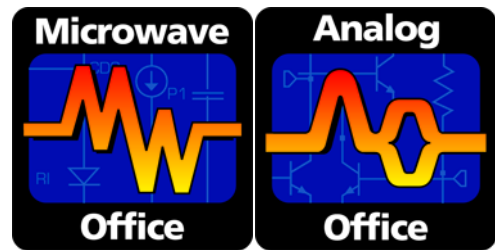


WHAT'S NEW IN MWO/AO 2007?



Microwave Office[®] 2007 (MWO)/Analog Office[®] 2007 (AO) version 7.51 software includes the following new features, enhancements, and user interface changes.

Please note that future updates will be included in the AWR[®] Knowledgebase.

<http://www.appwave.com/download/kb.aspx>

SIGNIFICANT CHANGES

- A new Automated Circuit Extraction (ACE) simulator. [See page 2](#) for more information.
- DRC functionality is expanded. [See page 4](#) for more information.
- APLAC simulators are integrated into the AWRDE. [See page 1](#) for more information.
- iNets now function with PCB and MMIC type technologies. [See page 3](#) for more information.
- The EM user interface is significantly enhanced. [See page 6](#) for more information.

INSTALLATION AND LICENSING

To receive a new license file to run version 7.5, please send an email to licenses@appwave.com to request a file. Microwave Office/Analog Office 2007 includes the following new configuration features:

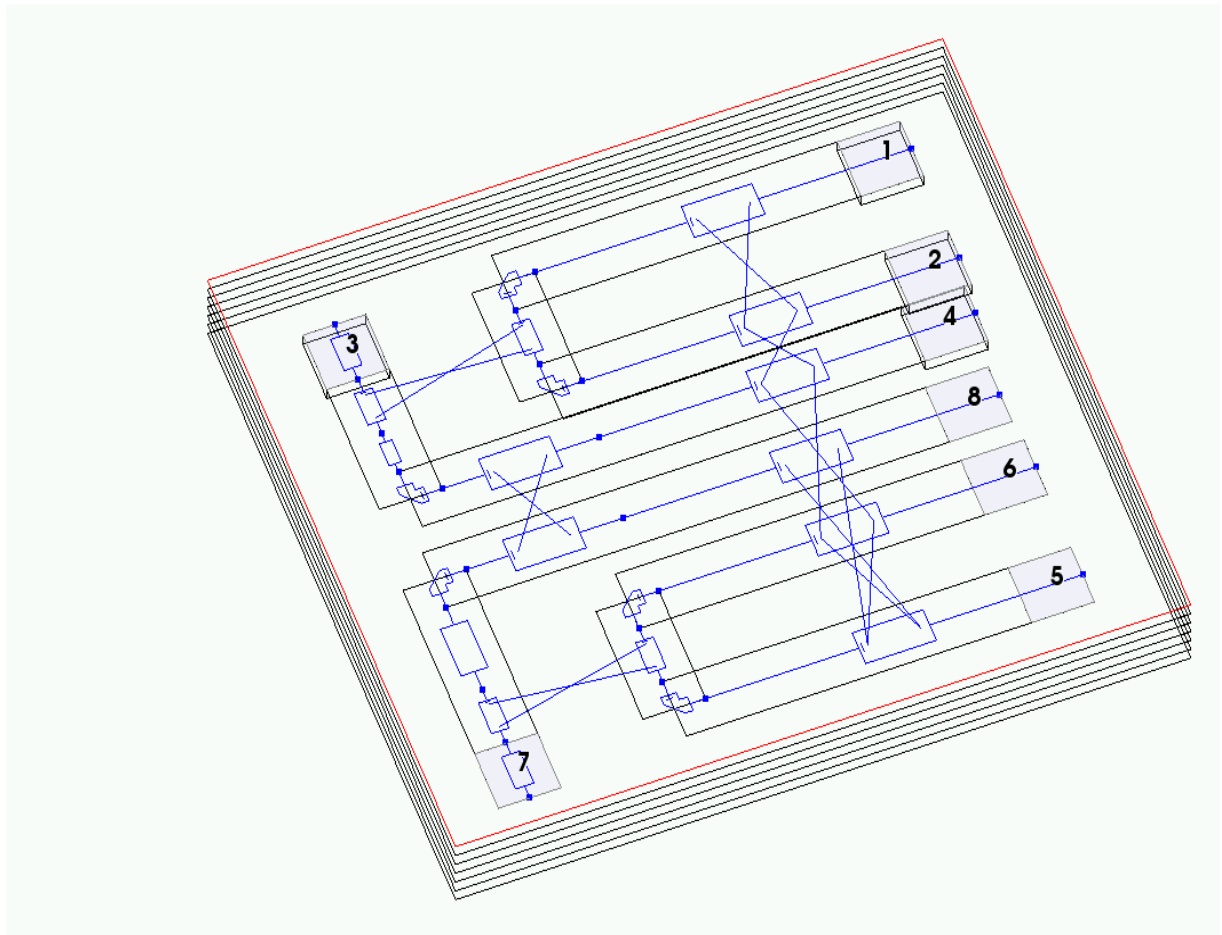
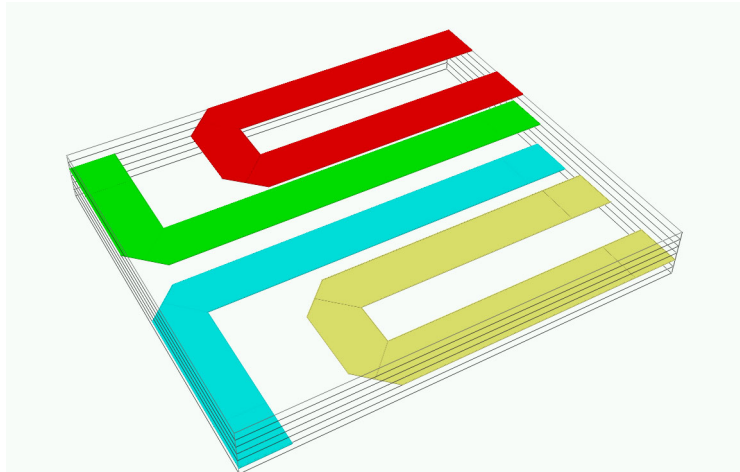
- Better runtime support for non-administrative users on Windows, including Microsoft Vista[™]. Files that users create are no longer written to the installation directory.
- Any X-models filled by a customer are now written to the EmModelsUser directory. This directory is accessible by choosing Help > Show Files/Directories.
- The default location for appdatauser is moved from the roaming location C:\Documents and Settings\<user>\Application Data\AWR\Design Environment\7.0 to the local settings location C:\Documents and Settings\<user>\Local Settings\Application Data\AWR\Design Environment\7.5 so temporary files are not copied over the network.
- Administrative privileges are necessary for setting the AWRDE software license location and installing the software.
- FLEXlm is updated to version 11.3, which supports USB hardware keys on WindowsXP 64-bit operating systems.

SIMULATORS

Microwave Office/Analog Office 2007 includes the following enhancements to supported simulation engines:

- APLAC Linear, AC and noise, Harmonic Balance, and Transient Assisted Harmonic Balance simulators are integrated and available for appropriate measurements in the AWRDE.

- An Automated Circuit Extraction (ACE) simulator allows designers to use iNets in their designs. ACE extracts a transmission line network to properly simulate what was created in layout. This 3D layout is simulated as the following network.



- HSPICE AC and Noise analysis are now supported.

- You can specify Spectre simulation options. To access these options choose **Options > Default Circuit Options** and click the **Spectre** tab on the Circuit Options dialog box.
- The Helic VelocRF parasitic extractor is integrated into the AWRDE and used for spiral inductor, coupled spiral, and line-on silicon extraction.
- Netlists and output files for remote simulators are now written to unique files in the *Temp* directory.
- The Status window now provides a link to Netlists and output files for easy viewing of file contents. To view the Status window choose **View > Status Window**.

