



# **Pulsonix Database Connection Evaluation Guide**



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# Chapter 1. Getting Started

## About this guide

This Evaluation Guide is provided to help Pulsonix users become familiar with the concepts and usage of the Pulsonix Database Connection (PDC).

## Installing the PDC demonstration

The Database Connection demonstration database is automatically installed as part of the main Pulsonix application. No additional installation is necessary.

## Enabling the PDC demonstration

The Database Connection demonstration is automatically enabled whenever you are using the 'Demo' (Trial) or 'Viewer' licenses.

To use one of these licenses, start the Pulsonix **License Manager** (from your Windows **Start** menu, under **Programs, Pulsonix**), click **Browse Master File**, and choose the **Demo.Lic** or **Viewer.Lic** files.

If you have a full product license, when you have finished evaluating the Database Connection product you can simply switch back to your full license file using the **License Manager**.

## Finding More Information

The rest of this guide takes you through the basic features of the Database Connection, with step-by-step instructions to guide you through each stage of the process:

- Overview of how the Database Connection fits into the overall process
- Searching for components in the database
- Adding components to a design
- Checking and maintaining your design

You can also access context-sensitive online help by pressing the <F1> key at any point.




# Chapter 2. Overview

## What is the Pulsonix Database Connection?

The **Pulsonix Database Connection (PDC)** is an add-on cost option for Pulsonix, that allows you to 'hook up' your Pulsonix program to your corporate component database, to help you find the right components for your designs using parametric searches on any of the properties recorded in the database.

This can help you ensure for example that the components you choose are in stock, or reasonably priced, or within required parameters. As long as you have information in database form that can be accessed by the Database Connection, you can make use of it.



Search corporate database  
for required components

Look In: Capacitor Found 9 items


	Field	Operator	Value	Value2
<input checked="" type="checkbox"/>	TOLERANCE	=	10%	
<input checked="" type="checkbox"/>		=		

Search and or Add Del Clear

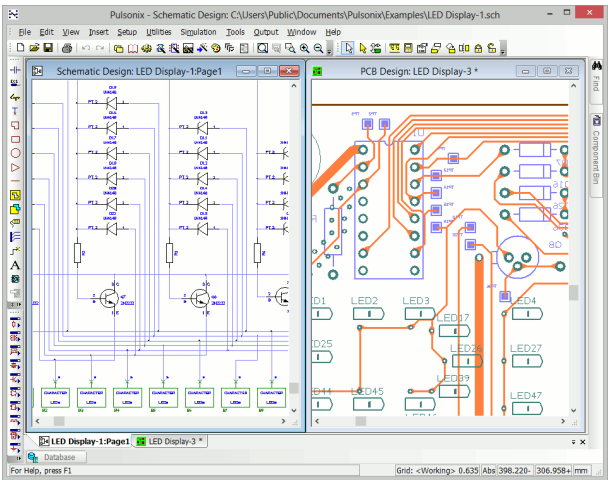
Add to Design Add to Bin Update Setup... Fit Cols Help

	PARTNAME	PART_NUMBER	VALUE	TOLERANCE	POWER	VOLTAGE	N
▶	08055C471KATDA	08055C471KATDA	470pf	10%		50	A
	0805YC334KATEA	0805YC334KATEA	330nf	10%		16	A
	0805YC474KATEA	0805YC474KATEA	470nf	10%		16	A
	0805ZC105KATEA	0805ZC105KATEA	1uf	10%		10	A

Match to Parts  
from Pulsonix libraries



Add to Pulsonix  
designs (Scm/Pcb)



### Where does the database come from?

The Database Connection is not a database itself, rather it is an ‘enabling’ technology that allows Pulsonix to interact with corporate information that you would normally be using elsewhere. This might for example be a database of Supplier and Component information that is already in use in your Purchasing department.

Although the Database Connection itself does not come with a ready-made database, the ‘full’ Database Connection license does include tools to help you create a basic database from your Pulsonix library data. This process is described in the separate *Pulsonix Database Connection Users Guide*, and can help you get started with a database even if you don’t already have one.

