

## **Formulary - A Hobbyist Parts Database**

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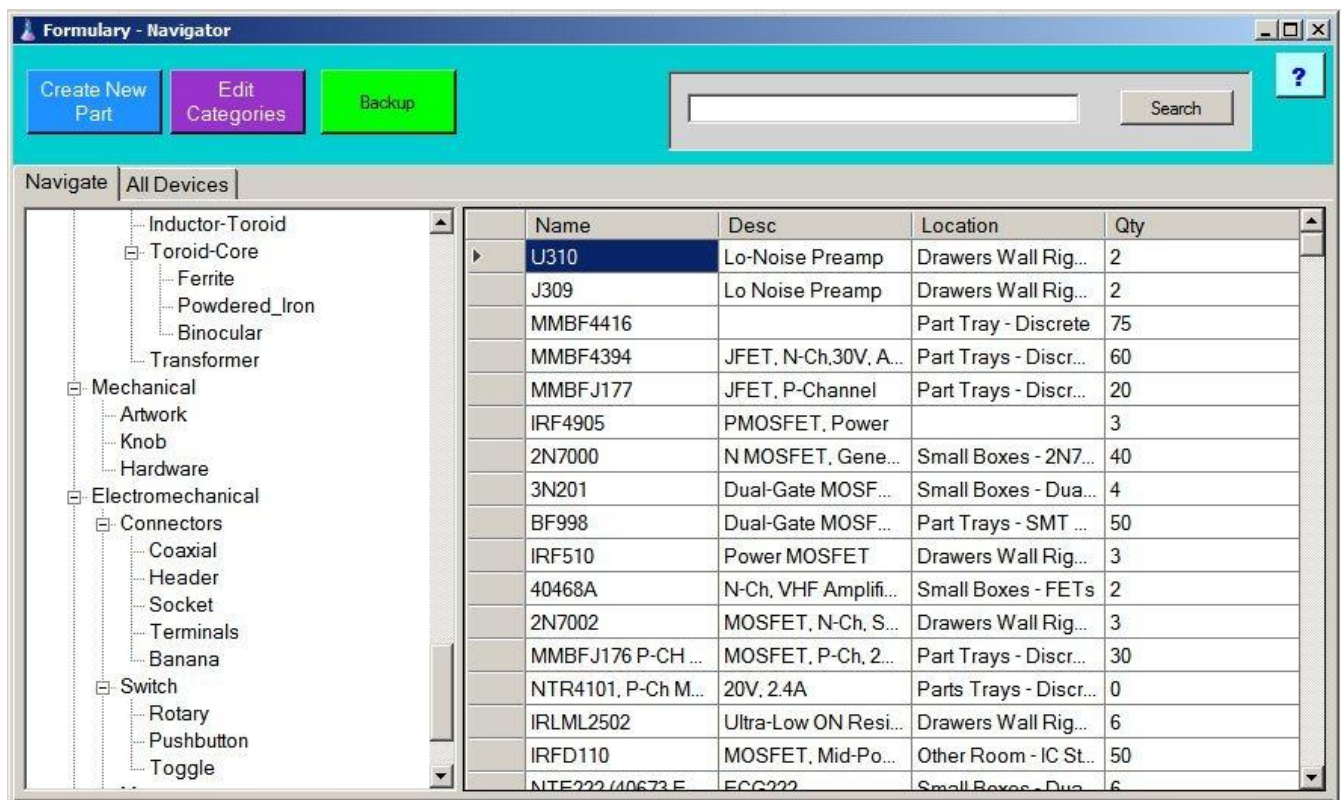
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Formulary will only run on the Windows operating system and has only been tested on Windows 7, and Windows 10. It operates with limited functionality on Windows XP. I only have the amount of Disk storage space and RAM that I have, so I can't say what the minimum specifications are for either of these.

# Formulary

Formulary is a small parts database intended to help electronic or mechanical hobbyists locate their parts and remember where they originated so they can order the same thing again. At its heart is a Tree-based categorization to help sort and locate specific parts, and a separate page that contains information specific to each part. These two pages in combination with other single-purpose pages, allow you to know what parts you have, how many, where they are, and where they came from. As an added bonus, the program displays a picture of each part, and picture of its location.



