

3 Working with Files

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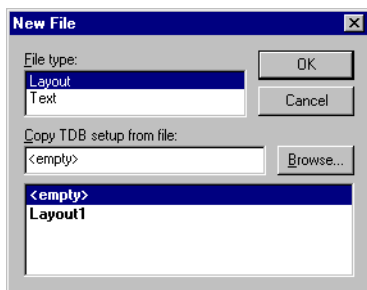
Files

A complete L-Edit design is composed of cells contained in a design file. You can open as many design files simultaneously as your hardware allows. The name of the active file appears in the L-Edit title bar.



Creating Files

Create new files by choosing **File > New**, which opens the **New File** dialog:.



Options include:.

File type

The type of file to create. **Layout** produces a Tanner Database (TDB) file. **Text** creates an ASCII text file for normal text editing.

Copy TDB setup from file

For **Layout** files, the TDB file from which to take setup information for the new file. You will be able to choose the source setup file by selecting one from the list of predefined setup files, by typing the name of the file into the text field, or by browsing. If you do not select a setup file, the new file is opened with the default **<empty>** setup.

The list of predefined setup files will contain:


- **<empty>**—this is a standard empty setup (this is the default setup with black background, single layer and no DRC rules).
- The list of currently loaded TDB files (displayed in bold face).
- The list of TDB setup files found in the predefined setup directories. You can specify the **TDB setup path** in the **Setup Application** dialog.

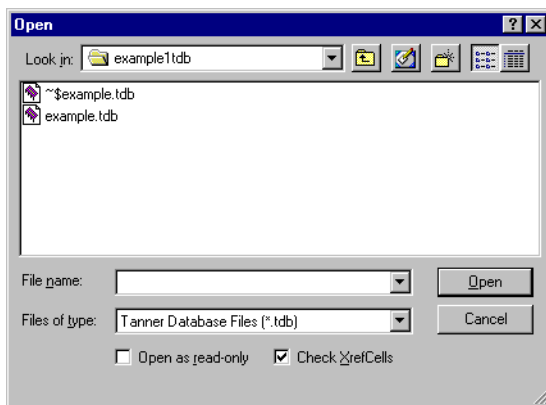
When you create a new file, L-Edit will assign it the default name **Text** or **Layout**, followed by a number, e.g., **Text2** or **Layout5**, depending on the history of the current session. When you first save the new file, you will be prompted to change the filename, if needed.

After creating a file, you can specify additional information using the **File Information** dialog (see [File Information on page 1-68](#)).

Opening Files

There are three ways to open a file:

- Select **File > Open**
- Click the open file button ()
- Press **Ctrl + O**



Options include:

Look in

The source directory.

File name

The name of the file to be opened. The wildcard character (*) can be used to narrow down the list of available files. (For example, to list only TDB files whose names begin with the letter **a**, type **a*.tdb** and press **Enter**.) Only one file can be opened at a time. All files of the specified type in the source directory are listed in the space above this field.

Files of type

The type of file listed. Predefined file types include:

- **Tanner Database Files (*.tdb)**
- **Extract Definition Files (*.ext)**
- **Netlist Files (*.tpr; *.ed)**
- **Spice Files (*.sp;*.spc)**
- **Design Rule Errors Text Files (*.drc)**
- **Design Rule Text Files (*.rul)**
- **Cross-Section Process Definition Files (*.xst.)**
- **Nodal Capacitance Files (*.cap)**
- **Standard Delay Format Files (*.sdf)**
- **Tanner Text Format Files (*.ttx)**
- **Application Configuration Files (*.ini)**
- **Error Files (*.err)**
- **All Files (*.*)**

All file types in the source directory (*.*) can be displayed; however, only TDB or text files can be opened with the **File > Open** command.

