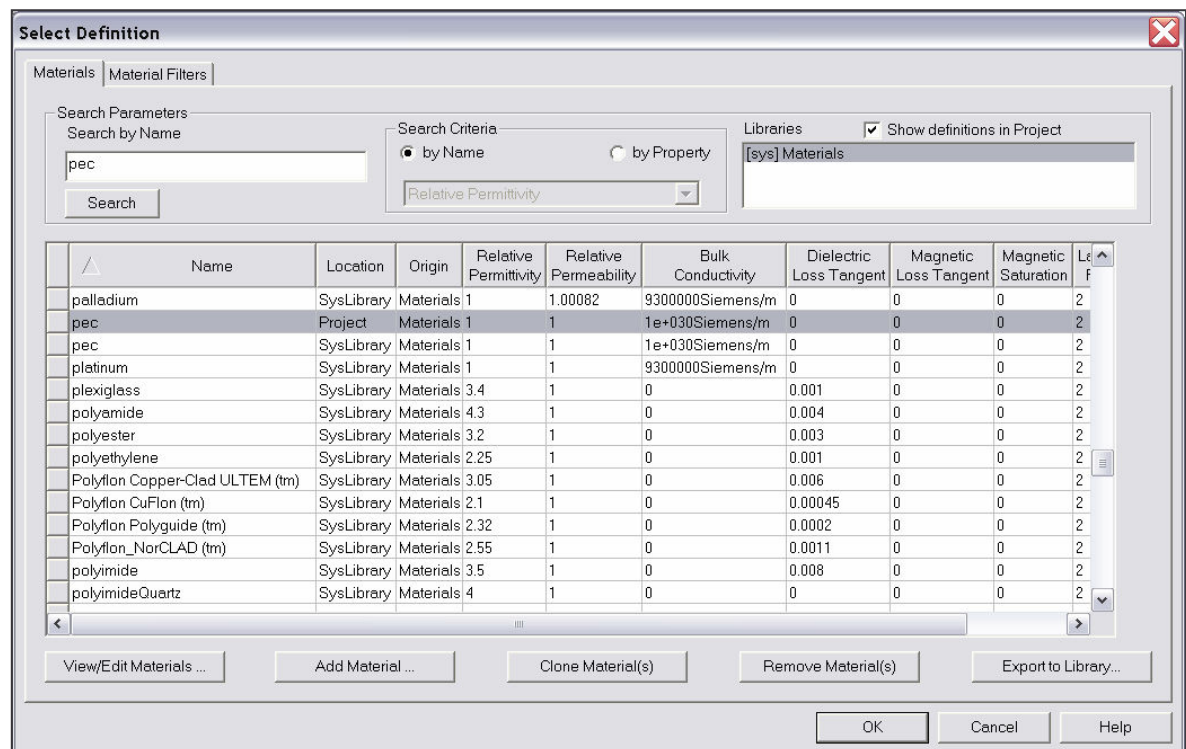
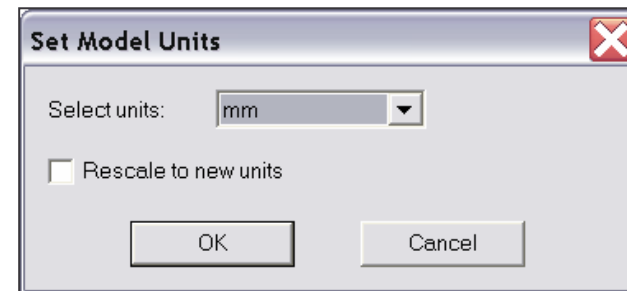
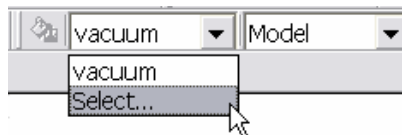
To set the units:

1. Select the menu item **3D Modeler > Units**

Set Default Material

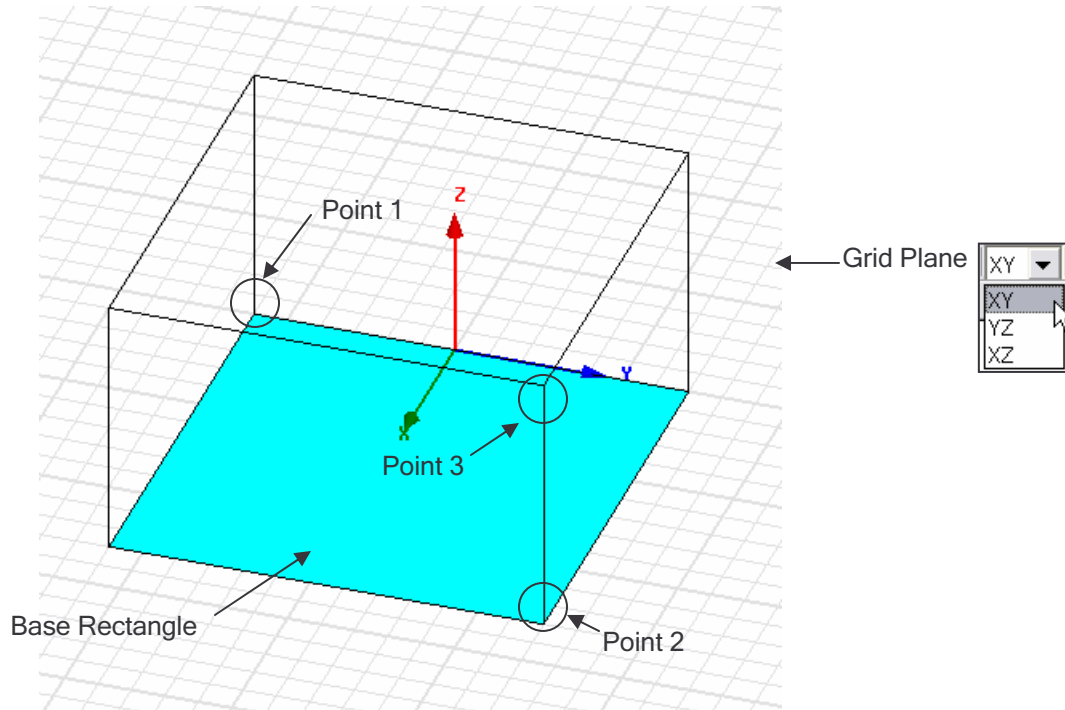
To set the default material:

1. Using the 3D Modeler Materials toolbar, choose **Select**
2. Select Definition Window:
 1. Type **pec** in the **Search by Name** field
 2. Click the **OK** button





3D Modeler - Create a Primitive



X: 0 Y: 0 Z: -0.35

Coordinate Entry Fields

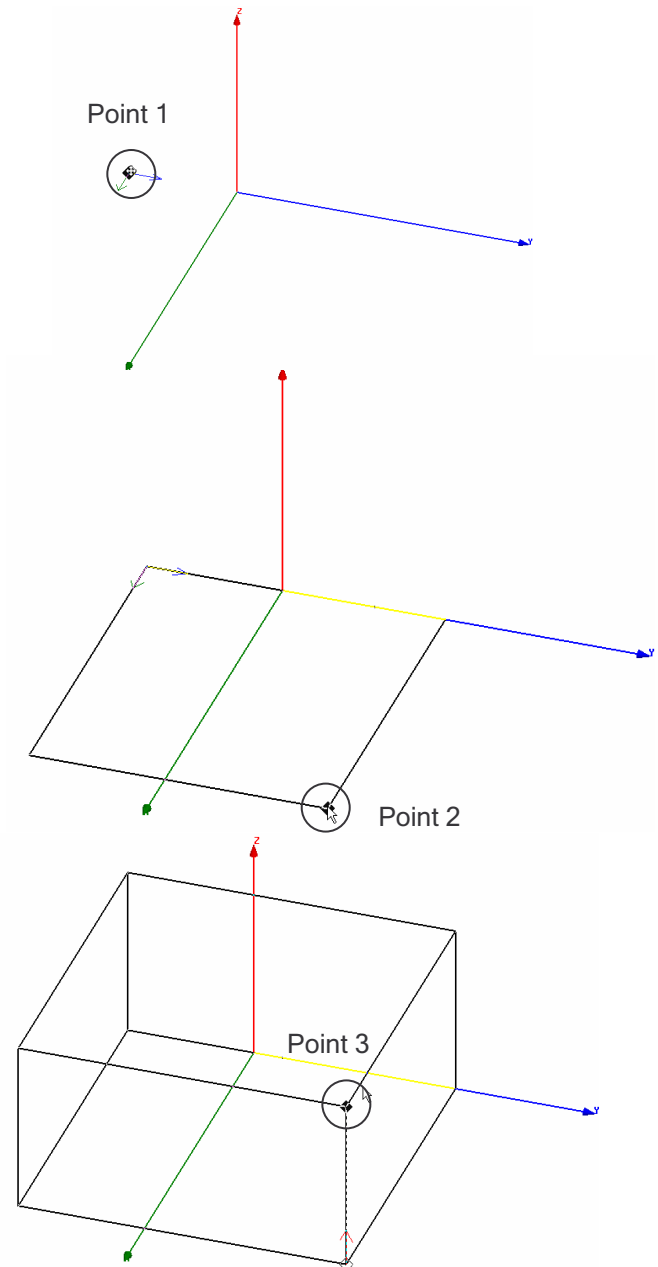
dX: 0.0000 dY: 0.0000 dZ: 0.0000 Relativ Cartesia mm

The Coordinate Entry fields allow equations to be entered for position values.

Examples: $2*5$, $2+6+8$, $2*\cos(10*(\pi/180))$.

Variables are not allowed in the Coordinate Entry Field

Note: Trig functions are in radians



3D Modeler - Object Properties

Commands

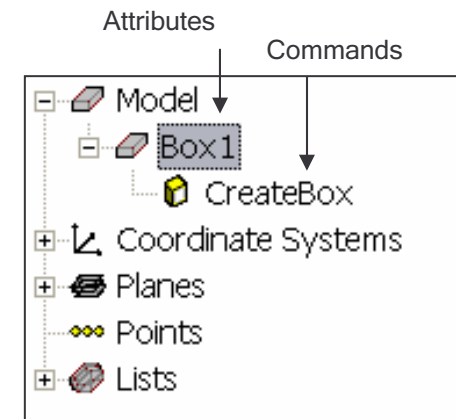
Properties: Project22 - HFSSModel1 - 3D Modeler

Command | Attribute

Name	Value	Unit	Description
Command	CreateBox		
Coordinate System	Global		
Position	-1, -2.2, 0	mm	
XSize	2	mm	
YSize	2.4	mm	
ZSize	0.6	mm	