Main Page – Grid on right will show all parts under the chosen category

1. The program contains 3 folders: **Datasheets**, **Images**, and **Locations**. Within the datasheet folder are the files:

-*"Formulary Help.PDF"*: The program's HELP file

-*"Formulary.XML"*: The data file

-*"No\_Image.jpg"*: A placeholder image used when you don't have either the image of an item or its location

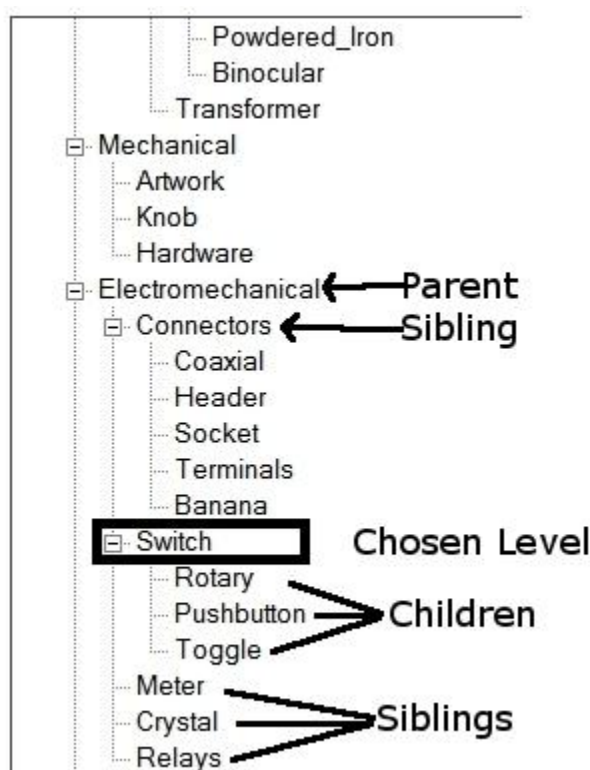
-*"Formulary.exe"*: The program executable

You can unpack and install the program anywhere on you wish including on a portable flash drive, but the location relationship of the folders and placement of the file(s) must be maintained or the program won't know where to look for the database and various images that comprise each part's page.

2. The first time the program runs it contains no parts, only categories. The most logical place to start using the program would be to add/delete categories to suit your needs.

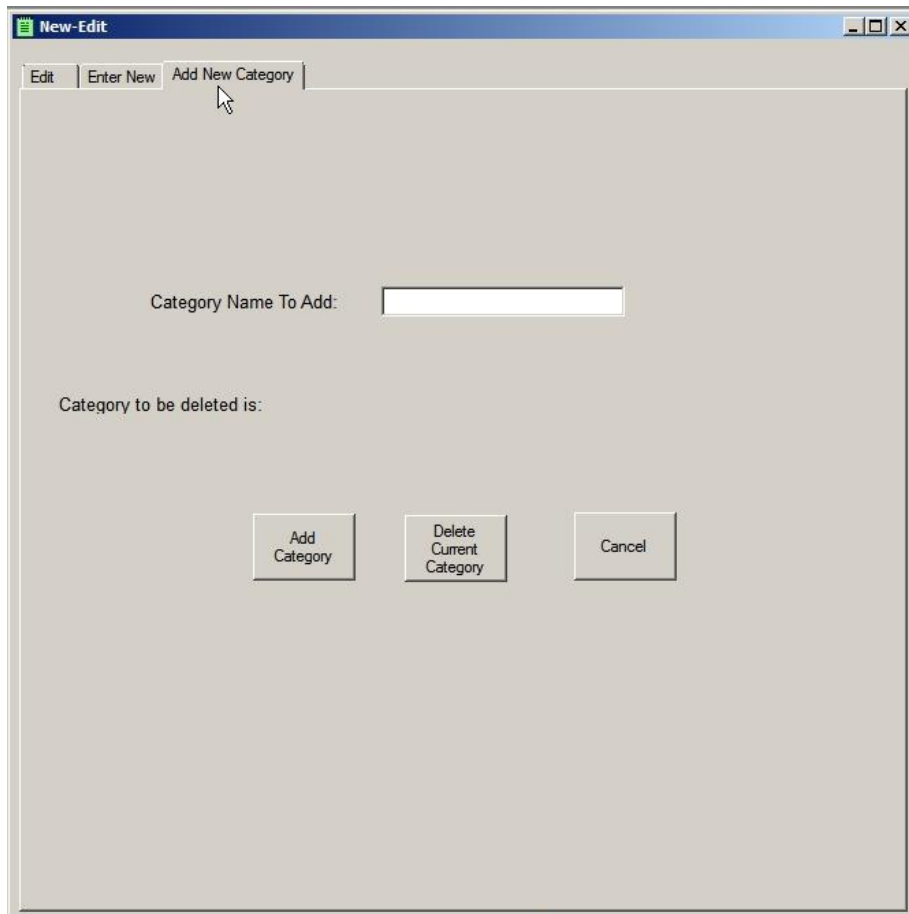
First, some file Tree concepts: Each level of a file tree is named as if in a family. When viewed from a given level, the level above the chosen level is its parent. The level(s) below it are its children, and other levels at the same level are its siblings.