Open as read-only

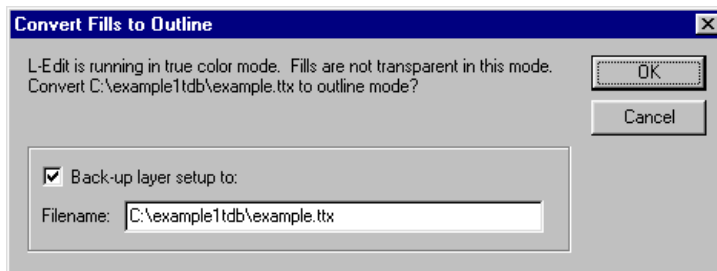
Opens the selected file as read-only. When this option is checked, changes made to the file cannot be saved. This option is only supported for TDB files.

Check XrefCells

Verifies that cells referenced from other files are current. If they are not, the **Examine XrefCell Links** dialog appears. See [Examining XrefCells on page 1-401](#) for further information.

You can also open a recently used file by selecting its name from the bottom of the **File** menu.

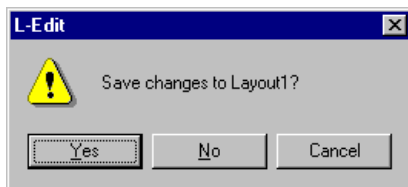
If you run L-Edit when the Windows color resolution is greater than 256 colors, the program will display the following dialog when you open a file:



If you click **OK**, L-Edit will convert the file to outline mode. In outline mode, L-Edit displays geometry in outline form only. Checking the **Back-up layer setup to** box will save the original layer setup to the specified file.

Closing Files

To close the current file, choose **File > Close** or press **Ctrl + W**. If a file contains any unsaved changes, L-Edit will prompt you to save them.

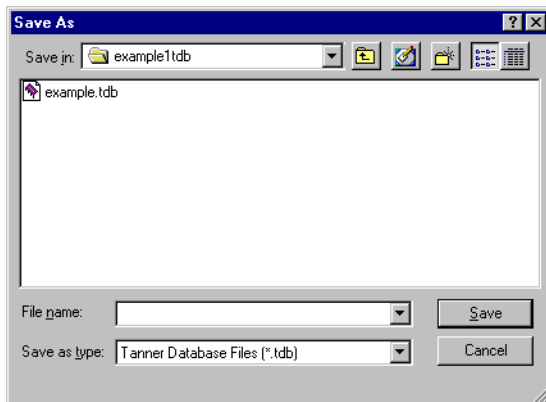


- Clicking **Yes** saves the file. If the file is new, the **Save As** dialog appears (see [Saving Files](#), below).
- Clicking **No** closes the file and discards all unsaved changes.
- Clicking **Cancel** cancels the close operation.

Saving Files

To save the current file, choose **File > Save** or press **Ctrl + S**. L-Edit saves the file using its current filename and path.

To save a file using a different name or location, choose **File > Save As**. L-Edit displays the **Save As** dialog.



Options include:

Save in

The target directory.

File name

The name under which the file corresponding to the active window is to be saved. The space above this field lists all files of the specified type in the target directory. If you choose a name that already belongs to an existing file, L-Edit prompts you for permission to overwrite the existing file.

Save as type

The type of file listed. By default, the active file is saved in its current type—e.g., TDB, TTX, etc. If the active window contains a text file, the only available option is **All Files (*)**.

L-Edit saves the following information for each file:

- Size and location of all layout windows opened in this file
- Which cells are open
- The following viewing options:

Zoom levels of open cells

Visibility of origin and grid

Visibility of arrays and ports

Last view

Visibility of layers

TDB File Format

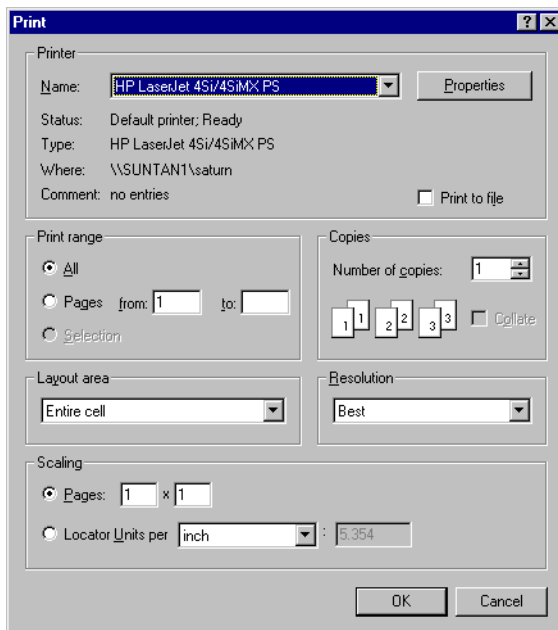
Tanner Database (TDB) is a proprietary, machine-readable format optimized for the Tanner Tools environment. TDB files are saved with the **.tdb** filename extension. By default, the scrollable list displays TDB files.

Along with the design itself, a TDB file contains setup information including layer rendering information, CIF and GDSII setup information, design rules, and L-Edit configuration settings. The TDB format can be read, displayed, and modified by L-Edit on any platform, and it is the preferred format for storing L-Edit design information. The setup information can also be stored separately in Tanner Text (TTX) format and edited directly in a text editor. (For information on the TTX file format, see [TTX File Format on page 1-90.](#)) The setup information can be read back into L-Edit in either the TDB or the TTX format with **File > Replace Setup**.

When a file is saved, L-Edit automatically backs up previously-saved versions of the file with a **.tdo** extension.

Printing

You can print files in L-Edit by choosing **File > Print** or pressing **Ctrl + P**. For TDB files, the following dialog appears:



Options include:

Name

The device to which the data in the active file will be printed.

Properties

Opens the **Printer Properties** dialog.

Print to file

Prints to a file instead of the physical printer. If this option is checked, clicking **OK** opens the **Print to File** dialog.

Print range

The set of pages to be printed.

Copies

The number of copies to be printed, with the option to collate.

Layout area

Drop-down menu that gives the option to print

- **Entire cell**
- **Current window only**

Resolution

Printer resolution in dots per inch (dpi).

Options include:

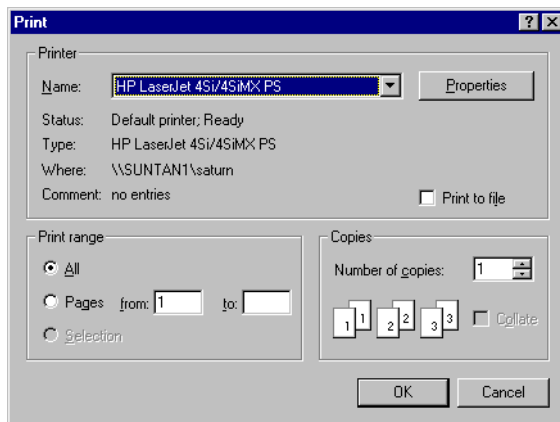
- **Best** (matches printer resolution)
- **600 x 600**
- **300 x 300**
- **150 x 150**
- **75 x 75**

Scaling

Option buttons control the magnification of the layout on the printed page. Options include:

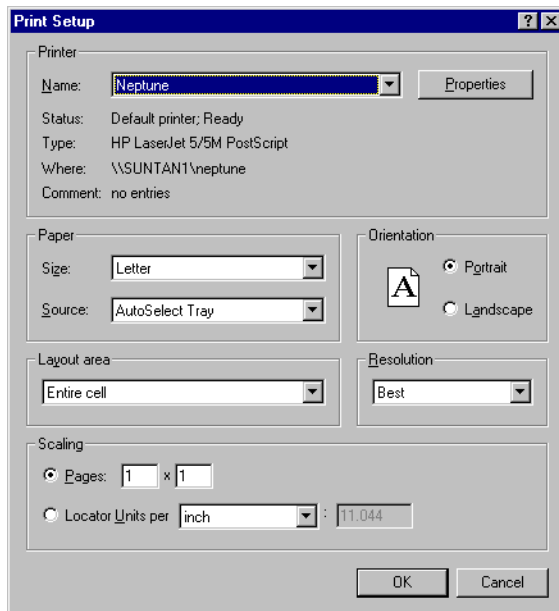
- **Pages**—the number of pages (width × height) that the printed layout will occupy. For example, a 3×2 page scale will result in a layout that spans 6 printed pages: 3 wide and 2 high. Multiple pages can be pasted together after printing to create the layout as on the screen.
- **Locator Units per**—the ratio of locator units to physical units on the page. Options are **Inch** and **centimeter**. Selecting this option will activate the field where you specify the number of locator units per the specified physical unit.

For text files, the dialog appears without the options for **Layout area**, **Resolution**, and **Scaling**:

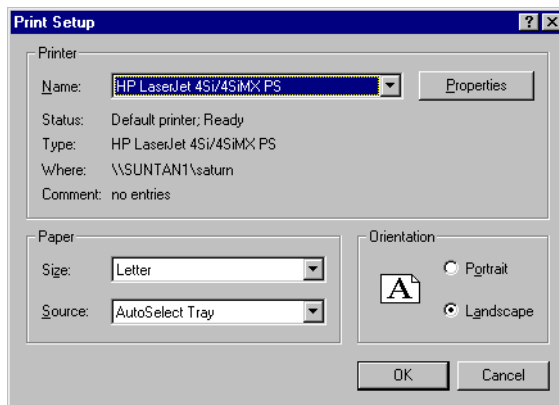


Print Setup

To set up printing parameters, choose **File > Print Setup**. For TDB files, the following dialog appears:



For text files, the dialog appears without the options for **Layout area**, **Resolution**, and **Scaling**:



Options include:

Printer

The default device to which the active text file will be printed. The drop-down list shows available printers.

Properties

Opens the **Printer Properties** dialog.

Paper

Specifies the paper size and source.

Orientation

Specifies the orientation of the printed page as portrait or landscape.

Layout area

Drop-down menu that gives the option to print the entire cell or just that part of the cell displayed on your monitor.

Resolution

Printer resolution in dots per inch (dpi).
Options include:

- **Best** (matches printer resolution)
- **600 x 600**
- **300 x 300**
- **150 x 150**
- **75 x 75**

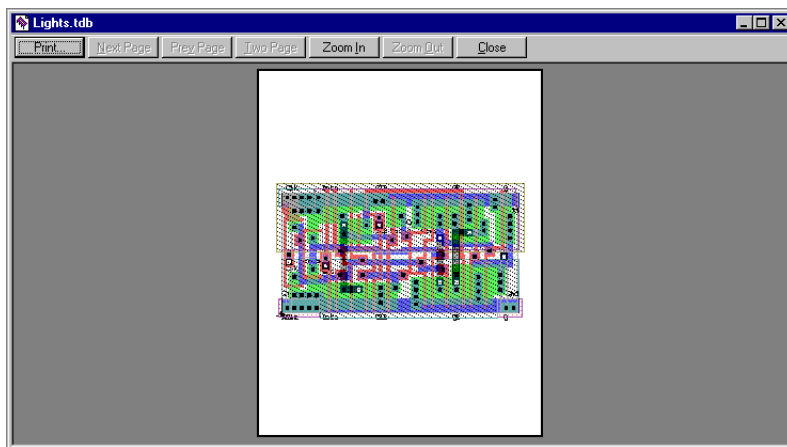
Scaling

Option buttons control the magnification of the layout on the printed page. Options include:

- **Pages**—the number of pages (width × height) that the printed layout will occupy. For example, a 3×2 page scale will result in a layout that spans 6 printed pages: 3 wide and 2 high. Multiple pages can be pasted together after printing to create the layout as on the screen.
- **Locator Units per**—the ratio of locator units to physical units on the page. Options are **Inch** and **centimeter**. Selecting this option will activate the field where you specify the number of locator units per the specified physical unit.