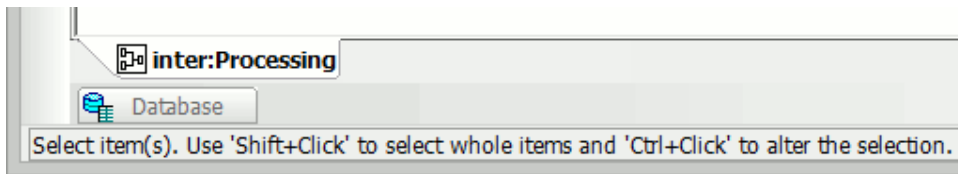


## Chapter 3. Using the PDC

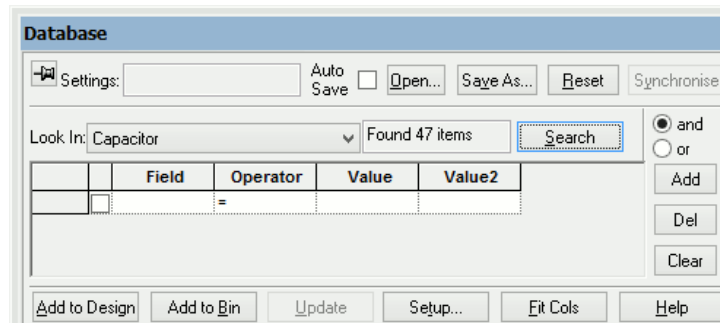
### The Database Bar

Once Pulsonix is running with the trial license (so that the PDC is enabled), start by opening the example Schematic design **Inter.sch**.

If you look at the bottom left corner of your main application window, you will see the Database Bar tab:

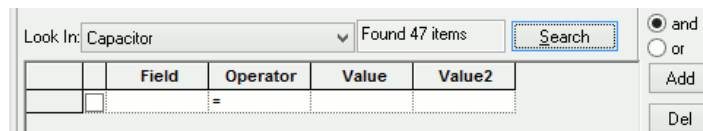


Hover your mouse over the Database Bar tab to make the bar slide out and display the dialog. If it isn't visible, you can turn it on using the **Database Bar** command from the **View** menu and selecting **Dockable Windows**. Remember though, this option is only available using the trial license or a PDC license.



### Searching

The central area of the Database Bar is where you select the database table or query and enter the criteria you want to use to search for the desired component in your database.



First we need to choose the database table or query to select from. Using the **Look In:** drop down list of table names select **Capacitor**.

Press the **Search** button before entering any criteria, this will show you how an 'empty' set of criteria will match with all possible records in the selected database table. All the records in the Capacitor table will be displayed in the results grid.

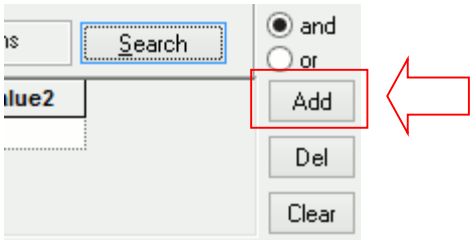
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	PARTNAME	PART_NUMBER	VALUE	TOLERANCE	POWER	VOLTAGE	MF
▶	08055C471KATDA	08055C471KATDA	470pf	10%		50	AV
	CM05CG100J5OAT	CM05CG100J5OAT	100pf	5%		50	AV
	CM05CG220J5OAT	CM05CG220J5OAT	22pf	5%		50	AV
	CM05CG330J5OAT	CM05CG330J5OAT	33pf	5%		50	AV
	CM05CG470J5OAT	CM05CG470J5OAT	47pf	5%		50	AV
	0805YC334KATEA	0805YC334KATEA	330nf	10%		16	AV
	0805YC474KATEA	0805YC474KATEA	470nf	10%		16	AV
	0805YC100J5OAT	0805YC100J5OAT	100pf	10%		50	AV

We can ‘narrow’ down our search by entering criteria and therefore decide what kind of capacitor to search for.

Adding search criteria

To add to the search criteria you will use the **Add** button. However, for the first search the search row is already available ready to be typed into.



Under the **Field** heading, use the drop down list to choose **VOLTAGE** from the list of available field names.