EQUATION ENHANCEMENTS

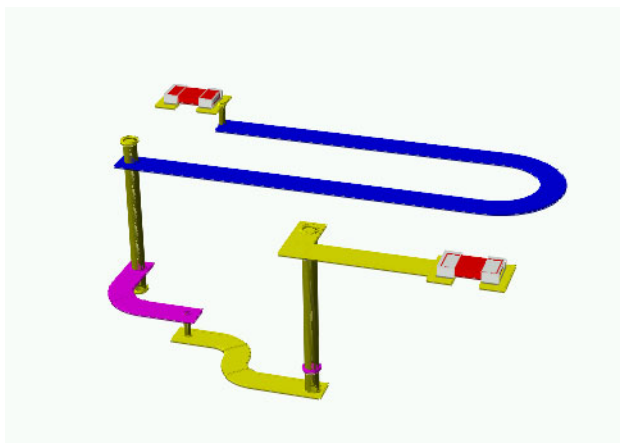
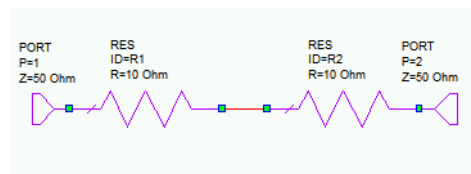
Microwave Office/Analog Office 2007 includes many additional built-in functions. See the *Microwave Office/Analog Office User Guide* for details.

- You can now click and drag a measurement from a graph to the **Output Equations** node in the Project Browser to add the measurement as an output equation.
- A new Integrate function is included.

LAYOUT ENHANCEMENTS

Microwave Office/Analog Office 2007 includes the following new or enhanced layout features:

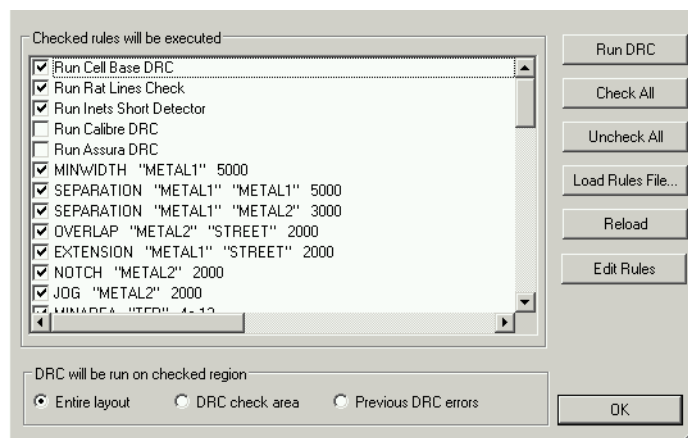
- iNets now function with PCB and MMIC type technologies. The following depicts a simple schematic with two resistors and the resulting layout when using iNets.



- When using the mouse wheel to zoom, the zoom function centers on the cursor, not the center of the layout view.
- The **Esc** key now cancels any layout operation.
- Simultaneous selection of objects in a schematic and layout is now supported. Previously, selecting an item in a schematic highlighted the item in the layout but did not select it. Now you can select an object in a schematic, right-click and choose **Select In Layout** to select it in the layout view as well. This feature also functions in reverse.
- When assigning layout cells to schematic elements, a new **Library Name** option with a drop-down list of artwork cell libraries simplifies artwork cell selection. The default lists the pcells of the node number, and **Library Name** displays artwork cell libraries to expand your selection of cells. Previously, all pcells and artwork cells of a given node number displayed in the same list.
- New options are available for storing artwork cells in projects. In the Layout Manager, right-click an artwork cell library name and choose **Cell Library Properties**. In **When to save cells with the project?** you can specify how to save GDSII libraries in the project. **InUse** (the default) is the old behavior. **Always** specifies that all cells are saved with the project, potentially making the project large. **Never** specifies that the cells will only exist if the file exists, which locks the library and makes it uneditable.
- The options for adding Artwork Cell libraries have changed. In the Layout Manager, right-click **Cell Libraries** and choose **Import GDSII Library**, **Link to GDSII Library**, or **New GDSII Library**. The same options are available for DXF libraries. **Import** saves the library inside the project and sets **When to save cells with the project?** (described above) to **Always**, while **Link to** sets this option to **Never**.
- Layout Mode properties have moved from the **View** menu to the **Layout** menu. Choose **Layout > Layout Mode Properties** to access this option.
- Integration with Assura™ for DRC and LVS.
- Multiple LPF support is improved.