In the illustration below, Switch is the chosen level that we will relate to everything else. Its parent is "Electromechanical". It's siblings are "Connectors, Meter, Crystal, and Relays". It's children are Rotary, Pushbutton, and Toggle.



Tree Structure

Categories are modified by clicking on the category to be modified on the tree, then clicking on the "Edit Categories" button above. That takes you to a category editor page where you can either delete the chosen category, or add a new one **under** the chosen category.



Category Editor

a. All new categories are added as the children of an existing category. Thus, if you wish to add a sibling to a category, you must select that category's parent, then click "Add Category". The resultant new category will be the sibling of the category you desire. When you are finished modifying a category, you must close the modification window for the changes to take effect.

b. If you wish to modify multiple categories, you must close the modification window after each change. This saves the change and refreshes the Main Page tree.

c. No two category names can be the same. If they are, parts will be selected from only the *first* such category, and if a searched part is not in the **first** category, an error will result.

d. Be very careful deleting a category. If you delete a category, you will delete everything under that category...you **will lose** all of the parts in that category.

2. Entering parts is similar to modifying categories as you start by choosing a category under which the part will reside. Then you click the "New Part" button. A new window will open to the "Add New Part" tab. Enter all of the information you wish. The only mandatory entry is the item's name. The Name is the "Key" field in that it is what is used to denote that record from all others. Thus, you can't edit that field. If you wish to change the name of an item, you must delete the original record and recreate it with a

new name. To enter the item's picture or its location picture, simply click on the "Set (*Item/Location*) Picture" button for each function.

Note: When you enter picture or datasheet information, you are not actually storing those files in the program. You are telling the program what files to look for in a separate folder.

This program is designed to be portable. Because of that, the relationship between the program and storage locations for these associated files must be maintained.

The program, this Help file, the Datasheets, and the folders "Locations" and "Images" all must reside in the same folder. The folder *Locations* contains all of the item location pictures, and the folder *Images* contains the item pictures. You must populate these folders before you try to add that data from within the program.

The screenshot shows a window titled "New-Edit" with a menu bar containing "Edit", "Enter New", and "Add New Category". The main form area contains the following elements:

- Path:** A text box containing "Formulary/Active/Semiconductors/Transistors/NPN/NPN-RF".
- Name:** An empty text box.
- Value:** A text box, with a "Value: Numeric" label and a radio button next to it.
- Qty:** A text box.
- Package:** A text box.
- Description:** A large empty text area.
- Purchase Info:** A section containing four text boxes labeled "Date", "Source", "Part Number", and "Price".
- Location:** A text box, with a "Set Location Picture" button and a "Location" label next to it.
- Buttons:** "Set Item Picture" (near Package), "Set Datasheet" (near Purchase Info), "Set Location Picture" (near Location), "Save", "Clear", and "Exit" (at the bottom).

New Part Entry Page

3. Once the parts are entered, viewing and editing is a simple matter of clicking on a category on the main page. A grid will appear to the right showing all of the parts within (under) that category. Click on one of the parts in that grid, and the Editor page will open. This page is almost exactly the same as the page with which you entered the part originally. The main difference is that the "Get Datasheet" button will be visible. Click it to open the datasheet for the part. The Set Dataheet button is used for changing the datasheet file. Further, the "Set Item (or Location) Picture" buttons are gone. To edit those pictures, simply click on the pictures themselves and you'll be prompted to choose the new file.

You may have multiple Editor pages open at once, but the changes made to one will not carry to any others. Thus, if you have the same page of a single part open twice and you make a change to one page and save it, then make a change to the second page and save it too, the changes made to the first page will be lost.