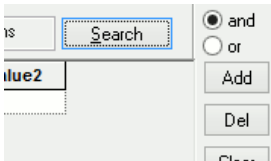
Next, choose the **Operator** > from the drop down list in the next column. Finally, type **20** in the **Value** column.

	Field	Operator	Value	Value2
✓	VOLTAGE	>	20	

Click the **Search** button, the search will be narrowed down to show just 27 items, all those capacitors in the table with a **Voltage** of greater than **20**.

	PARTNAME	PART_NUMBER	VALUE	TOLERANCE	POWER	VOLTAGE	MF
▶	08055C471KATDA	08055C471KATDA	470pf	10%		50	AV
	CM05CG100J5OAT	CM05CG100J5OAT	100pf	5%		50	AV
	CM05CG220J5OAT	CM05CG220J5OAT	22pf	5%		50	AV
	CM05CG330J5OAT	CM05CG330J5OAT	33pf	5%		50	AV
	CM05CG470J5OAT	CM05CG470J5OAT	47pf	5%		50	AV
	1206YG225ZATEA	1206YG225ZATEA	2.2uf	20%		25	AV
	06033G104ZATDA	06033G104ZATDA	100nf	20%		25	AV
	06035C471KATDA	06035C471KATDA	470pf	10%		50	AV
	06035G473ZATDA	06035G473ZATDA	47nf	10%		50	AV

We need a 1uf capacitor, so click the **Add** button again to add another row to the list of criteria.



Choose **Value** under **Field**, then = in **Operator** and type **1uf** in **Value**. Click the **Search** button.

Look In: Capacitor
 Found 2 items
 Search

	Field	Operator	Value	Value2
<input checked="" type="checkbox"/>	VOLTAGE	>	20	
<input checked="" type="checkbox"/>	VALUE	=	1uf	

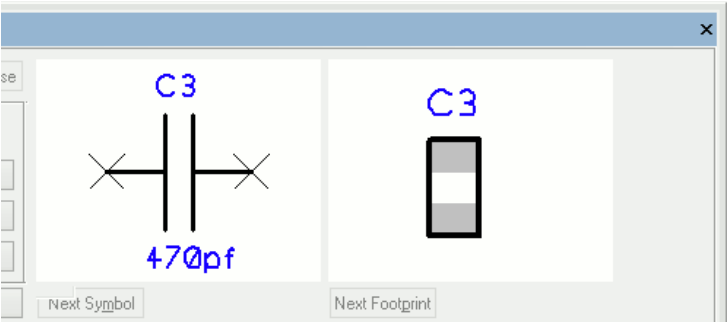
When the results are displayed we have just two capacitors to choose from.

	PARTNAME	PART_NUMBER	VALUE	TOLERANCE	POWER	VOLTAGE	MFR	CATEGORY
▶	08053G105ZATEA	08053G105ZATEA	1uf	20%		25	AVX	Capacitor/SM/Cera
	12065G105ZATDA	12065G105ZATDA	1uf	20%		50	AVX	Capacitor/SM/Cera

### Adding Components

We have narrowed down our search to list only two capacitors that match the requirements, we can now select and add some components to the design.

Click on the first capacitor shown in the results grid (click anywhere along the row to select the required capacitor). You will see a preview of the Schematic and PCB components that correspond to this database record.



You can now either click **Add** then move the cursor into the design area and place your new component, or move the cursor over one of the preview boxes and ‘pick and drag’ the component into the design for placement.

You can place the new component just as you would when adding components directly from the Pulsonix library through **Insert Component**. As you place each of your new components, attributes will be automatically added to those components to hold the required database information.

When you have placed at least three capacitors, press the <Esc> key to stop adding any more.

### Check Against Database

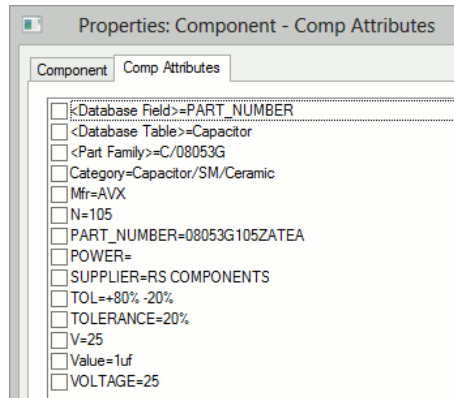
The **Check/Update Against Database** command, available from the **Tools** menu, is used to verify the information in your design against the corresponding records in the database. It can be used to identify differences between design and database values, and can be used to ‘refresh’ the values in the design if the database information has been updated.

