

PowerDB Pro User Manual

Version 11

Table of Contents

1 Software System 7

1.1 Installation 7

1.2 License 7

1.3 Logon 7

1.4 Application Style 7

1.5 Initializing Your System 8

1.6 Updates 9

2 Working with Jobs & Assets 10

2.1 Create New Job – Testing Company 10

2.2 Create New Job – Asset Owner 24

2.2.1 GPS Locator 25

2.3 Add Assets to Job 27

2.4 Add to an Existing Job 37

2.5 Attach External Documents 38

2.6 Job Properties 41

2.7 Copy/Paste Job 41

2.8 Asset Owner Jobless Style – Create New Asset 41

2.9 Asset Properties 42

2.9.1 GPS Locator 44

3 Recording Test Results 46

3.1 Recording Test Data 46

3.1.1 Changing Previous Test Data 46

3.1.2 Flagging Problematic Test Values 47

3.2 Data Acquisition from Test Instruments 47

3.3 Importing Test Data 47

3.3.1 Importing PowerDB Lite Results 48

3.3.2 Importing PowerDB Onboard Results 49

3.3.3 Oil Analysis Results 49

3.3.4 Doble DTA 53

3.3.5 ProActiv 53

3.3.6 BITE 2, MBITE and EBITE 54

3.3.7 BITE3 55
3.3.8 AVTS 56
4 Data Management 58
4.1 Asset Tree Right-Click Menu 58
4.2 Job Tree Right-Click Menu 60
4.3 List Filtering 63
4.3.1 Saving and Deleting Filters 64
4.4 Selection Criteria 64
4.5 Viewer Databases and Accounts 66
4.6 Regions 69
4.7 Intelligent Import 69
4.8 Completed Job Lock 70
4.9 Result List 70
4.10 Jobless Style 71
4.11 Curve Library 71
5 Compliance View 78
5.1 Compliance Licensing 78
5.1.1 Enabling Compliance Package 78
5.2 Compliance Grid 79
5.2.1 Filtering Capabilities 79
5.3 Compliance Chart 80
5.3.1 Color Definitions 81
5.3.2 Warning Period 81
5.4 Setting up Compliance 82
5.4.1 Build Categories 82
5.4.2 Build Sub-Categories 82
5.4.3 Setup Test Status 83
5.4.4 Assigning Test Status 84
5.5 Assigning Compliance 84
5.5.1 Select Compliance 84
5.5.2 Properties 85
6 Trend Data 86

6.1 Result Trending 86
6.2 Comparison Trending 88
6.3 Chart Properties 89
6.3.1 Chart Type 90
6.3.2 Chart Theme 91
6.3.3 Axis Formatting 91
6.3.4 Show Statistics 91
6.3.5 Line Labels 93
6.3.6 Line Markers 94
6.3.7 Rotate Chart 95
6.4 Grid Information 96
6.4.1 Trend line Identification 96
6.4.2 Trend line Modification 97
6.4.3 Statistical Information 99
6.4.4 Show Trend 99
6.4.5 Trend Highlighting 99
7 Reporting 100
7.1 Maintenance Reporting 100
7.2 Comments and Deficiencies 101
8 Save as PDF / Print Reports 102
8.1 Print a Job 102
8.1.1 Redistribute Weights 119
8.1.2 Custom Print Functionality 121
8.2 Print an Asset 122
8.3 Print a Result 124
8.3.1 Results in Job View 124
8.3.2 Results in Asset View 125
8.3.3 Result View 125
9 Database Synchronization 126
9.1 PowerDB Database Utilities (PDB Utilities) 126
9.2 Field Database Creation 127
9.3 Synchronizing Data 127

9.3.1 Region Synch 128
9.3.2 Configuration Synch 132
9.3.3 Point In Tree Download 132
9.3.4 User Accounts Upload 132
9.3.5 Form Upload 133
9.3.6 Subform Upload 133
9.3.7 Curves Upload 133
9.4 Deltas and Delta Sessions 133
9.5 Mastering Synchronization 134
10 Development Database 135
10.1 Changes in Form Editor 136
10.2 Changes in Subform Editor 136
10.3 Changes in Curve Library 137
10.4 Changes in User Accounts 138
11 Synchronization Server 138
12 Administration 140
12.1 User Accounts 140
12.1.1 Account List 140
12.1.2 Account Properties 140
12.1.3 Change Password 143
12.1.4 Restoring Delete/Disabled Users 144
12.2 Configuration 145
12.2.1 Labels 145
12.2.2 Administrative Options 145
12.2.3 Database Options 147
12.2.4 Automatic Data Replication 149
12.2.5 Advanced Options 150
13 Form Design 151
13.1 Forms Editor 151
13.1.1 Form Properties 157
13.1.2 Form Controls 159
13.1.3 Multiple Item Properties 167