Print Preview

File > Print Preview displays the active cell as it will be printed in full-page mode. Cells cannot be edited in **Print Preview**.



Options include:

Print

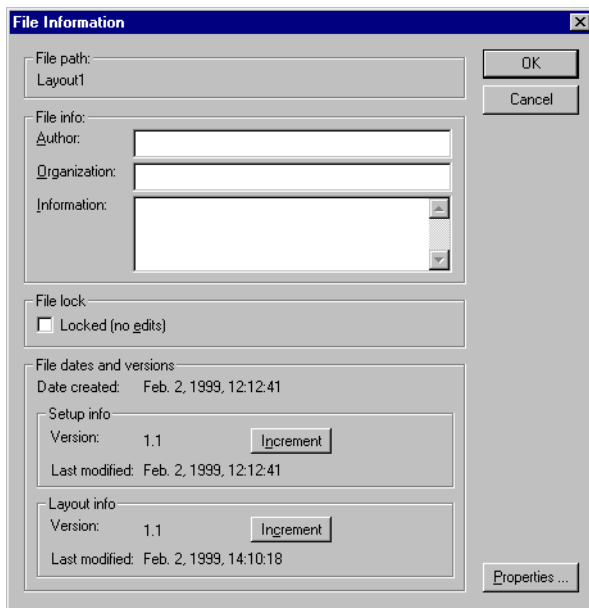
Opens the **Print** dialog (see [Printing on page 1-58](#)).

Next Page	Displays the next page in the window.
Prev Page	Displays the previous page in the window.
Two Page	Displays two pages in the window.
Zoom In	Magnifies the display.
Zoom Out	De-magnifies the display.
Close	Closes the Print Preview dialog.

In addition to layouts, you can also preview text or a Design Navigator display.

File Information

Access information about the current file by choosing **File > Info**. The following dialog appears:



The **File Information** dialog box displays the following information:

- File path:** Layout1
- File info:**
 - Author:** [Text field]
 - Organization:** [Text field]
 - Information:** [Text area]
- File lock:**
 - ☐ Locked (no edits)
- File dates and versions:**
 - Date created:** Feb. 2, 1999, 12:12:41
 - Setup info:**
 - Version:** 1.1 [Increment]
 - Last modified:** Feb. 2, 1999, 12:12:41
 - Layout info:**
 - Version:** 1.1 [Increment]
 - Last modified:** Feb. 2, 1999, 14:10:18

Buttons: OK, Cancel, Properties ...

Options include:

File info

Includes **Author**, **Organization**, and **Information** (notes or messages) for the active document. **Information** can contain a maximum of 256 characters.

File lock

Locks the current file. Locked files cannot be edited, but data from the file can be copied to another file.

File dates and versions

The date and time the file was created and last revised. **Setup info** and **Layout info** include version numbers. The version numbering system provides an internal accounting method for tracking layout design and file setup changes. Major numbers are increased by clicking the **Increment** button; minor numbers are automatically incremented each time changes in the file are saved.

Properties

Accesses the **Properties** dialog. For more information on file properties, see [Properties on page 1-70](#).

Properties

L-Edit properties are comprised of a name and value and are used to store information. You can attach properties to L-Edit objects, layers, instances, cells, and files.

When you attach a property to a cell or instance, it is local to that cell or instance only. Properties attached to primitive cells do not propagate throughout the design hierarchy.

If you copy a cell, however (using **Cell > Copy**), the copied cell will contain any properties created in the original.