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This can help you for example to keep the manufacturer part numbers in your design up-to-date if these are maintained separately in the database by your Purchasing department.

Before we use this option, we will change one of our new components to purposely edit some 'wrong' information in and see what the **Check** reports.

Select one of the new capacitors and open the **Properties** dialog and **Comp Attributes** tab (select the capacitor and click <i>).



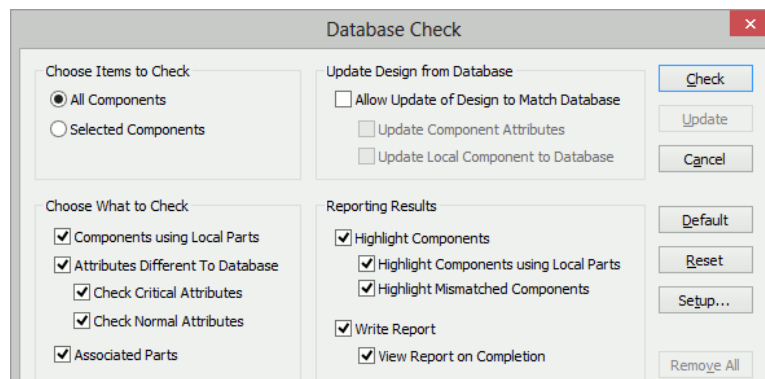
You will see the list of attributes that have been brought across from the database record onto your component.

Double-click on the **Value** attribute and change it to **1pf**, and **OK** to close **Properties**.

Select the second capacitor and edit its Properties. This time change the **MFR** Attribute from **AVX** to **TX**. Click **OK** to close the dialog.

We are now ready to check the design. From the **Tools** menu, select **Check/Update Against Database**.

The check dialog is configurable with various options to select:



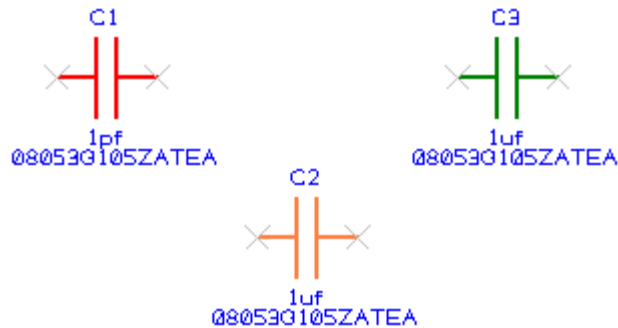
To start with, we will just see what the **Check** is going to report, so leave the **Allow Update of Design to Match Database** check box (in the top right corner of the dialog) unchecked, and check the all other options. Then select **Check**.

You should now see a report that lists your components and the status of each one.

```
C1      Fail (Value [1pf:1uf])
C2      Warning (Mfr [TX:AVX])
C3      Pass
```

Here you can see that **C1** (where we had modified the Value) is listed as a **Fail**, because we have changed an attribute that is specified as **Critical** in the Database Setup. **C2** is only a warning, showing we have a different value for a non-critical attribute, and **C3** matches the database record so is shown as a **Pass**.

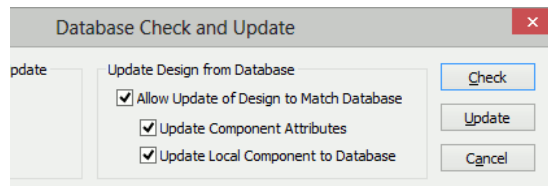
You will also see that the components in the design are highlighted to show their status. The default Colour setting is to use **red** for **Fail**, **orange** for **Warning** and **green** for **Pass**, giving a rapid visual indication of the status:



## Updating the Design

As well as simply checking the design, the **Check/Update** command can also 'refresh' your design to bring it back up-to-date with the values from the database.