13.1.4 Scripts 168
13.1.5 Table Wizard 170
13.1.6 Border Style 171
13.1.7 Zoom 171
13.1.8 Full Screen 171
13.1.9 Alignment 171
13.1.10 Control Sizing 172
13.1.11 Pages 172
13.1.12 Test Form 172
13.1.13 Tab Order 172
13.2 Subforms 172
13.2.1 Subform Tree 172
13.2.2 Standard Templates 173
13.2.3 User-Defined Subforms 173
13.3 Form Files 173
13.4 Additional Help 173
13.5 Enhanced Text 173
13.5.1 Enhanced Text Controls in Form Editor 175
14 Miscellaneous 176
14.1 Crash Reporting 176
14.2 Log Files 176
14.3 Submit Files 177
14.4 Check Spelling 177

1 Software System

1.1 Installation

If a hardware key has been provided, do not have the key plugged in during the installation process. For all operating systems make certain that an administrative level user is signed in to run the PowerDB installation.

If installing from a disc, place the PowerDB disc in the CD-ROM drive. The installation should begin automatically. Follow the on screen instructions to complete the installation. If the installation does not begin automatically, choose 'Start' and 'Run' from the Taskbar. Type d:\setup and press the OK button. If the CD-ROM is not drive d, then enter the appropriate letter.

If installing from a download, select 'Save' when prompted to save or open the file. When the download is complete install PowerDB by double-clicking the downloaded file. Follow the on screen instructions to complete the installation.

After installation an icon named 'PowerDB Pro' should be installed on the computer desktop and Start menu.

1.2 License

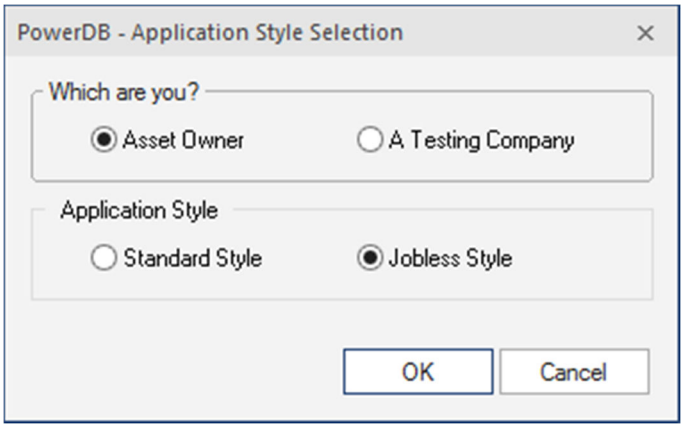
PowerDB will run in 'reader mode' without a valid license which prevents changes to the database. If provided a hardware key, plug it into a USB port prior to starting the software. Run PowerDB by double-clicking the desktop icon or selecting 'Start' and clicking the PowerDB icon. If a hardware key is not present a prompt will appear to license PowerDB to the computer. An active internet connection is required for licensing. Step-by-step instructions to register a softkey license may be viewed at **Tools>Licensing>How to License**. Please follow the steps listed in the Activate License section. If registration is not successful then proceed to the Manual License section followed by the File License section. If your group has been provided with a Site License follow the instructions provided at section 4 for Site License.