Properties are classified by type and can be arranged in hierarchical groups. Properties have many applications, including:

- Netlist extraction—you can use properties to control the information extracted from a layout.
- Design management—in conjunction with a UPI macro, you can use properties for such tasks as counting the instances of a cell.
- Design documentation—you can load a text file or other document into a property attached to a file, cell, layer, or other object.

Property Types

Valid property data types include the following:

None	Property without a value—often used simply to create a level of hierarchy.
Integer	Signed integer from -2,147,483,648–2,147,483,647.
Byte	Unsigned integer from 0–255.
Real	Floating point (8-byte) number from 1.7E +/- 308.
String	Alphanumeric string.
Logical	Boolean with values True or False .
BLOB	Binary large object.

Viewing and Editing Properties

Properties are viewed and edited using the **Properties** dialog. For layout objects, you can access this dialog in the following way:

- ☒ Select the object of interest.

- ☑ Choose **Edit > Edit Object(s)**.
- ☑ In the **Edit Object(s)** dialog, click **Properties**.

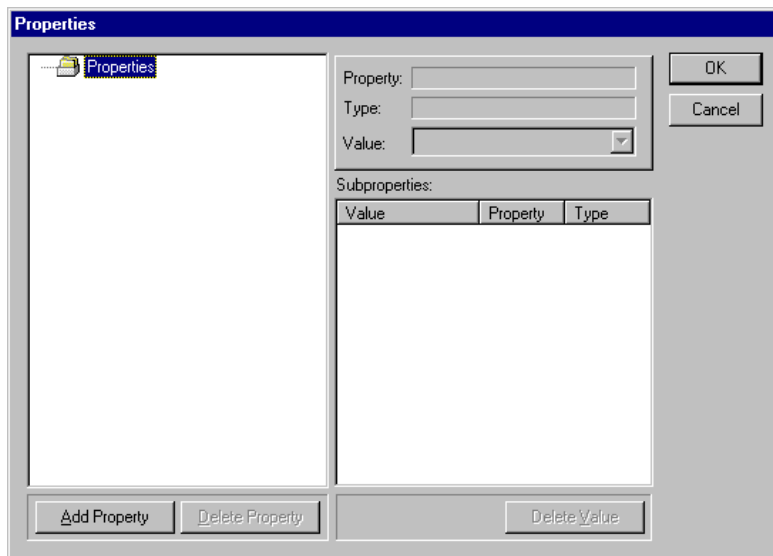
For layers, you can access the **Properties** dialog in the following way:

- ☑ Choose the menu command **Setup > Layers**.
- ☑ In the **Setup Layers dialog**, click **Properties**.

For files and cells, you can access the **Properties** dialog in the following way:

- ☑ Open the file or cell of interest.
- ☑ Choose the menu command **File > Info** or **Cell > Info**, as appropriate.
- ☑ In the **File Information** or **Cell Information** dialog, click **Properties**.

For any object, L-Edit displays the **Properties** dialog:



The **Properties** dialog has two major areas—the **Properties** tree on the left and the value fields on the right.

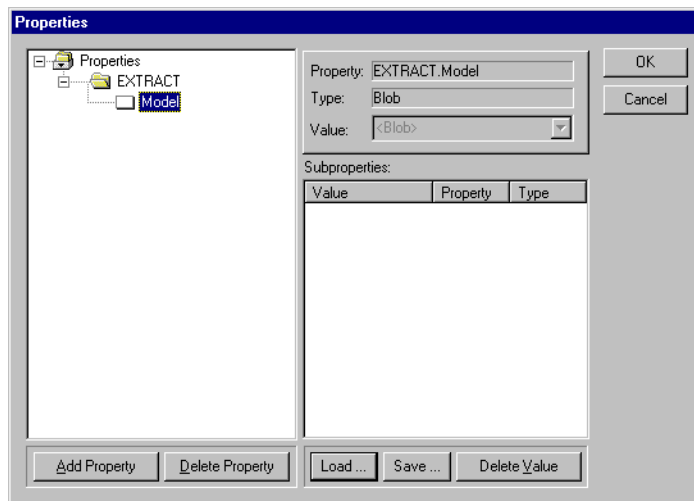
The **Properties** tree displays the properties for the selected file, cell, layer, or object. Properties with subproperties appear in the tree with folder icons;

properties without subproperties appear with small white rectangles. A plus sign next to a folder indicates that the property can be expanded; a minus sign indicates that it can be collapsed.