DRC ENHANCEMENTS

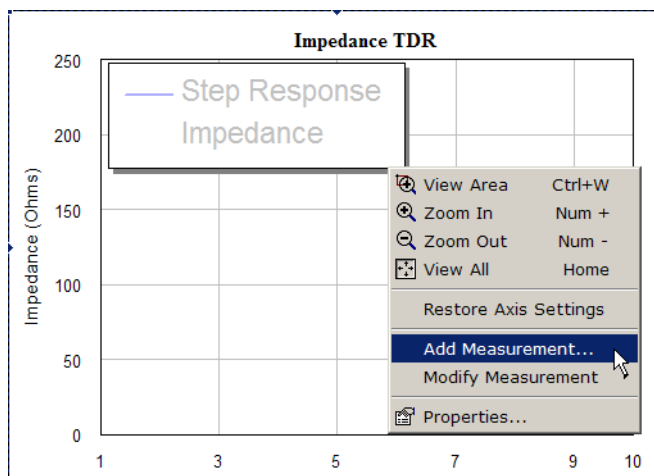
Microwave Office/Analog Office 2007 includes the following new or enhanced DRC features:



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- ## GRAPHING ENHANCEMENTS

You can now right-click on a graph and choose **Add Measurement** to add a measurement to the graph.



DATA FILE ENHANCEMENTS

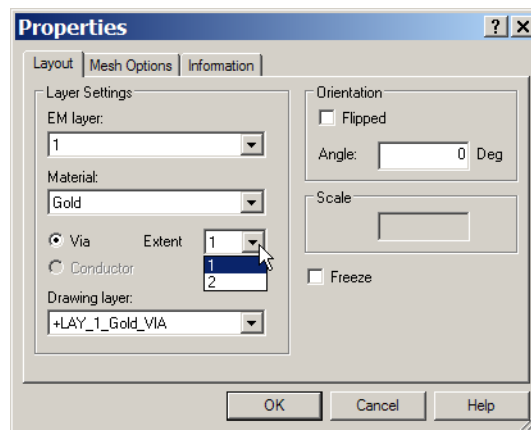
Microwave Office/Analog Office 2007 includes the following new data file enhancement:

You can now force a data file into a passive status when used for noise simulations. To set this option globally, choose **Options > Project Options** and click the **Interpolation/Passivity** tab on the Project Options dialog box, then select the **Consider Passive for Noise Simulation** checkbox. To set this option for a single document, right-click the document in the Project Browser and choose **Options** to display an Options dialog box with the same option.

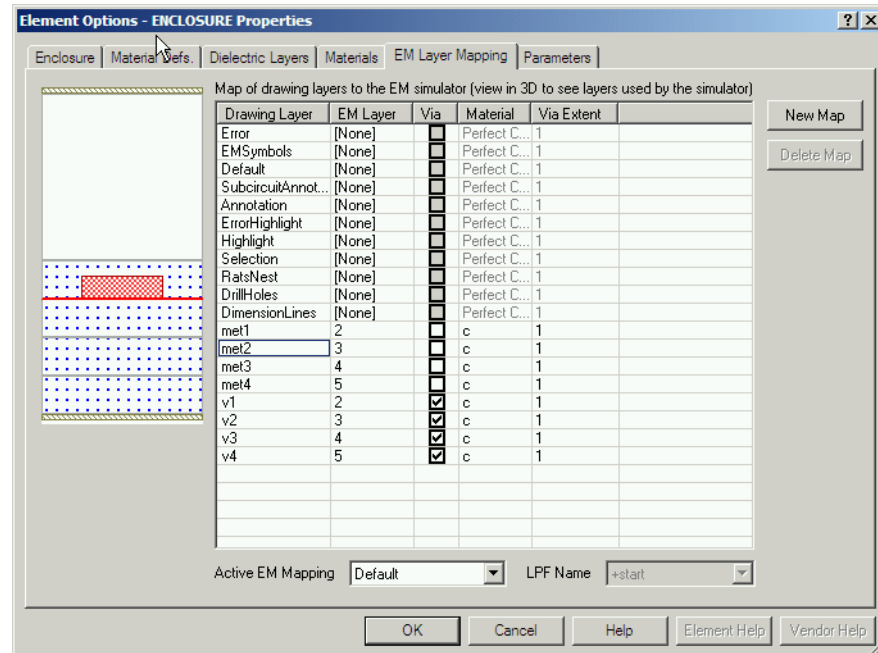
EMSIGHT ENHANCEMENTS

Microwave Office/Analog Office 2007 includes significant EMSight changes such as:

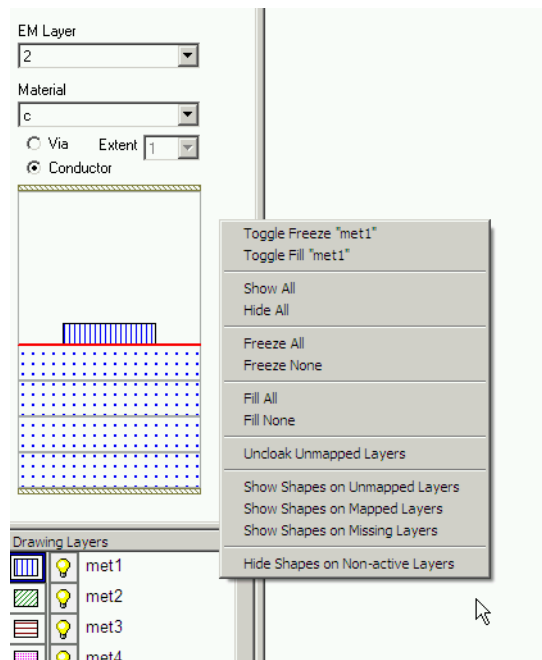
- You can now view the mesh of a structure in either the 2D or 3D layout view.
- Thickness for shapes in the 3D layout is now controlled by the simulator type. If the simulator supports thick metal simulations, it displays with thickness. If the simulator does not support thick metal, the shapes display no thickness.
- When an EM structure is the active window and the **Layout** tab is selected, a new cross-sectional viewer shows where shapes were added. You can place the cursor over each layer to view its thickness and dielectric constant.
- Vias now have an Extent property that specifies the number of layers they pass through. To set the Extent, with a layout window active, click the **Layout** tab to access the Layout Manager or right-click a via to display the Properties dialog box **Layout** tab.



- EM mapping is simplified by editable EM mapping tables in the EM Structure ENCLOSURE Properties dialog box in addition to the cross-sectional viewer.



- Drawing vias is simplified. When a via drawing layer is selected, any drawing tool can draw a via. Previously you could use only the Via drawing tool.
- EM shape properties (drawing layer, EM layer, material, via or conductor) now display in the status bar at the bottom of the screen when a shape is selected.
- In the Layout Manager, you can right-click over the drawing layers for EM structures to easily change layer visibility for different types of EM layers (layers used for simulation, layers not used for simulation, and layers in an error state).

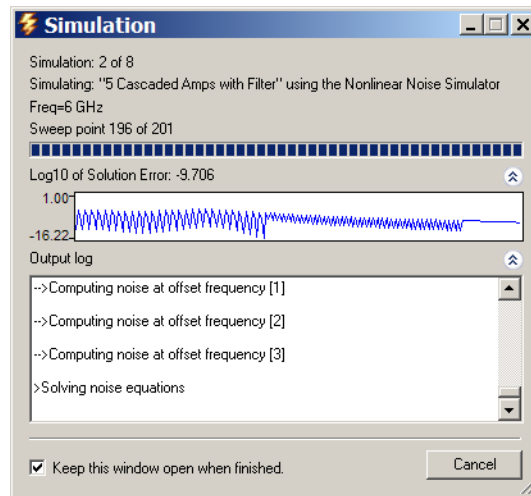


- CST Microwave Studio, Flomerics MicroStripe, and Vector Fields Concerto are supported.

USER INTERFACE ENHANCEMENTS

Microwave Office/Analog Office 2007 includes the following user interface enhancements:

- A new Simulation dialog box is used for all simulators. You can expand or collapse different sections of the dialog box depending on your preferences. The middle section displays the convergence error for nonlinear simulations, and the bottom section displays a print of the simulator's status.