1.3 Logon

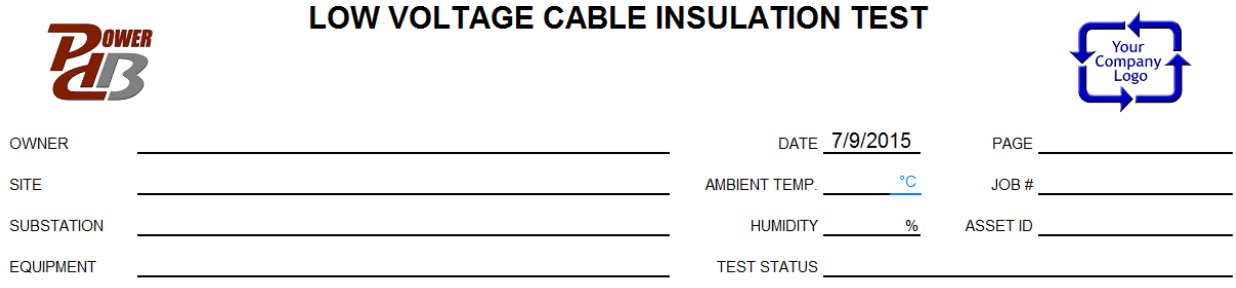
Type administrator in the username field of the logon screen and press the OK button.

1.4 Application Style

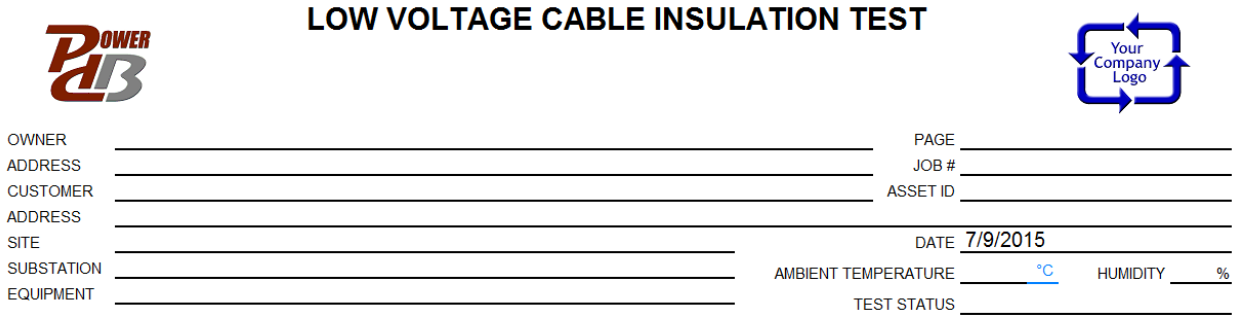
This screen will be displayed only once, when PowerDB is first installed, and connect to a master database. The Application Style should be set only one time. Once data entry has begun, it is strongly recommended that no changes be made to the Application style. Altering the style could cause features to behave differently and alter previously generated reports.



If Asset Owner is selected, the application will load the Header-Owner format displayed below, to be used on all test forms. Levels 1 through 4 folders in each Job Tree will be available for use.



If Testing Company is selected, the application will load the Header format displayed below for use on all test forms. If folder levels one or two are tied to the address book, all Assets in that Job will share the folder level name tied to the Address Book. For example, if "Tie level 1 to Address Book" is selected, all Assets in the Job selected will share the same folder level 1. (For more information on folder levels refer to Section 3 of this document)



If Standard Style is selected, the users will only be allowed to create/edit results while working within a job. Jobless Style allows users to create/edit results from the Asset View.

1.5 Initializing Your System

It is suggested to complete the following steps in the sequence listed. Databases may be navigated from the **File>Change Database** selection. Designate a database file to be the Master Database. The default

installation database may be used or a new Master Database may be created at **File>New Mater Database**. It is suggested to uncheck the Address Book selection when creating a new Master Database from the default installation database.

Refer to Section 12.1 for instructions related to User Accounts.

Refer to Section 12.2 for instructions related to Configuration Settings.

If in possession of multiple licenses, create Field Databases from the Master Database for users who will be working on a local database outside of the Master Database.