When you select a property, its name, type, and value are displayed in the fields **Property**, **Type**, and **Value** to the right of the **Properties** tree. You can use the **Values** field to type values for a selected property or to choose values from the list of previous entries.

When you select a property with subproperties, those subproperties are displayed in the **Subproperties** list.

When you select or create a property of the type binary large object (BLOB), the **Load** and **Save** buttons appear below the **Subproperties** list:



Load

Accesses a standard Windows file browser in which you navigate to the object to be loaded into a BLOB property.

Save

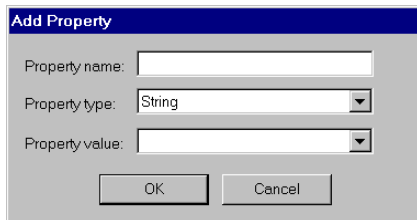
Accesses a standard Windows file browser in which you specify the filename and path of the file to which the BLOB will be written. The default filename extension is **.blo**.

Adding Properties

To add a property, select a property in the **Properties** tree that you want to be the parent for the new property. Then perform one of the following actions:

- Click **Add Property**.
- Right-click and select **Add property** from the pop-up menu.
- Press the Insert key (**Ins**).

L-Edit displays the **Add Property** dialog:



The screenshot shows a standard Windows-style dialog box titled "Add Property". It contains three input fields: a text box for "Property name:", a dropdown menu for "Property type:" (currently set to "String"), and another dropdown menu for "Property value:". At the bottom of the dialog are two buttons: "OK" and "Cancel".

Specify the following:

Property name	Full name of the new property.
Property type	Data type of the new property. For further information, see Property Types on page 1-71 .
Property value	Value of the new property. Type the value in this field or click the arrow to select from a list of previously used values.

Deleting Properties

To delete a property, select it in the **Properties** tree and perform one of the following three actions:

- Click **Delete Property**.
- Right-click and select **Delete property** from the pop-up menu.
- Press the Delete key (**Del**).

Renaming Properties

To rename a property, select it in the **Properties** tree and perform one of the following three actions:

- Right-click and select **Rename property** from the pop-up menu.
- Press **F2**.

Deleting Values

To delete a property's value, perform one of the following actions:

- Select the icon in the **Properties** tree and click **Delete Value**.
- Select the subproperty in the **Subproperties** list and click **Delete Value**.
- Select the subproperty in the **Subproperties** list and press **Del**.
- Select the subproperty in the **Subproperties** list, right-click, and choose **Delete Value** in the resulting pop-up menu.

Editing Values

When you select a property in the **Properties** tree, you can edit its value in the **Value** field. You can also edit values for subproperties of the selected property in the **Value** column of the **Subproperties** list. Select an item in the **Subproperties** list and press **F2**. Alternatively, you can right-click the item and select **Modify value** in the resulting pop-up menu.

Organizing Properties in a Hierarchy

You can create a hierarchy by selecting a property in the **Properties** tree and adding subproperties beneath it. The selected property is then shown as a folder icon, and properties shown beneath it are grouped at a deeper level (or levels) of hierarchy.

L-Edit uses a period (.) to separate levels of hierarchy in the **Properties** tree. For example, the path **EXTRACT.W** contains the property **EXTRACT** and the subproperty **W**.

Exiting L-Edit

Choose **File > Exit** to exit L-Edit. A warning prompts you to save changes in each unsaved file.