☐ Show Hidden

OK Cancel



Attributes

Properties: Project22 - HFSSModel1 - 3D Modeler

Attribute

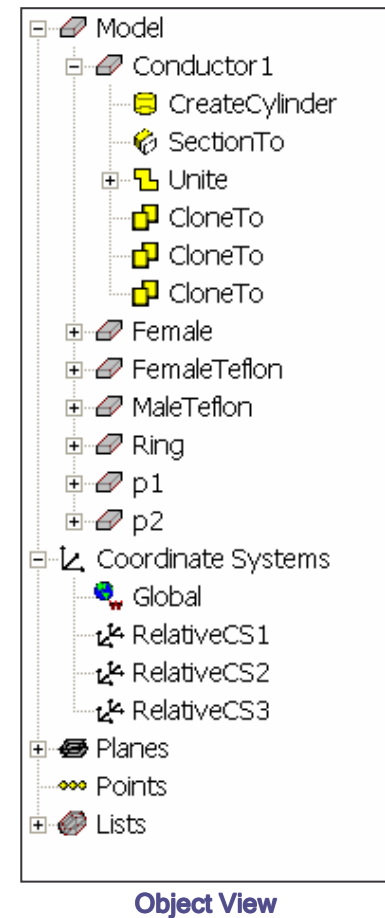
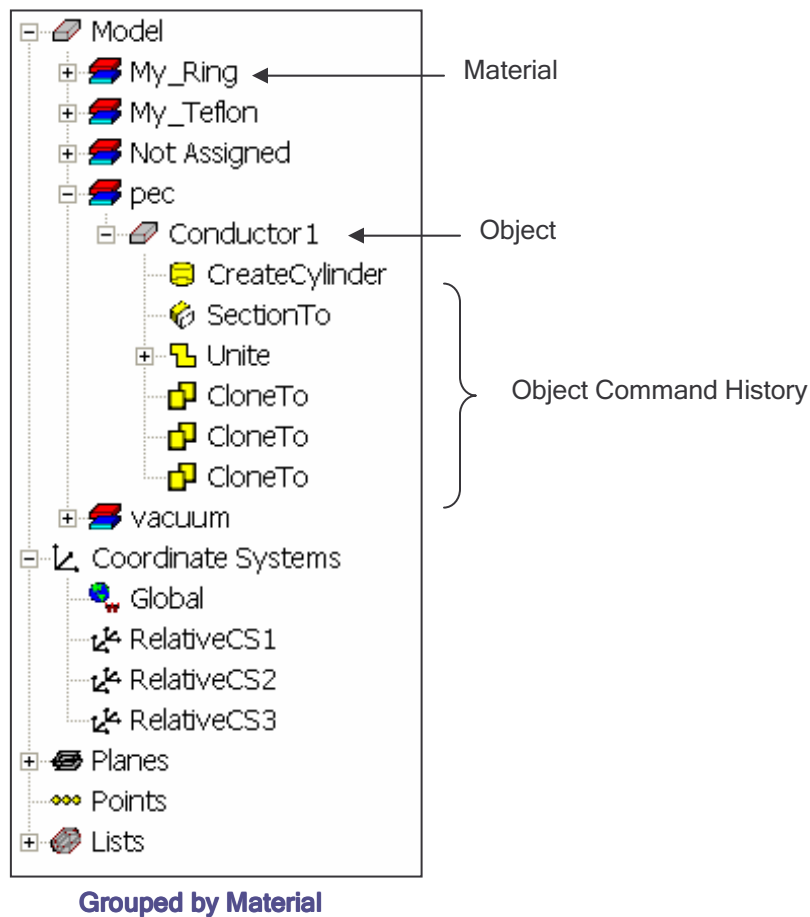
Name	Value	Unit	Description	Read-only
Name	Box1			<input type="checkbox"/>
Material	vacuum			<input type="checkbox"/>
Solve Inside	<input checked="" type="checkbox"/>			<input type="checkbox"/>
Orientation	Global			<input type="checkbox"/>
Model	<input checked="" type="checkbox"/>			<input type="checkbox"/>
Display Wireframe	<input type="checkbox"/>			<input type="checkbox"/>
Color	Edit			<input type="checkbox"/>
Transparent	0			<input type="checkbox"/>

☐ Show Hidden

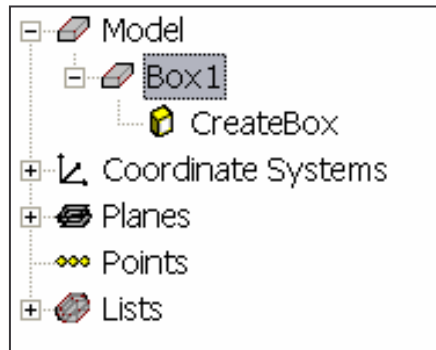
OK Cancel

3D Modeler - Model Tree

Select menu item **3D Modeler > Group by Material**



3D Modeler - Attributes



Name	Value	Unit
Name	Box1	
Material	vacuum	
Solve Inside	<input checked="" type="checkbox"/>	
Orientation	Global	
Model	<input checked="" type="checkbox"/>	
Display Wireframe	<input type="checkbox"/>	
Color	Edit	
Transparent	0	

Attribute

Select Definition

Materials

Material Filters

Search Parameters

Search by Name

Search

Search Criteria

☒ by Name
 ☐ by Property

Relative Permittivity

Libraries

☒ Show definitions in Project

[sys] Materials

Name	Location	Origin	Relative Permittivity	Relative Permeability	Bulk Conductivity	Dielect Loss Tan
copper	Project	Materials	1	0.999991	58000000Siemens/m	0
copper	SysLibrary	Materials	1	0.999991	58000000Siemens/m	0
coming_glass	SysLibrary	Materials	5.75	1	0	0
cyanate_ester	SysLibrary	Materials	3.8	1	0	0
diamond	SysLibrary	Materials	16.5	1	0	0
diamond_hi_pres	S					
diamond_pl_cvd	S					
Dupont Type 100 HN Film (tm)	S					
Duroid (tm)	S					
epoxy_Kevlar_xy	S					
ferrite	S					
FR4_epoxy	S					
gallium_arsenide	S					
GE GETEK ML200/RG200 (tm)	S					

View / Edit Material

Material Name

Material1

Properties of the Materials Material1

Name	Type	Value	Units
Relative Permittivity	Simple	1	
Relative Permeability	Simple	1	
Bulk Conductivity	Simple	0	Siemens/m
Dielectric Loss Tangent	Simple	0	
Magnetic Loss Tangent	Simple	0	
Magnetic Saturation	Simple	0	Gauss
Lande G Factor	Simple	2	
Delta H	Simple	0	Oe

Filter Properties by

Ansoft Products

☐ All products
 ☒ HFSS

Select Ansoft Product

☐ All products
 ☐ HFSS

Validate Now

Set Frequency Dependency ...

Reset

OK

Cancel

3D Modeler - Commands

Parametric Technology

- ▀ Dynamic Edits - Change Dimensions
- ▀ Add Variables
 - ▀ Project Variables (Global) or Design Variables (Local)
 - ▀ Animate Geometry
 - ▀ Include Units - Default Unit is meters
- ▀ Supports mixed Units

Add Variable to HFSSModel1
✕

Name

my_x

Value

2.8*cos(10*(pi/180))+\$global_var_1

Define variable value with units: "1 mm"

☒ Local Variable
☐ Project Variable

OK

Cancel

Name	Value	Unit
Command	CreateBox	
Coordinate System	Global	
Position	-1, -1.6, 0	mm
XSize	2.6	mm
YSize	2.8	mm
ZSize	1	mm

Command

Name	Value	Unit
Comma...	CreateBox	
Coordin...	Global	
Position	-1, -1.6, 0	mm
XSize	my_x	
YSize	2.8	mm
ZSize	1	mm

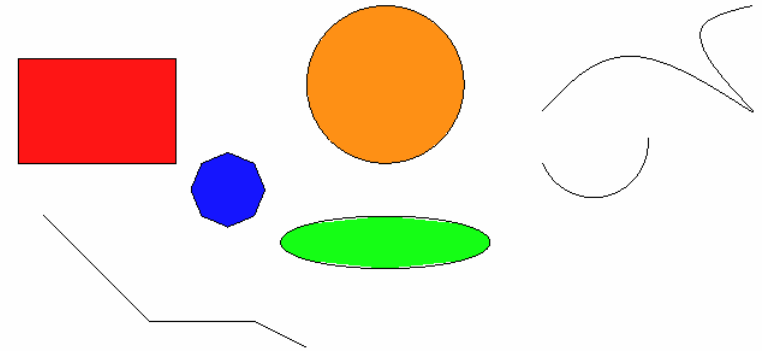
Command



3D Modeler - Primitives

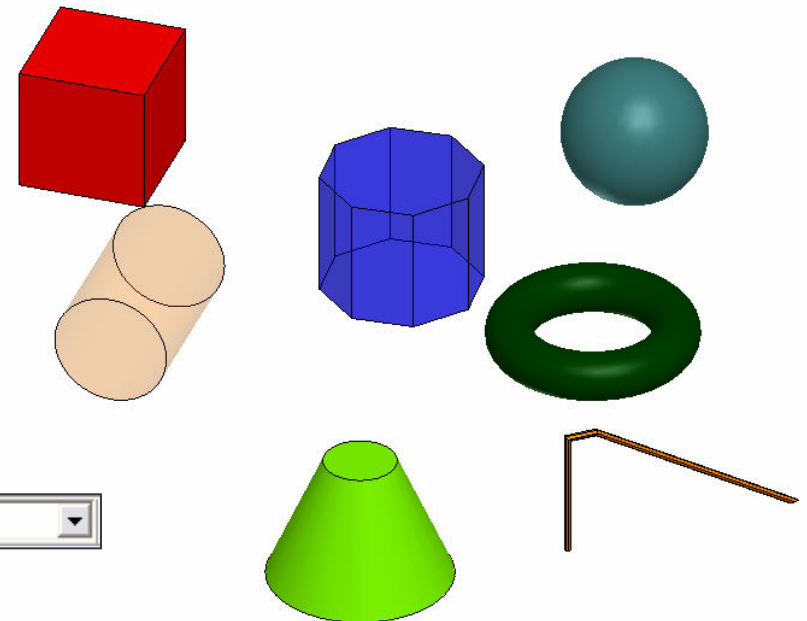
2D Draw Objects

- The following 2D Draw objects are available:
 - Rectangle, Circle, Line, Point, Spline, Ellipse, Regular Polygon (v8.5 circle)



3D Draw Objects

- The following 3D Draw objects are available:
 - Box, Cylinder, Sphere, Torus, Helix, Bond Wire, Cone, Regular Polyhedron (v8.5 cylinder)

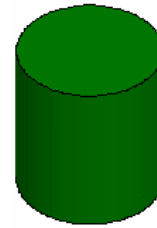


Toolbar: 2D Objects

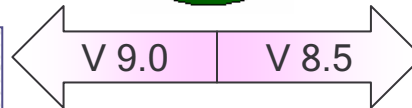
Toolbar: 3D Objects

3D Modeler - True Surfaces

See **User Guide Chapter 4.1**

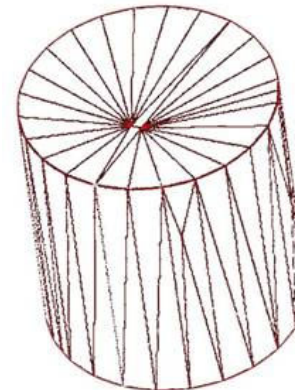
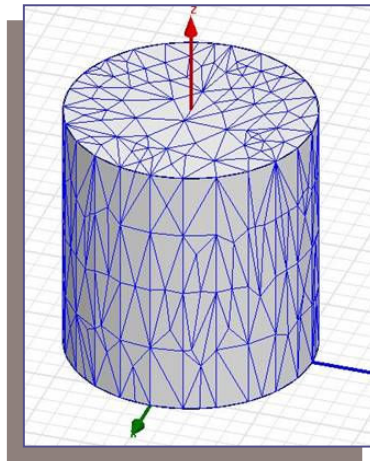


Cylinder - True Surface

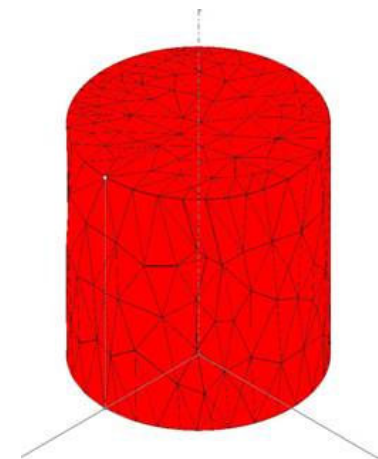


Adaptive Refinement

- Preserves Facets
- Default: 30°

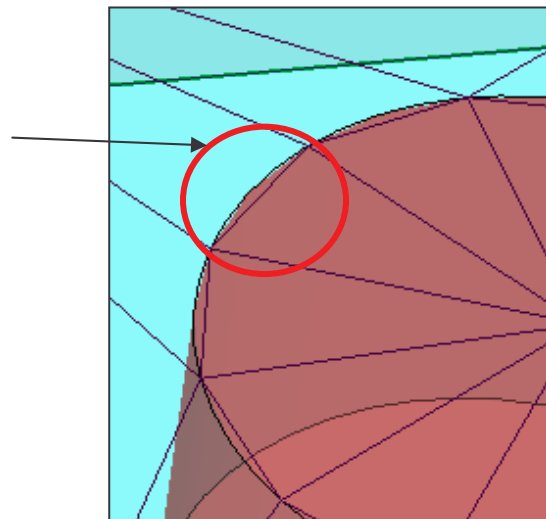


Initial Mesh








**Adaptive Refinement
(Does not preserve Facets)**

Automatic Volume Correction



3D Modeler - Boolean Operations/Transformations

3D Modeler > Boolean >





-  **Unite** - combine multiple primitives
 -  Unite disjoint objects (**Separate Bodies** to separate)
-  **Subtract** - remove part of a primitive from another
-  **Intersect** - keep only the parts of primitives that overlap
-  **Split** - break primitives into multiple parts along a plane (XY, YZ, XZ)



Toolbar: Boolean

3D Modeler > Surfaces > Move Faces - Resize or Reposition an objects face along a normal or vector.