Under **Update Design from Database**, check the **Allow Update of Design to Match Database** check box:



Once checked, press the **Update** button.

You will see a report that is very similar to the first one, but shows you what has been changed:

```
C1      Fail (Value [1pf:1uf]) UPDATED
C2      Warning (Mfr [TX:AVX]) UPDATED
C3      Pass
```

The components themselves will all be highlighted in green as they are now all synchronized with the database.

Change Part using the Database Bar

As the final stage of our exploration of the Database Connection, we will use it to change one of our components for a slightly different one.

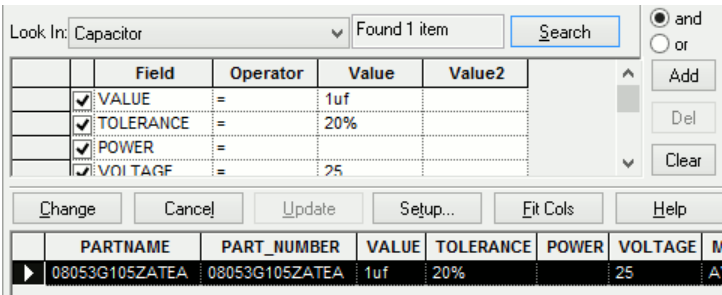
First, select one of the capacitors you earlier added to your design. Select the **Properties** dialog from the shortcut menu and from the **Component** tab click **Change**.

From the **Change Part** option click **Change Database** to go to the Database Bar to choose your new component.



Database Bar will now appear as a dialog-style window instead of the slide-out panel. The **Add** button has become **Change**, and **Add to Bin** is now **Cancel**. Otherwise the Database Bar works in just the same way as it did before.

You will notice that the Criteria section lists all the details from the selected component as possible criteria, and hence matches just a single database record, the one you selected when you added the component to start with.



Field	Operator	Value	Value2
<input checked="" type="checkbox"/> VALUE	=	1uf	
<input checked="" type="checkbox"/> TOLERANCE	=	20%	
<input checked="" type="checkbox"/> POWER	=		
<input checked="" type="checkbox"/> VOLTAGE	=	25	

PARTNAME	PART_NUMBER	VALUE	TOLERANCE	POWER	VOLTAGE	MFR
08053G105ZATEA	08053G105ZATEA	1uf	20%		25	AVX

Now we will widen the search to look for a component similar to the one we are already using.

Use the check boxes in the left-hand column next to the **Field** column to turn off the criteria for **PartName**, **Tolerance**, **Voltage** and **Supplier**, then click **Search** to scan the database. The 'results' table will change to show not one but three components.

	PARTNAME	PART_NUMBER	VALUE	TOLERANCE	POWER	VOLTAGE	MFR	CATEGORY
▶	0805ZC105KATEA	0805ZC105KATEA	1uf	10%		10	AVX	Capacitor/SM/Ceran
	08053G105ZATEA	08053G105ZATEA	1uf	20%		25	AVX	Capacitor/SM/Ceran
	12065G105ZATDA	12065G105ZATDA	1uf	20%		50	AVX	Capacitor/SM/Ceran

These match the original (selected) component for **Value**, but have different **Part Name**, **Tolerance** and **Voltage** ratings.

Select the third one down in the list, you will notice the PCB preview change as it recognises that this particular component requires a slightly larger footprint.

Click **Change** to choose that one from the database, then **OK** twice to close out the Properties dialogs.

Your design will now be updated to use the newly-selected component.

## Summary

In our brief tour through the Database Connection, we have seen:

- an overview of what PDC is all about
- how to add components to a design using the Database Bar, narrowing our search down until we find the component that matches our requirements
- how to verify a design against the current database contents, looking for components that may no longer be in line with database information
- how to update a design with the latest database values
- how to use the Change option, and widening search criteria to look for alternate components

You will find more detailed information on the Database Connection, including all the details on how to set up the Connection to your own corporate database, in the **Pulsonix Database Connection Users Guide**, a PDF document located in the **Documents** folder below your Pulsonix installation (or available for download from our web site).