**New-Edit**

Edit | Enter New | Add New Category

Path:

Name:

Value:  Value, Numeric:

Qty:  Package:

Description:

**Purchase Info**

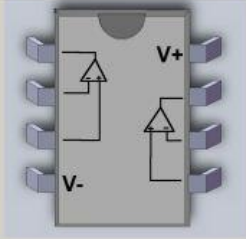
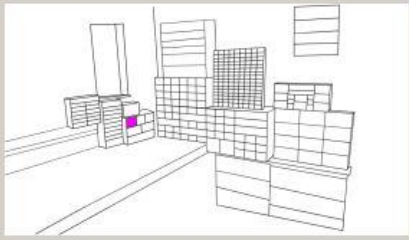
Date:

Source:

Part Number:

Price:

Location:

Part Editor Page

4. As an aid to searching, the main page has a tab called "All Devices". As it implies, this tab is simply a gridview of every device in the database in the order in which they appear in the database file. The grid can be sorted by simply clicking individual column headers. In this way, you can quickly scan down a long list of similar parts or sorted specifications to obtain the one of the specific characteristic you seek.

To view the part page for a part you choose here, simply click on the item's name from within the grid. Since no category information is associated with the parts in this view, the item selected will populate the search field and a search for that part will be started.



Formulary - Navigator

Create New Part

Edit Categories

Backup

Search

Navigate

All Devices

Name	Pkg	Description	Location	Value	Value_Num	Qty	Cost	Source	Partnum	Date	Datasheet	Location_Pix	Pix
U310	TO-92	Lo-Noise Pre...	Drawers Wall...			2		Hamfest	U310	1 Jan 2000	U308, U309, ...	Locations\Dr...	
J309	TO-92	Lo Noise Pre...	Drawers Wall...			2		Hamfest	J309	1 Jan 2000	J309-D.PDF	Locations\Dr...	
MMBF4416	SOT-23		Part Tray - Di...			75	Free	Work Throw...	MMBF4416	1 Jan 2010	MMBF4416.pdf	Locations\VP...	Images\SOT...
MMBF4394	SOT-23	JFET, N-Ch...	Part Trays - ...			60	Free	Work Throw...	MMBF4394	1 Jan 2010	MMBF4393.pdf	Locations\VP...	Images\SOT...
MMBFJ177	SOT-23	JFET, P-Cha...	Part Trays - ...			20	Free	Work Throw...	MMBFJ177	1 Jan 2010	MMBFJ176.pdf	Locations\VP...	Images\SOT...
IRF4905	TO-220	PMOSFET, ...				3	3.16 ea	Digi-Key	IRF4905PBF...	13 Apr 15			
2N7000	TO-92	N MOSFET, ...	Small Boxes - ...			40	.10 ea	Hamfest	2N7000	1 Jan 2000	2N7000.pdf	Locations\S...	Images\2N7...
3N201	TO-72(4)	Dual-Gate M...	Small Boxes - ...			4		Hamfest	3N201	1 Jan 2000	3N201.PDF	Locations\S...	
BF998	SOT-143	Dual-Gate M...	Part Trays - ...			50	Free	GRP-L	BF998	1 Jan 2005	BF998_2.pdf	Locations\VP...	Images\bf99...
IRF510	TO-220 W/O...	Power MOS...	Drawers Wall...			3		Digi-Key		1 Jan 2008	IRF510.pdf	Locations\Dr...	
40468A	TO-70(4)	N-Ch, VHF A...	Small Boxes - ...			2		Hamfest				Locations\S...	
2N7002	SOT-23	MOSFET, N...	Drawers Wall...			3	.45 ea	Digi-Key	497-311-1-ND	26 Jan11	2N7000.pdf	Locations\Dr...	Images\2N7...
MMBFJ176 ...	SOT-23	MOSFET, P...	Part Trays - ...			30	Free	Work Throw...	MMBFJ176	1 Jan 2010	MMBFJ176.pdf	Locations\VP...	Images\SOT...
NTR4101, P...	SOT-23	20V, 2.4A	Parts Trays - ...			0	Free	Work Throw...	NTR4101	1 Jan 2010	NTR4100.pdf	Locations\VP...	Images\SOT...
IRLML2502	SOT-23	Ultra-Low O...	Drawers Wall...			6		Mouser			IRLML2502...	Locations\Dr...	Images\IRL...
IRFD110	DIP-4	MOSFET, Mi...	Other Room - ...			50	Free	Vishay	IRFD110	21 Mar 15	IRFD110.pdf	Locations\Ot...	Images\IRFD...
NTE222 (40...	TO-72(4)	ECG222	Small Boxes - ...			6		Hamfests				Locations\S...	
2N3866	TO-5	NPN RF Driv...	Drawers Wall...			18		Hamfest	2N3866	1 Jan 2005	2N3866, Bett...	Locations\Dr...	Images\Bana...
2N3553	TO-5	NPN RF Driv...	Drawers, wall...			7		Hamfest	2N3553	1 Jan 2005	2n3553, Bett...	Locations\Dr...	
C2166	TO-220	NPN RF Pwr...	Drawers wall ...			4		Hamfest	2sc2166	4 Jul 2015		Locations\Dr...	Images\TO-2...
2SC1969	TO-220	NPN RF Driver	Drawers Wall...	1	1	25	\$4.50	VE3AB	2SC1969	10 Feb 15	2SC1969.pdf	Locations\Dr...	Images\TO-2...
2N5179	TO-72(4)	RF Preamp/...	Drawers Wall...			12		Surplus		1 Jan 2005	2N5179_RE...	Locations\Dr...	Images\2-Pin...
2N2369a	TO-92	GP amp. RF ...	Drawers Ben...			100		Surplus			2N2369A.pdf	Locations\B...	
C2078	TO-220	RF Power A...	Drawers Wall...			1		Surplus			2SC2078.pdf	Locations\Dr...	Images\TO-2...