Edit > Arrange >

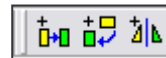
-  **Move** - Translates the structure along a vector
-  **Rotate** - Rotates the shape around a coordinate axis by an angle
-  **Mirror** - Mirrors the shape around a specified plane
-  **Offset** - Performs a uniform scale in x, y, and z.



Toolbar: Arrange

Edit > Duplicate >

-  **Along Lines** - Create multiple copies of an object along a vector
-  **Around Axis** - Create multiple copies of an object rotated by a fixed angle around the x, y, or z axis
-  **Mirror** - Mirrors the shape around a specified plane and creates a duplicate



Toolbar: Duplicate

Edit > Scale - Allows non-uniform scaling in the x, y, or z direction

Duplicate boundaries with geometry


 Works with all boundaries and excitations

1. Select the menu item **Tools > Options > HFSS Options**

2. HFSS Options Window:

1. Click the **General** tab


 Use Wizards for data entry when creating new boundaries: ☒ **Checked**


 Duplicate boundaries with geometry: ☒ **Checked**

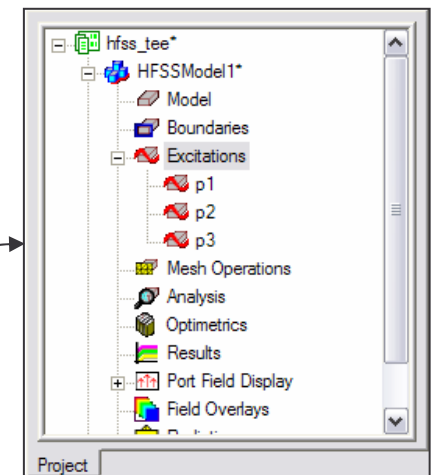
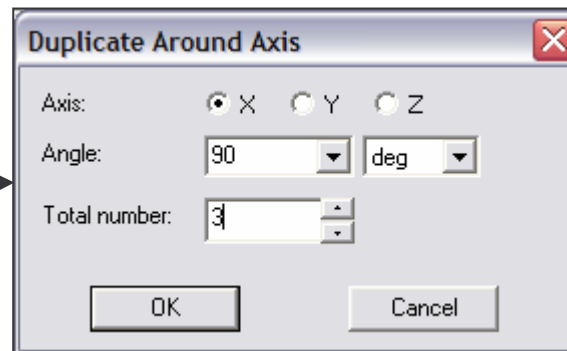
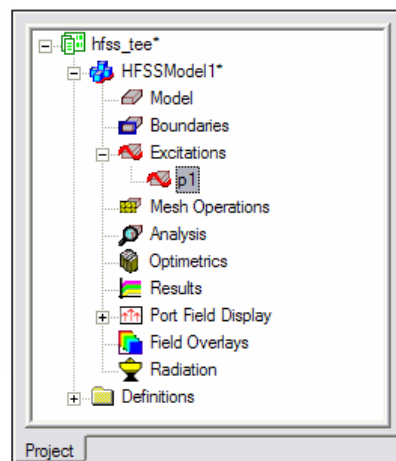
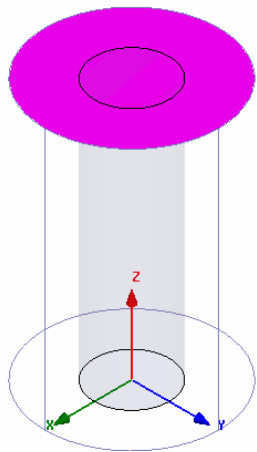
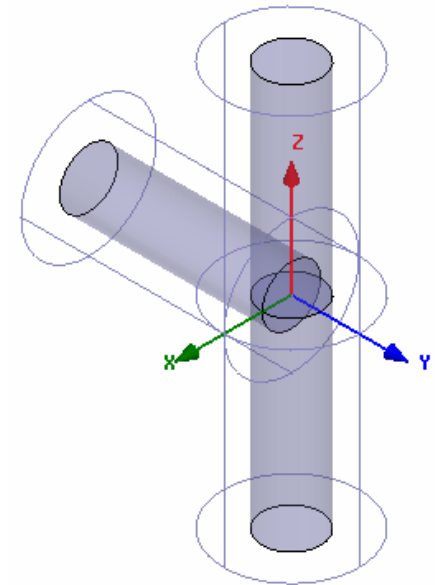
2. Click the **OK** button

 Example:

 Assign an Excitation to the face of an object

 Duplicate the object around an axis three times

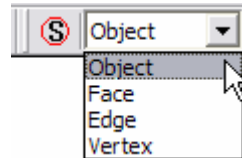
 The Excitation is automatically duplicated



3D Modeler - Selection

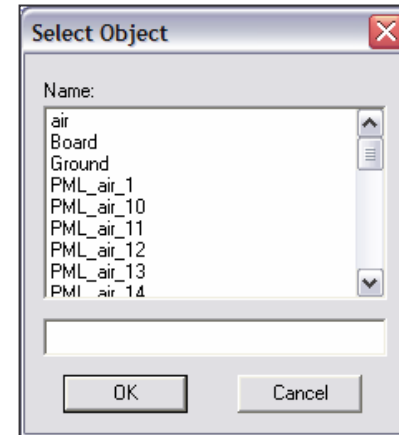
Selection Types

- ▀ **Object (Default)**
- ▀ **Face**
- ▀ **Edge**
- ▀ **Vertex**



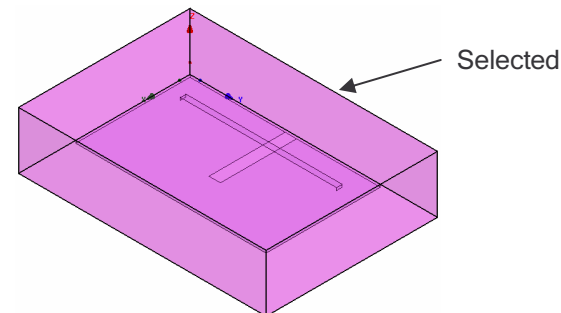
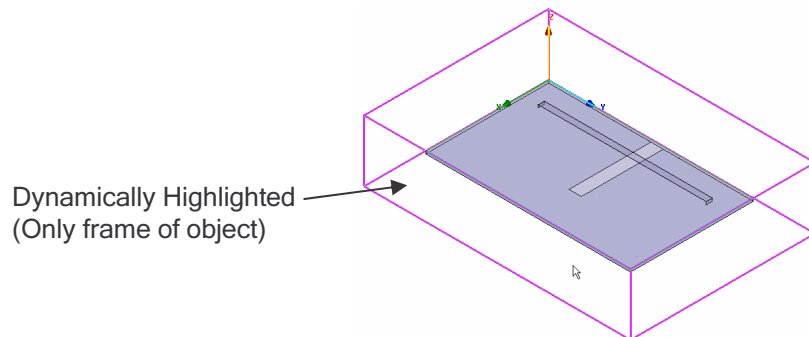
Selection Modes

- ▀ **All Objects**
- ▀ **All Visible Object**
- ▀ **By Name**

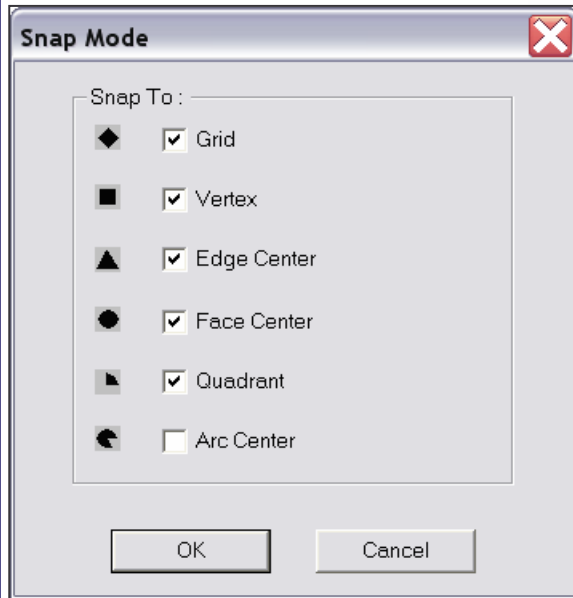


- ▀ **Highlight Selection Dynamically** - By default, moving the mouse pointer over an object will dynamically highlight the object for selection. To select the object simply click the left mouse button.

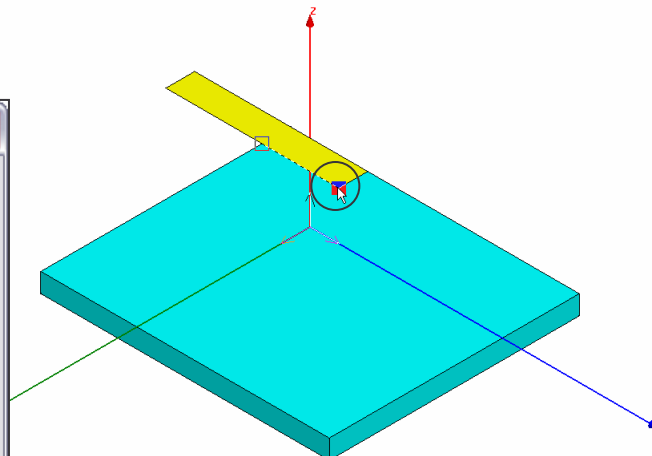
- ▀ **Multiple Object Selection** - Hold the **CTRL** key down to graphically select multiple objects
- ▀ **Next Behind** - To select an object located behind another object, select the front object, press the **b** key to get the next behind. Note: The mouse pointer must be located such that the next behind object is under the mouse pointer.
- ▀ **To Disable:** Select the menu item *Tools > Options > 3D Modeler Options*
 - ▀ From the **Display Tab**, uncheck **Highlight selection dynamically**