- The Symbol Editor now uses schematic background and grid colors.
- When duplicating a graph, the new graph name has a number appended to the name instead of the name "Copy of ..". This allows the new graph to display directly below the original graph in the Project Browser.
- Several Visual Basic (VB) scripts are configured to run from the AWRDE menus. View the **Scripts** menu to see which scripts are included. This menu changes based upon the active window (schematic, layout, graph, etc). These scripts are an example of types you can use; you can customize your own scripts by choosing **Tools > Customize**.

API ENHANCEMENTS

Microwave Office/Analog Office 2007 includes the following API enhancements:

- Access to Global Definitions options.
- Importing DXF files in a specified unit type.
- Access to layout commands such as Boolean operations and alignment.
- Access to output files.

SCHEMATIC ENHANCEMENTS

Microwave Office/Analog Office 2007 includes the following schematic enhancement:

In version 7.0x, pressing **Ctrl+Shift** and pointing to a wire in a Schematic window allowed you to add a wire segment to an existing wire. In version 7.5 this function is replaced by right-clicking a wire and choosing **Add wire**. To preserve the 7.0x behavior for this function you can assign the previous keystrokes to a hot key.

NEW MEASUREMENTS

Microwave Office/Analog Office 2007 introduces over 12 new measurements. For measurement details, see the *MWO/AO Measurement Reference* online Help.

Annotate

NoiseConA: Noise Contribution for Elements

ERC

NoiseCheck: Total Noise Contribution ERC

PLANAR EM

EM_MESH_2D: Draw the mesh of the selected EM document

Linear

AC

Iac: AC Current

IacD: Differential AC Current

NoiseC: Output Noise Voltage

NoiseCon: AC Noise Contributors

NoiseI: Equivalent Input Noise Voltage

NoiseO: Total Output Noise Voltage

Vac: AC Voltage

VacD: Differential AC Voltage

NOISE

CV: Noise Voltage Correlation Matrix

Nonlinear

VOLTAGE

Vgain: Voltage Gain

VgainD: Differential Voltage Gain

NEW ELEMENTS

Microwave Office/Analog Office 2007 introduces eight new element models. For element details, see the *MWO/AO Element Catalog* online Help.

The following specific model enhancement is also included:

- MCTRACE now has a BImp parameter to specify the type of curve model to use.

Microstrip

COMPONENTS

DIFRIND: Microstrip Rectangular Differential Inductor (EM Quasi-Static)

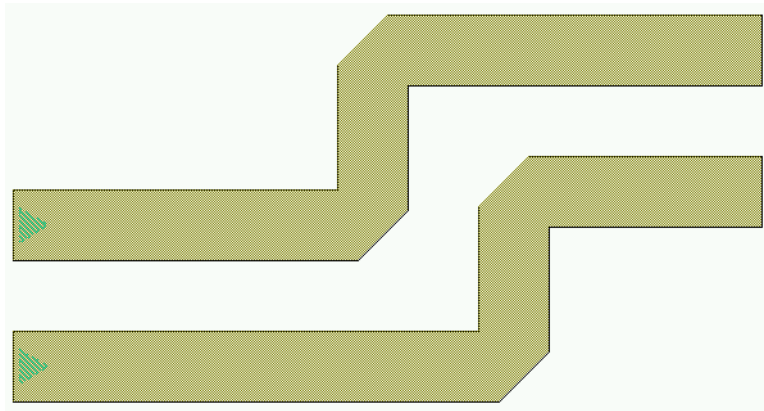
FMCIND2: Circular Spiral RFIC Inductor (FEM Quasi-Static)

FMOCIND2: Octagonal Spiral RFIC Inductor (FEM Quasi-Static)

FMRIND2: Rectangular Spiral RFIC Inductor (FEM Quasi-Static)

COUPLED LINES

MTRACED: Microstrip Differential Line (Closed Form)



Nonlinear

BJT

VBIC: VBIC BJT Model

FET

AURIGA_M6: AURIGA M6 FET Model

PSP: PSP Model Version 102.1

XML LIBRARY ENHANCEMENTS

The following XML Library enhancements are included in this release:

- If no libschema is specified in the XML files, the file in the *\$AWR/Library* folder is used as the master libschema file.
- APLAC native netlists are now allowed in XML.