All Devices Tab for sorted searching

5. Searching is simply a matter of entering your search term into the search box and clicking the "Search" button. Upon clicking the button, a grid of parts will open that are all items that match that term. Often, multiple items will appear. This is normal, as the search function searches ALL data fields related to an item. If you have the same term in both the name and the part number, the search will return 2 items. If that term is also in the description, you'll get three returns.

Just like from the main tree-based page, simply click on the name of the item you wish to see and the Editor will display all of the information associated to it.

If the search list produces multiple different items, the search list is preserved while you view each item in its editor.



Formulary - Navigator

Create New Part Edit Categories Backup

3866 Search ?

Navigate All Devices

- Inductor
  - Inductor-Variable
  - Inductor-SMT
  - Inductor-Fixed
  - Inductor-Toroid
  - Toroid-Core
    - Ferrite
    - Powdered\_Iron
    - Binocular
  - Transformer
- Mechanical
  - Artwork
  - Knob
  - Hardware
- Electromechanical
  - Connectors
    - Coaxial
    - Header
    - Socket
    - Terminals
    - Banana
  - Switch
    - Rotary
    - Pushbutton
    - Toggle
  - Meter
  - Crystal
  - Relays
  - Cable
  - Circuit-Protection

Name	Desc	Location	Qty
2N3866	NPN RF Driver, 1W, 400MH...	Drawers Wall Right - RF Pa...	18
2N3866	NPN RF Driver, 1W, 400MH...	Drawers Wall Right - RF Pa...	18
2N3866	NPN RF Driver, 1W, 400MH...	Drawers Wall Right - RF Pa...	18
*			

Search results

6. The actual database information is stored as plain text in XML format. This allows any number of freely-available text editors including Notepad, to view and edit the database without the need for the originating program.

When editing the data manually ensure you follow the format exactly. A single missing ">" could cause the program to malfunction. Similarly, naming a category with a space could lead to a similar malfunction.

```

<?xml version="1.0" encoding="utf-8"?>
<Formulary>
  <Active>
    <Semiconductors>
      <Transistors>
        <JFET>
        </JFET>
        <MOSFET>
          <Device>
            <Name>IRF4905 PMOSFET</Name>
            <Pkg>TO-220</Pkg>
            <Description>PMOSFET, Power</Description>
            <Location>
            </Location>
            <Value>
            </Value>
            <Value_Num>
            </Value_Num>
            <Qty>3</Qty>
            <Cost>3.16 ea</Cost>
            <Source>Digi-Key</Source>
            <Partnum>IRF4905PBF-ND</Partnum>
            <Date>13 Apr 15</Date>
            <Datasheet>
            </Datasheet>
            <Location_Pix>
            </Location_Pix>
            <Pix>
            </Pix>
          </Device>
        </MOSFET>
      </Transistors>
    </Semiconductors>
  </Active>
  <NPN>
    <NPN-RF>
      <Device>
        <Name>2N3866</Name>
        <Pkg>TO-5</Pkg>
        <Description>NPN RF Driver, 1W, 400MHz</Description>
        <Location>Drawers on Wall Right</Location>
        <Value>

```

Example of the actual data file.

7. Backup – As an aid to secure and preserve your data, a backup button is provided. Pressing this button will make a copy of your database named “Formulary – YYYYMMDD.XML” in the same folder as the current database, where YYYYMMDD is today’s date formatted in Year-Month-day numeric to allow for easy sorting.