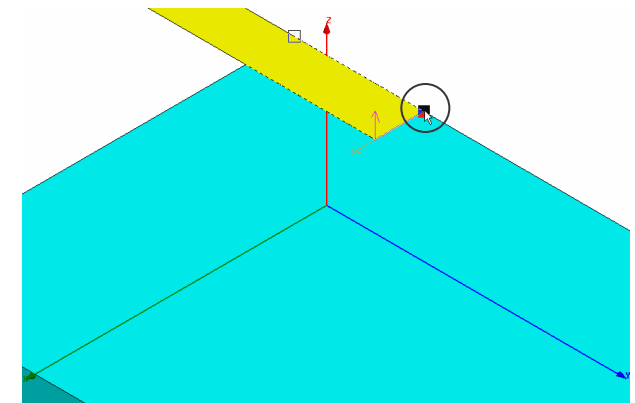
3D Modeler - Moving Around



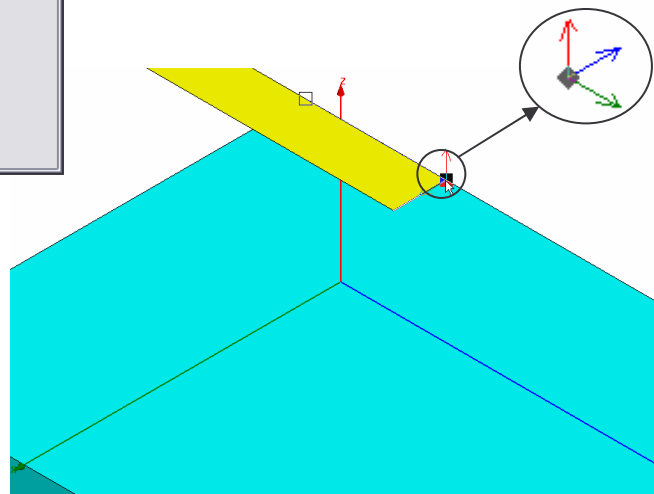
Toolbar: Snap Mode



Step 1: Start Point

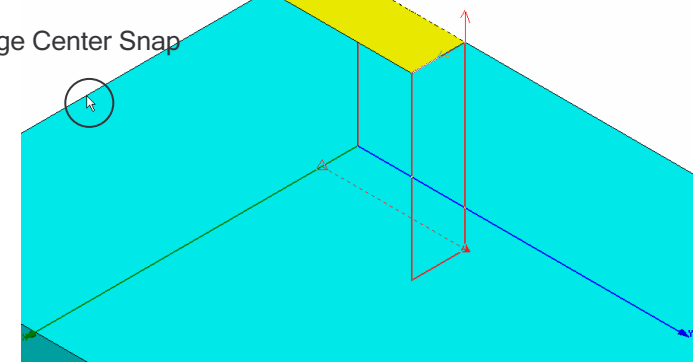


Step 2: Hold X key and select vertex point



Step 3: CTRL+Enter Keys set a local reference

Edge Center Snap



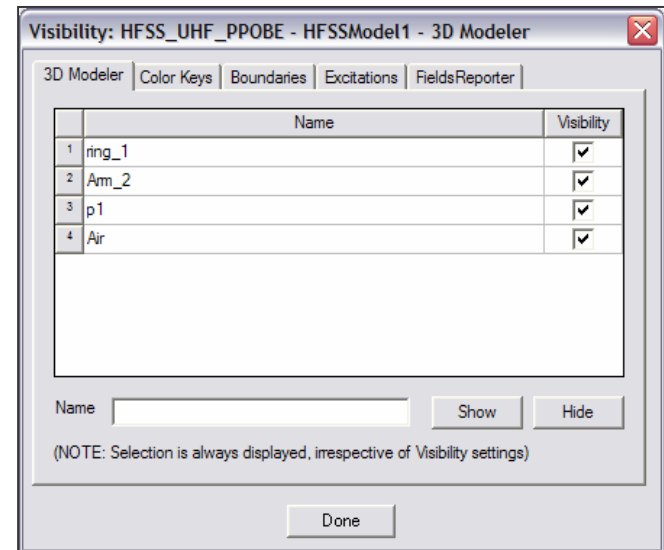
Step 4: Hold Z key and set height

3D Modeler - Views

- View > Modify Attributes >**
 - Orientation** - Predefined/Custom View Angles
 - Lighting** - Control angle, intensity, and color of light
 - Projection** - Control camera and perspective
 - Background Color** - Control color of 3D Modeler background
- View > Visibility** - Controls the display of: 3D Modeler Objects, Color Keys, Boundaries, Excitations, Field Plots
- View > Options** - Stereo Mode, Drag Optimization, Color Key Defaults
- View > Render > Wire Frame** or **Smooth Shaded** (Default)
- View > Coordinate System > Hide** or **Small (Large)**
- View > Grid Setting** - Controls the grid display

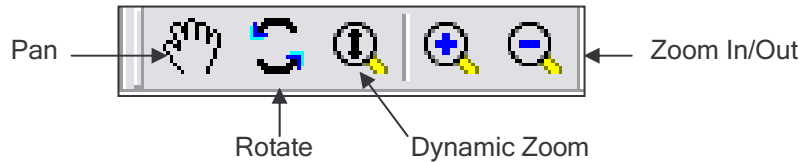


← **Toolbar:** Toggle Grid Visibility

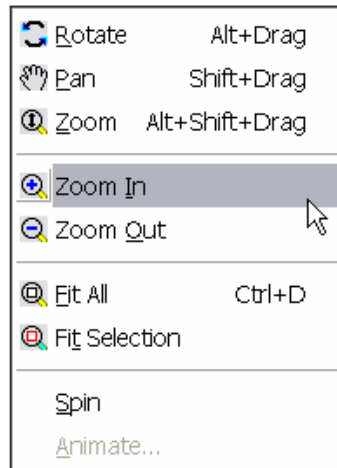


Changing the View

Toolbar



Context Menu



Shortcuts

- Since changing the view is a frequently used operation, some useful shortcut keys exist. Press the appropriate keys and drag the mouse with the left button pressed:

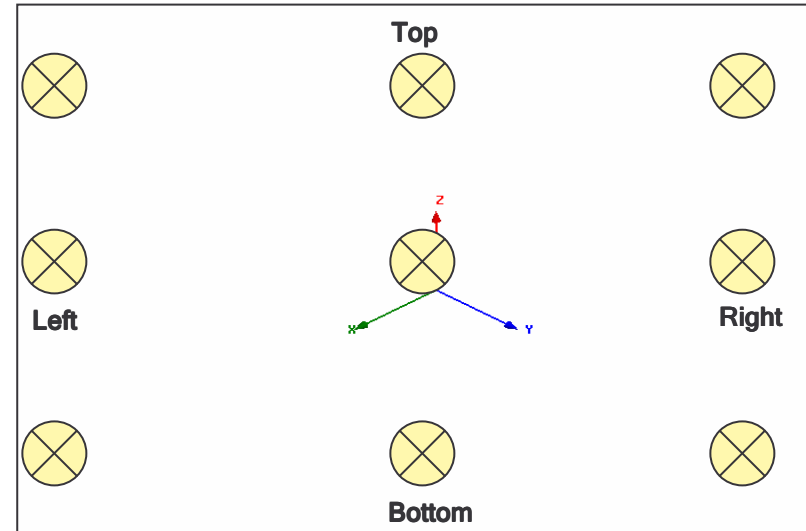
- ALT + Drag** - Rotate

- In addition, there are 9 pre-defined view angles that can be selected by holding the ALT key and double clicking on the locations shown on the next page.

- Shift + Drag** - Pan

- ALT + Shift + Drag** - Dynamic Zoom

Predefined View Angles

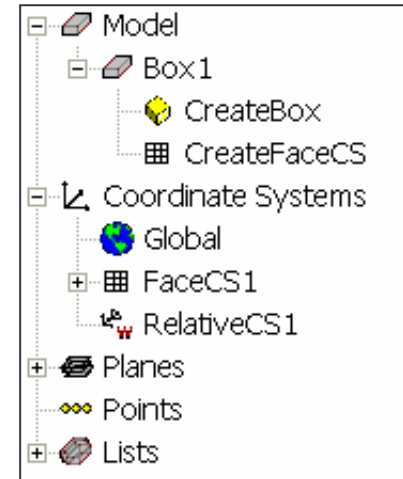


3D Modeler - Coordinate System

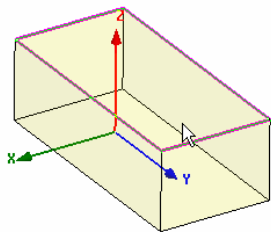
- ▲ Can be Parameterized
- ▲ **Working Coordinate System**
 - ▲ Currently selected CS. This can be a local or global CS
- ▲ **Global CS**
 - ▲ The default fixed coordinate system
- ▲ **Relative CS**
 - ▲ User defined local coordinate system.
 - ▲ Offset
 - ▲ Rotated
 - ▲ Both



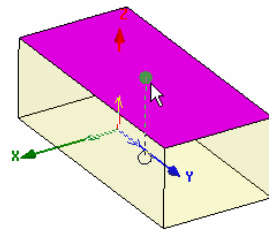
Toolbar: Coordinate System



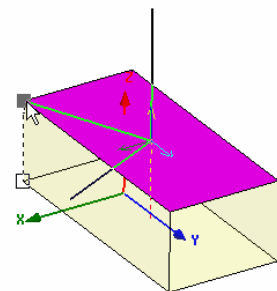
- ▲ **Face CS** (setting available to automatically switch to face coordinate system in the 3D Modeler Options)



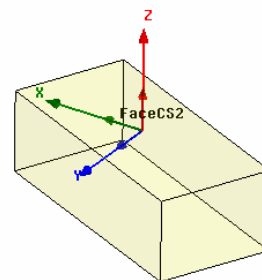
Step 1: Select Face



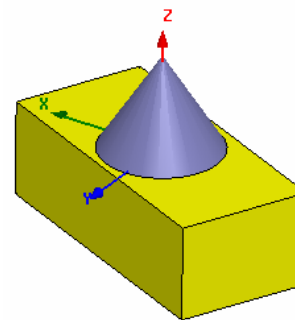
Step 2: Select Origin



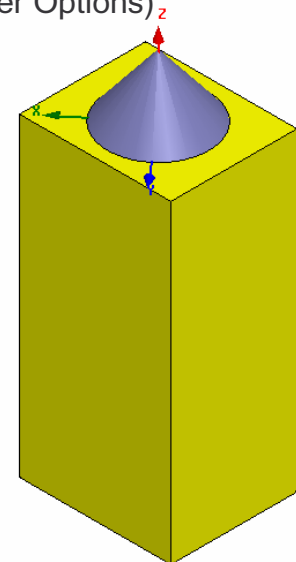
Step 3: Set X-Axis



New Working CS



Cone created with Face CS



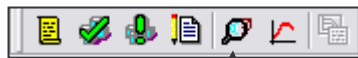
Change Box Size and Cone is automatically positioned with the top face of the box

HFSS - Solution Setup

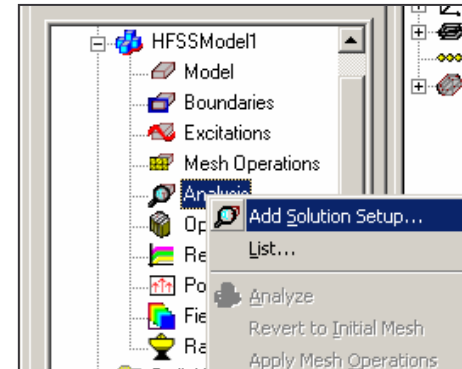
HFSS > Analysis Setup > Add Solution Setup

Picking the Adapt Frequency

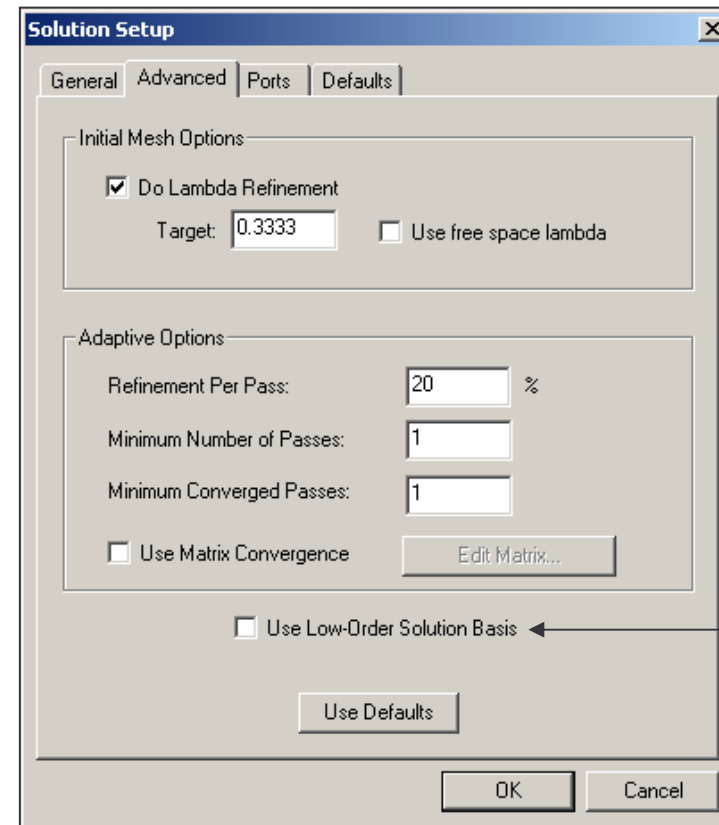
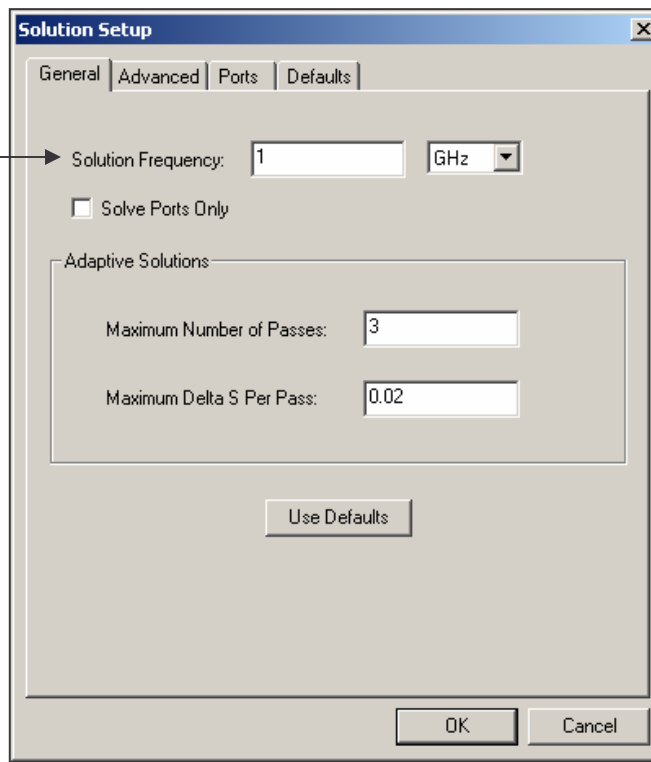
See User Guide Chapter 2



Add Solution Setup



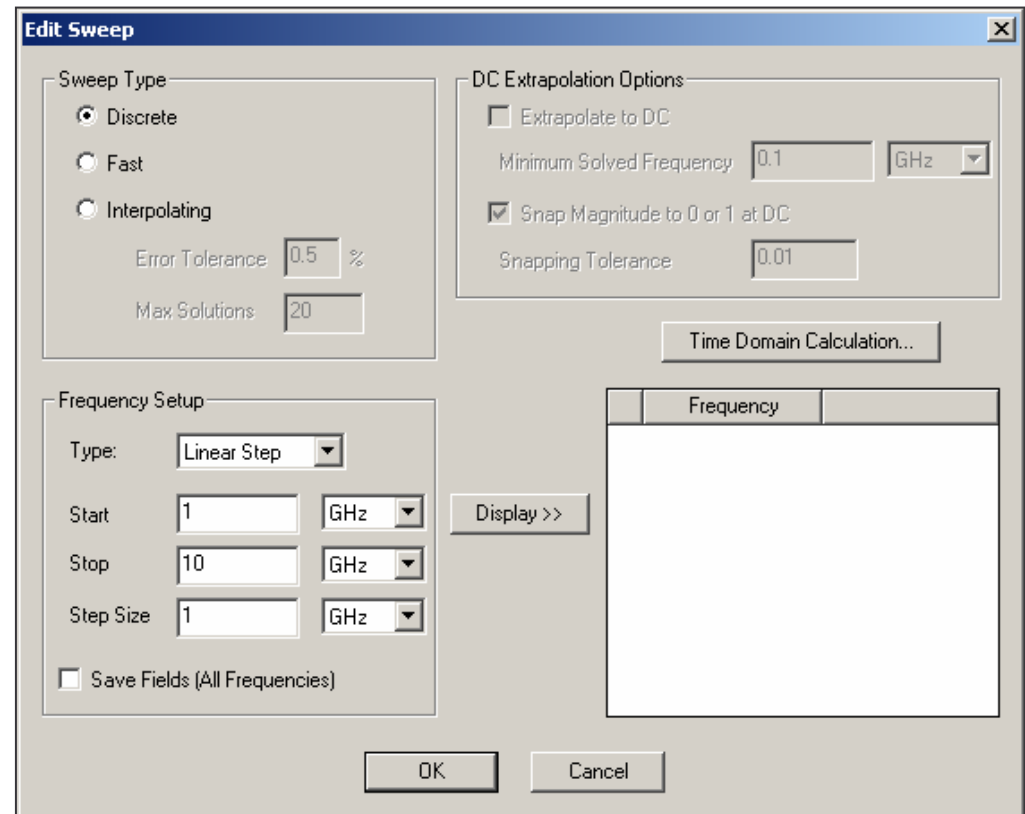
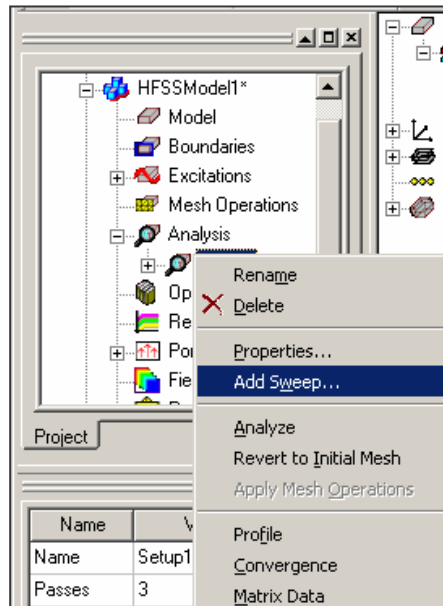
Adaptive Mesh
Frequency



ZERO_ORDER

HFSS - Frequency Sweep

HFSS > Analysis Setup > Add Sweep



HFSS - Frequency Sweep

- Discrete** - Solves using adaptive mesh at every frequency
 - Matrix Data and Fields at every frequency in sweep
- Fast** - ALPS
 - Matrix Data and Fields at every frequency in sweep
- Interpolating** - Adaptively determines discrete solve points using the adaptive mesh
 - Matrix Data at every frequency in sweeps
 - Fields at last adaptive solution

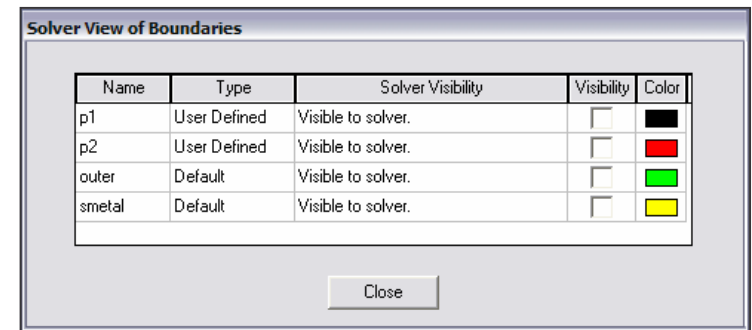


↑
Add Sweep

Boundary Display

To verify the boundary setup:

1. Select the menu item **HFSS > Boundary Display (Solver View)**
2. From the Solver View of Boundaries, toggle the Visibility check box for the boundaries you wish to display.
 - ▲ **Note:** The background (Perfect Conductor) is displayed as the **outer** boundary.
 - ▲ **Note:** The Perfect Conductors are displayed as the **smetal** boundary.
3. Click the **Close** button when you are finished

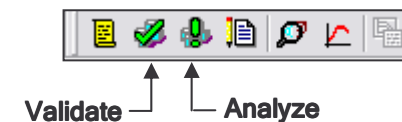
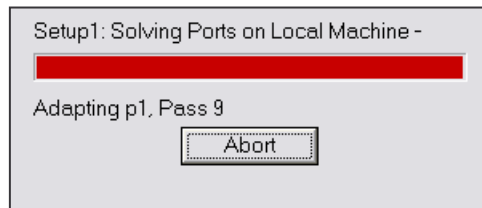
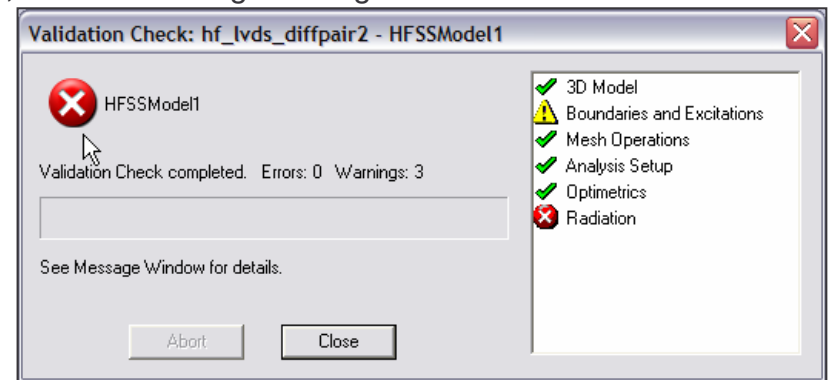


Analyze

Model Validation

To validate the model:

1. Select the menu item **HFSS > Validation Check**
2. Click the **Close** button
 - ▲ **Note:** To view any errors or warning messages, use the Message Manager.



What Information does HFSS Compute?

Matrix Data

Modal/Terminal/Differential

S-, Y-, and Z-Parameters

VSWR

Excitations

Complex Propagation Constant (Gamma)

Zo

Full-Wave Spice

Full-Wave Spice - Broadband Model

Lumped RLC - Low Frequency Model

Partial Fraction - Matlab

Export Formats - HSPICE, PSPICE, Cadence Spectre, and Maxwell SPICE

Common Display Formats:

Rectangular, Polar

Smith Chart

Data Tables

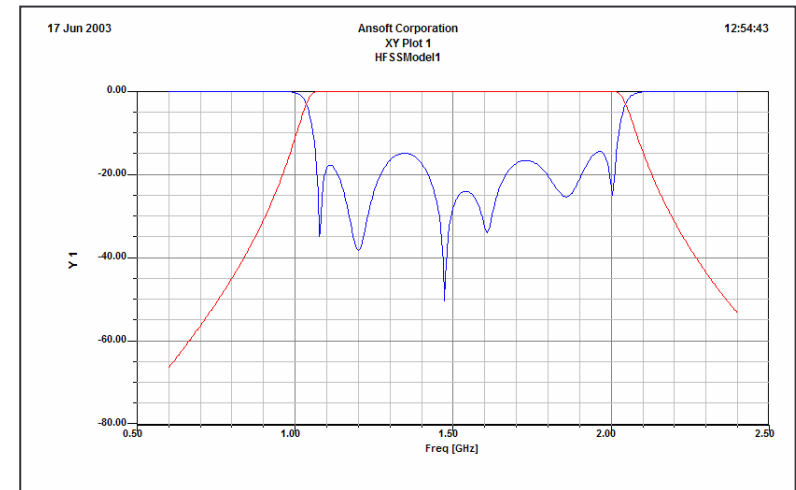
Common Output Formats:

Neutral Models Files (NMF) (Optimetrics only)

Parametric Results

Touchstone, Data Tables, Matlab, Citi

Graphics - Windows Clipboard



Solution Data: hfss_lvds_diffpair - HFSSModel1

Design Variation: Simulation: Setup1 Sweep1

Convergence ☒ Profile ☐ Matrix Data ☒

☒ S Matrix ☐ Gamma dB/Phase ☐ Y Matrix ☐ Z0 ☐ All Freqs. 7 (GHz)

Freq	S:p1:Diff1	S:p1:Comm1	S:p2:Diff1	S:p2:Comm1
7 (GHz)	p1:Diff1 (-19.5, -66) (-33.4, -148) (-0.0516, -90) (-50.4, -161)	p1:Comm1 (-33.4, -148) (-14.4, -23.9) (-47.7, -166) (-0.163, -89.5)	p2:Diff1 (-0.0516, -90) (-47.7, -166) (-19.4, 66.1) (-33.7, 149)	p2:Comm1 (-50.4, -161) (-0.163, -89.5) (-33.7, 149) (-14.4, 25)

HFSS - Matrix Data

HFSS > Results > Solution Data

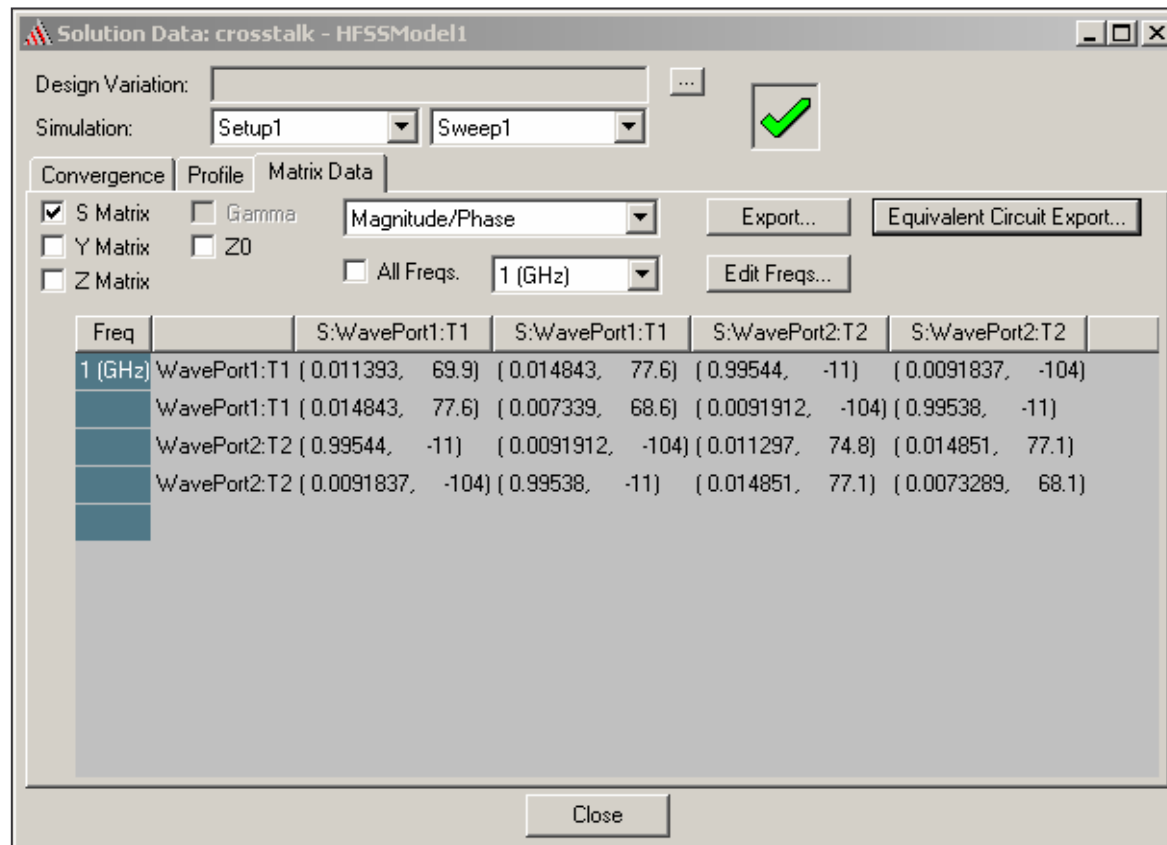
Export

NMF, Touchstone, Data Tables, etc

NOTE: Make sure the **Simulation** is set to a **Sweep** before exporting. The Adaptive Passes will only export a single frequency point.

Equivalent Circuit Export

HSPICE, PSPICE, Cadence Spectre, Maxwell SPICE



Results - Data Management

HFSS > Results > Browse Solutions

- Solved model variations are retained. Unless otherwise notified by HFSS.

HFSS > Results > Clean Up Solutions

Clean Up Solutions

Data Deletion Options:

- ☐ Fields Only
- ☐ Fields and Meshes
- ☒ All Solution Data

Variation Selection Options:

- ☐ Non Current Variable Combinations
- ☒ All Variations

NOTE: Deletions will occur immediately and cannot be recovered.

Do Deletions

Cancel

Solutions: gbx10 - HFSSModel1

Statistics

Browse

HFSSModel1

Setup1

Adaptive_1

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

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\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

Adaptive_2

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

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\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

Adaptive_3

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

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\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

\$brd_h='3.4036mm' \$brd_size='20mm' anti_

Setup	Solution	pitch	pad_rad	tra...	h...
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..
Setup1	Adaptive_1	1.85mm	0.425mm	0.1...	0..

Properties...

Select All

Delete

OK

Cancel

HFSS > Results > Import Solutions

Imported Data

Current Imports

Import1:blackbox

Import Solution...

Import Table...

Delete Selections

OK

S Parameter Import

File Name: F:\tmp\Designer\blackbox.s4p

Load File

Browse...

Source Name: Import1

Available Solutions

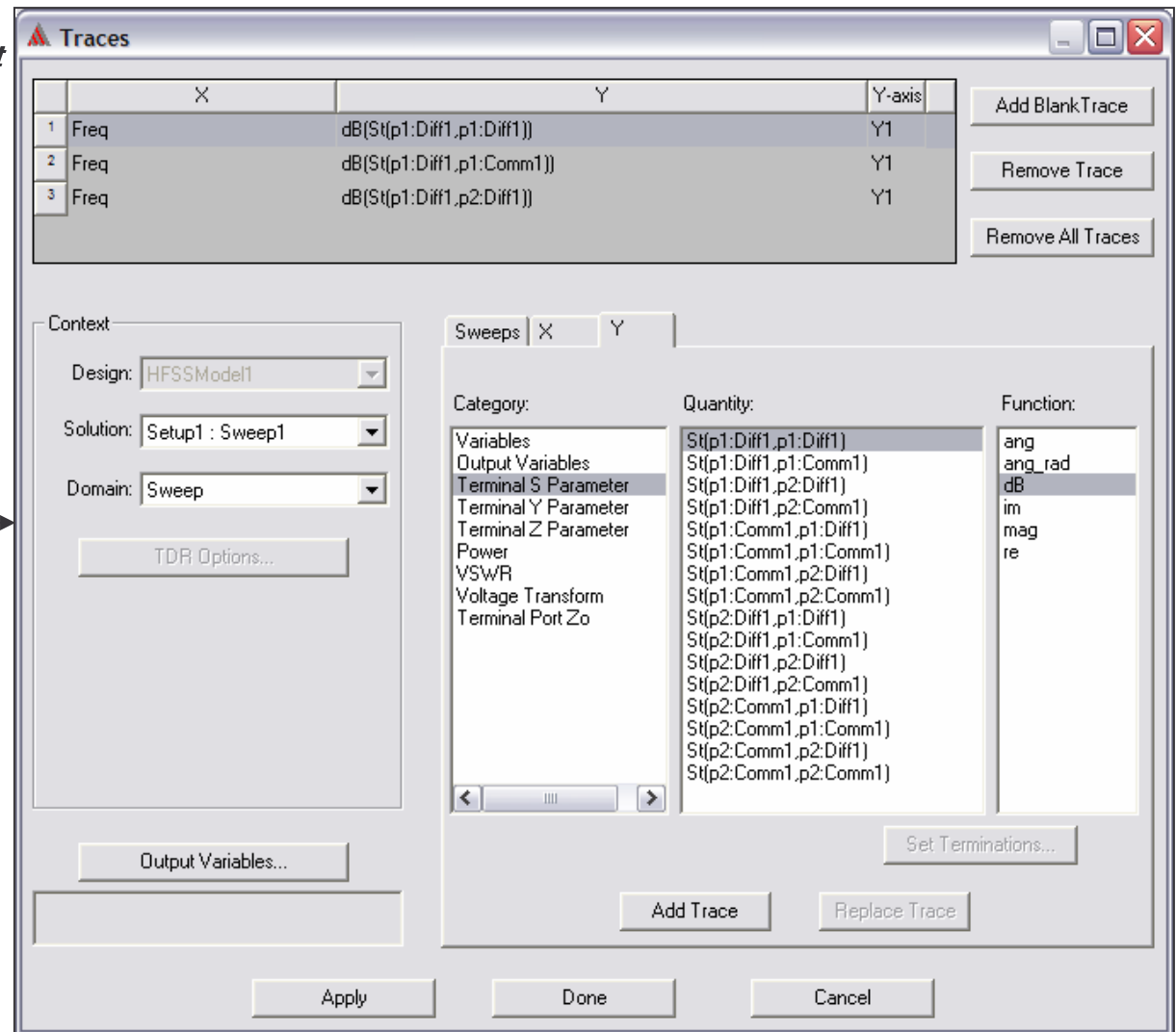
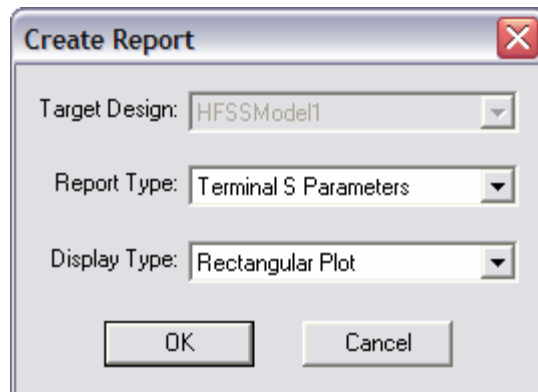
blackbox

Import

Cancel

Results - Create Reports

- HFSS > Results > Create Report
- Output Variables
 - User Defined Equations





What Information does HFSS Compute?

Fields

Modal/Terminal/Differential

- Electric Field
- Magnetic Field
- Current (Volume/Surface)
- Power
- Specific Absorption Rate

Radiation

- 2D/3D Far-/Near-Fields
- Arrays
- RCS

Field Calculator

- User Defined Field Calculations

Common Display Formats

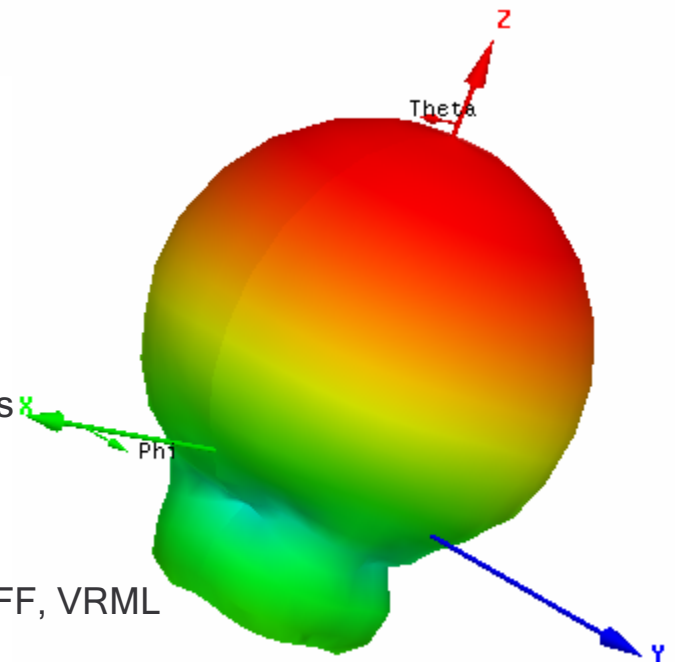
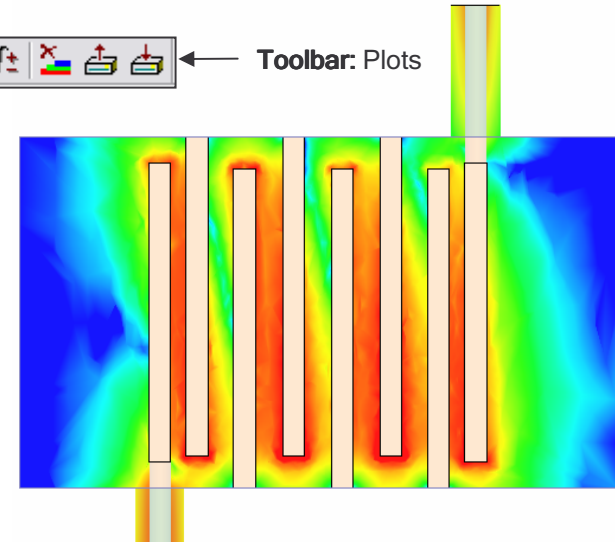
- Volume
- Surface
- Vector
- 2D Reports - Rectangular, Polar, Radiation Patterns

Common Output Formats:

- Animations - AVI, GIF
- Data Tables
- Graphics - Windows Clipboard, BMP, GIF, JPG, TIFF, VRML

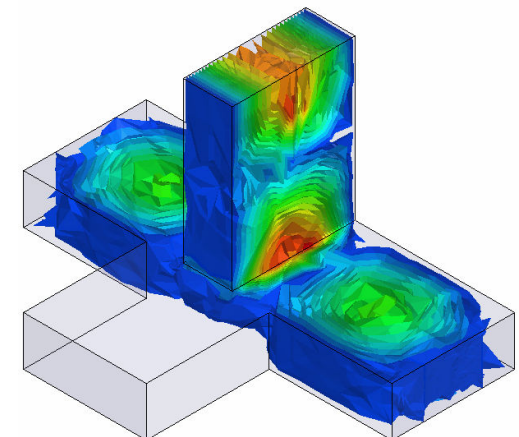
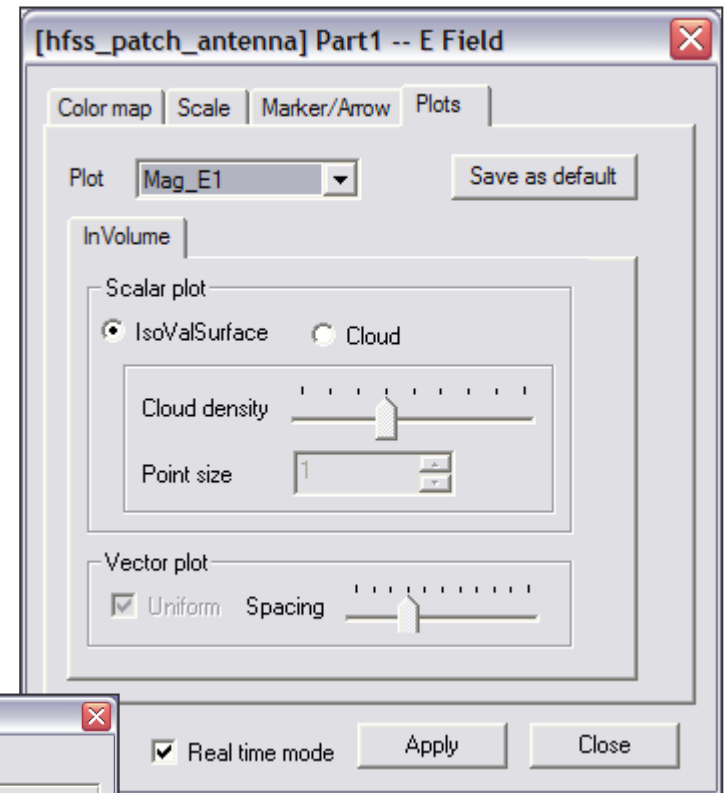
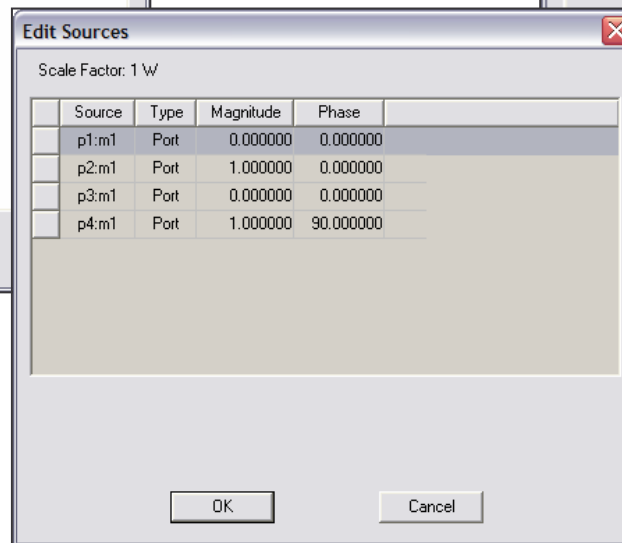
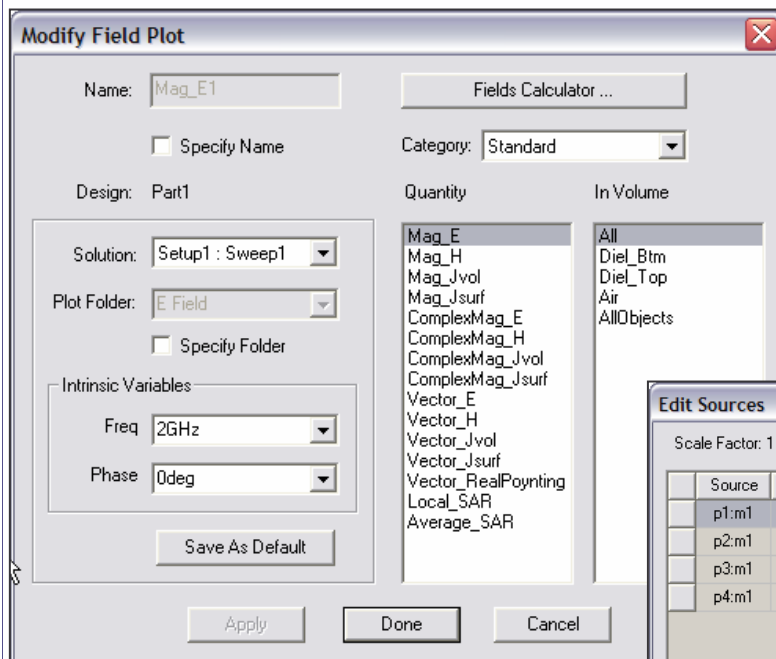


Toolbar: Plots



Fields

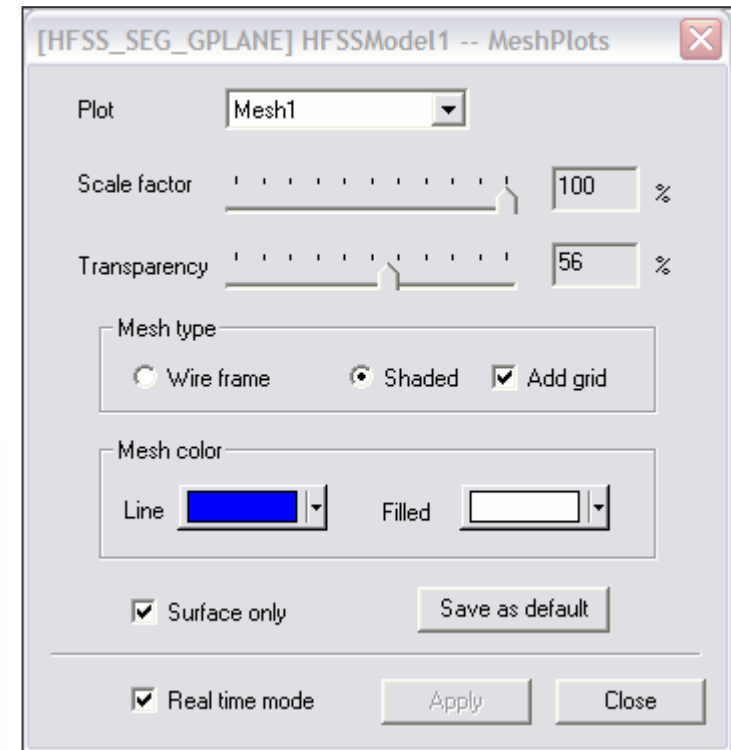
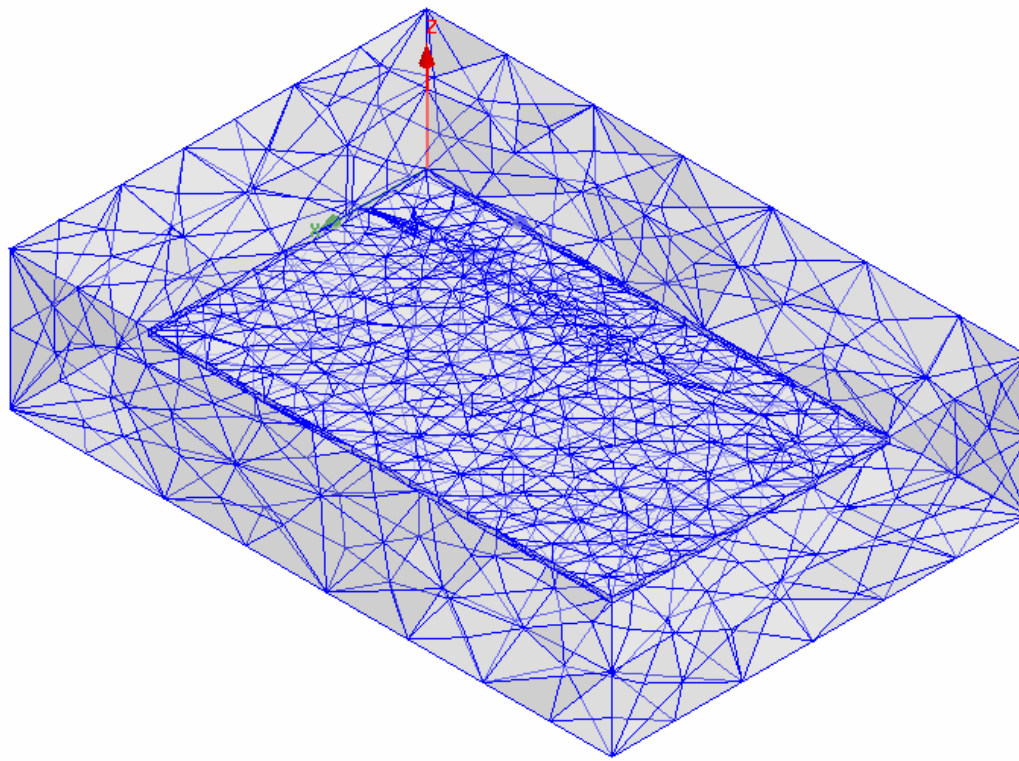
- ▲ Select Object Volume, Surface, or Line to display fields
- ▲ **HFSS > Fields > Plot Fields >**
- ▲ Modify Plot - Solution/Frequency/Qty
- ▲ Plot Attributes
- ▲ Edit Sources - Change Excitation



Mesh Display

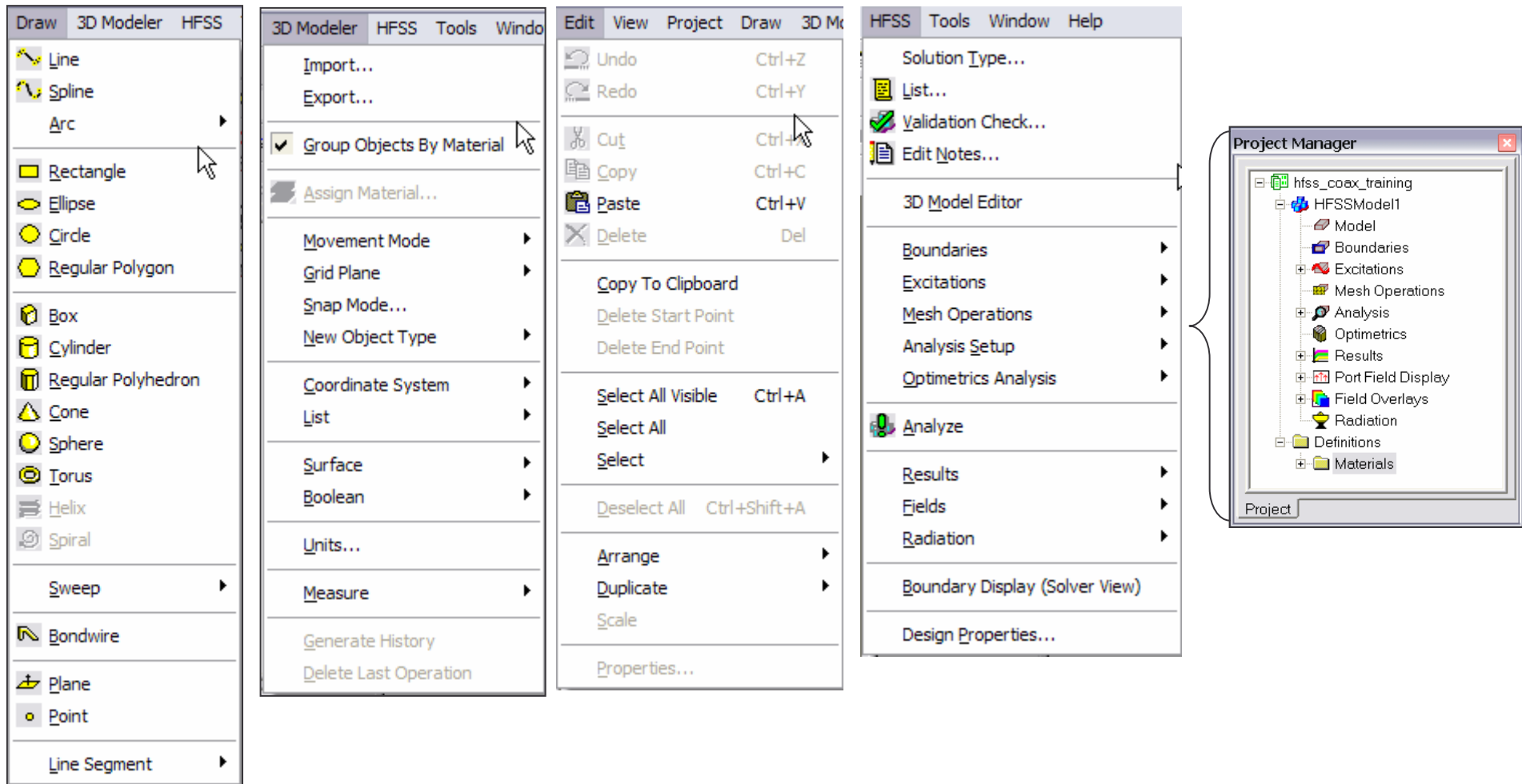
Field Overlay

1. Select an object
2. Select the menu item **HFSS > Fields > Plot Mesh**



Menu Structure

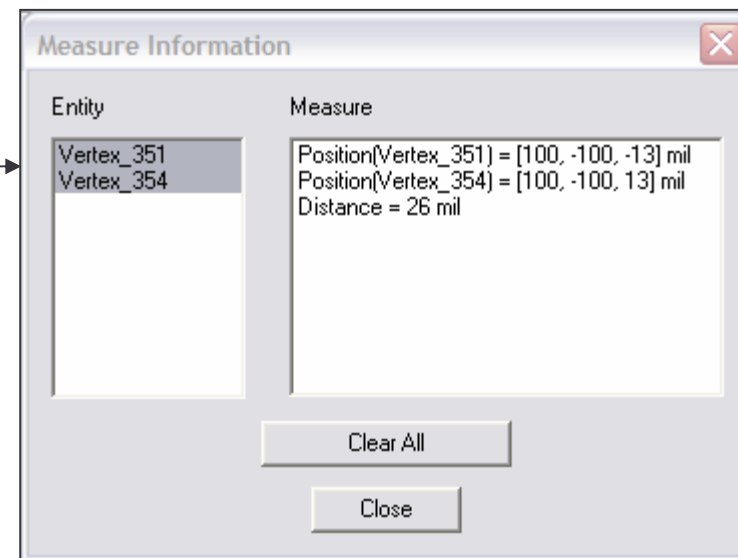
- ▲ **Draw** - Primitives
- ▲ **3D Modeler** - Settings and Boolean Operations
 - ▲ **Edit** - Arrange, Duplicate
- ▲ **HFSS** - Boundaries, Excitations, Mesh Operations, Analysis Setup, Results



Measure

3D Modeler > Measure >

- ▀ **Position** - Points and Distance
- ▀ **Length** - Edge Length
- ▀ **Area** - Surface Area
- ▀ **Volume** - Object Volume



Options - General

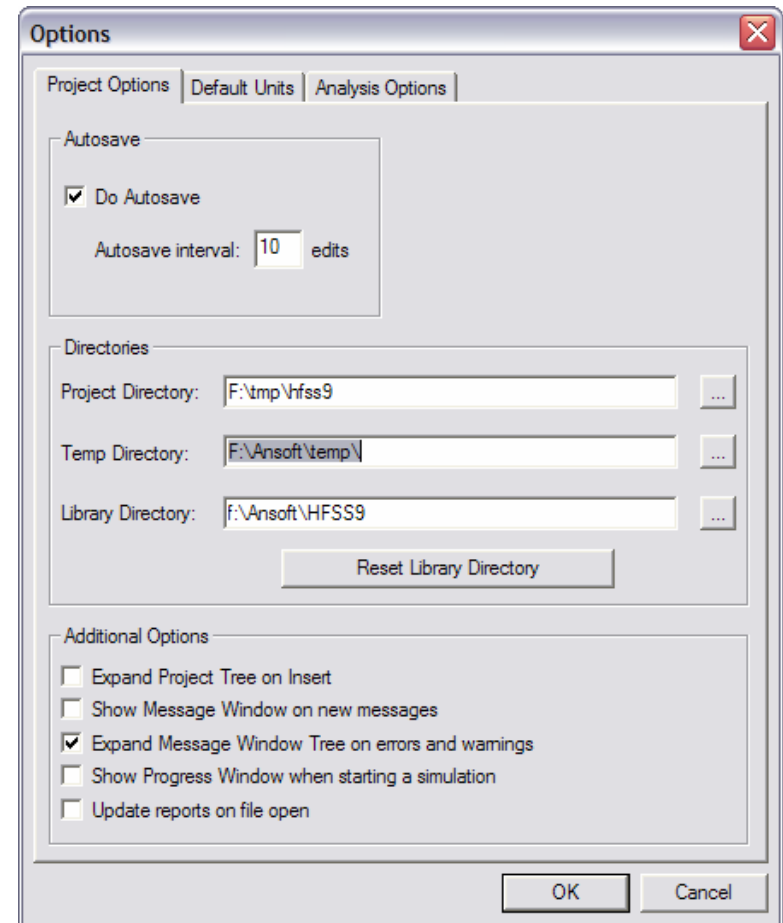
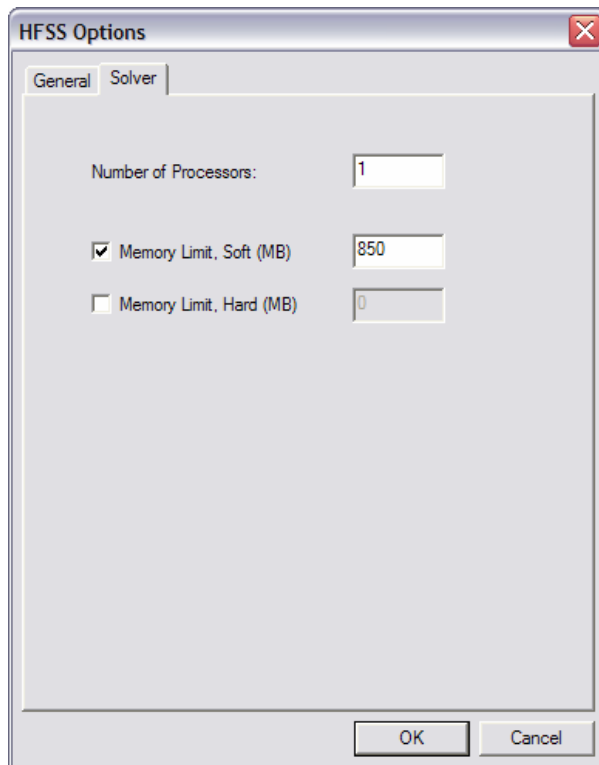
Tools > Options > General

- ▲ **Temp Directory** - Location used during solution process
 - ▲ Make sure it is at least 512MB free disk.
 - ▲ If you get out of disk errors, check this

Options - HFSS

Tools > Options > HFSS

- ▲ Number of Processors - Requires additional license
- ▲ Memory Limit Soft - Set to 80% of Physical RAM



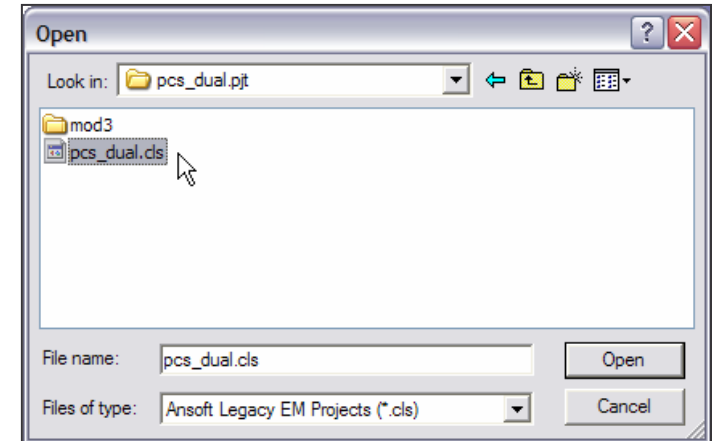
Converting Older HFSS Projects to HFSS v9

From HFSS v9.0,

1. Select the menu item **File > Open**
2. Open dialog
 1. Files of Type: **Ansoft Legacy EM Projects (.cls)**
 2. Browse to the existing project and select the .cls file
 3. Click the **Open** button

What is Converted?

- Converts Entire Model: Geometry/Materials/Boundary/Sources/Setup
- Solutions, Optimetrics projects and Macros are not converted*



Legacy License

- Existing customers using HFSS v8.5 should have received legacy licenses with the new v9.0 licenses.
 - These licenses allow you to run either v9.0 or v8.5.
 - Easy transition from v8.5 to v9.0
 - Contact your Account Manager if this feature is not available.

Recommended Service Packs (SP)

- Microsoft Windows XP - SP1 or higher
- Microsoft Windows 2000 - SP3 or higher
- Microsoft Windows NT - SP6a

Project Files

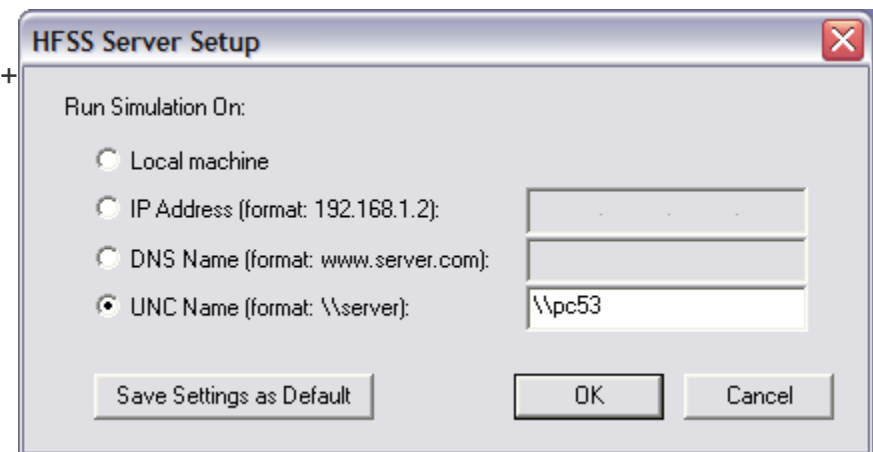
- ▲ Everything regarding the project is stored in an ascii file
 - ▲ File: **<project_name>.hfss**
 - ▲ Double click from Windows Explorer will open and launch HFSS v9
- ▲ Results/Mesh are stored in a folder named **<project_name>.hfssresults**
- ▲ Lock file: **<project_name>.lock.hfss**
 - ▲ Created when a project is opened
- ▲ Auto Save File: **<project_name>.hfss.auto**
 - ▲ When recovering, software only checks date.
 - ▲ If error occurred when saving the auto file, the date will be newer then the original.
 - ▲ Look at file size (Provided in recover dialog)

Scripts





- ▲ Default Script recorded in v9
 - ▲ Visual Basic Script
- ▲ Supported Scripting Languages (Windows)
 - ▲ Anything that is COM capable
 - ▲ JavaScript, Matlab, Excel, Visual Basic, C/C++

Remote Solves

- ▲ **Tools > Options > General**
- ▲ Uses DCOM



Ansoft Designer SV

-  Ansoft Designer™ SV is a full-featured subset of Ansoft's commercially distributed Ansoft Designer
-  Ansoft Designer SV contains a complete high-frequency linear circuit simulator, schematic and layout design entry, powerful design utilities, and post-processing, all integrated in an easy-to-use environment. The software also includes a complete set of linear distributed transmission line models, discontinuities, vendor component parts, and ideal circuit elements.
-  Ansoft Designer SV allows the simulation of S-, Y-, and Z-parameters, group delay, noise figure, and stability circles of RF and microwave circuits. Utilities include real-time tuning, filter and TRL synthesis, and Smith Tool matching. Post-processing includes rectangular plots, Smith Charts, polar plots, and data tables. Additionally, Ansoft Designer SV comes with a set of real-world examples.
-  **Free Download:** www.ansoft.com/ansoftdesignersv



▲ For Technical Support

- ▲ The following link will direct you to the Ansoft Support Page. The Ansoft Support Pages provide additional documentation, training, and application notes. Web Site: <http://www.ansoft.com/support.cfm>
- ▲ Technical Support:
 - ▲ 9-4 EST: (412) 261-3200 x0 - Ask for Technical Support

▲ Application Engineers for North America

- ▲ The names and numbers in this list may change without notice
 - ▲ **Ansoft Office: Pittsburgh, PA, 412-261-3200**
 - ▲ Yianni Antoniadis, x175, yantoniadis@ansoft.com
 - ▲ Shu Li, x172, sli@ansoft.com
 - ▲ **Ansoft Office: Boston, MA, 781-229-8900**
 - ▲ Jim Delap, x133, jdelap@ansoft.com
 - ▲ **Ansoft Office: Boulder, CO, 303-541-9525**
 - ▲ Bryan Boots, x31, bboots@ansoft.com
 - ▲ Brian Gray, x32, bgray@ansoft.com
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