1.6 Updates

Updating the application to the latest version of PowerDB will provide the latest features added to the software. To update the system files, download the latest version of the software from the PowerDB website at www.powerdb.com or contact the PowerDB office to be sent a CD. When installing the latest version on the master database machine, all LAN users need to be logged out of PowerDB. The latest version must be installed on all the LAN and field machines before proceeding with data entry and synchronizing again. **NOTE:** Do not forget to update any intermediary databases (i.e., databases on USB drives used for synchronization.) Follow the instructions on the screen. A prompt will display to update the schema of the databases used with previous versions of PowerDB. Respond *Yes* to this prompt. A message prompt will appear, asking to create a backup prior to update; it is recommended to respond *Yes* to this prompt. Updating to a newer version of PowerDB does not update the Forms and Sub-Forms library. To bring in changes or additions to forms and sub-forms, it is necessary to export them from the installation database (latest_forms.mdb) or the PowerDB website, and import them into the Master Database. To do this, follow steps 1-10 below to update from the latest_forms.mdb or follow steps 9-10 to update from the website. These steps must be repeated for each file.

1. Select File, and then select Change Database. Make note of the currently active database location.
2. Browse to locate the directory where PowerDB is installed (default C:\Program Files\PowerDB Inc\PowerDB).
3. Locate and select Latest_Forms.mdb, click OK.
4. A prompt will display, asking to restart PowerDB, click OK.
5. PowerDB will restart in Latest_Forms.mdb. Log on to PowerDB with the User Name 'administrator.' To add new forms to the forms library, select the form in the form tree and select File, then select Export, then Export. Create a file name and save the file with a .pxd file extension. Make note of the directory in which the file has been saved. These steps may be repeated for each desired test form to export.
6. Select File, and then select Change Database. Browse to the original database location noted in Step 1 above. This directory should be where the existing database is located. Click OK.
7. A prompt will display stating PowerDB must restart, click OK.
8. Logon to PowerDB.
9. In the form editor tree, select File > Import > Import Form PXD. Browse to the test form(s) saved in Step 5 or downloaded from the website and select the file. Select the Intelligent Import option and answer other prompts as required.
10. Next, select either Update Form to update an existing form or choose Add a new Device to add a new device form. Click Import.

2 Working with Jobs & Assets

If the Application Style is set as Testing Company refer to the information in Section 2.1. In Testing Company style, jobs must be created and data entered into test forms in a job.

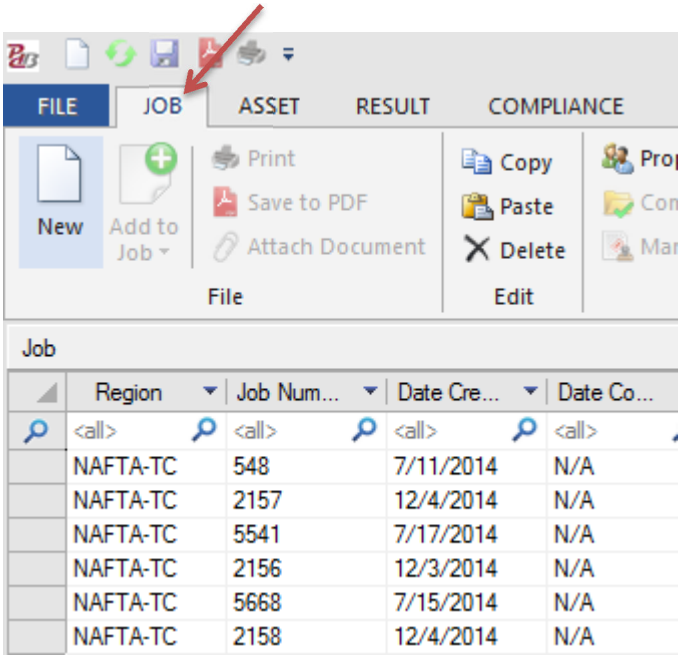
If the Application Style is set as Asset Owner (i.e., a utility or manufacturing facility) refer to Section 2.2. In Asset Owner style, jobs are optional. Results and data may be entered into test forms either in a job or directly in the Assets area. (See Section 2.8 for more information regarding "jobless" style.)

A Job is defined as a grouping of test results for one or more assets. Any asset can be shared by multiple Jobs. To access the Job portion of PowerDB click the **Job** tab on the ribbon. The **View Job List** and **View Job Tree** buttons located in the ribbon can be used to toggle between these views. The Job List is a listing of all jobs in the database. The Job Properties dialog is used to enter reference information for a particular job and can be accessed at **Job>Properties**. In the Job Properties will be at least three buttons: Customer, General, and Details. If the Testing Company Application Style was set, and folder level 1 or level 2 was selected, up to two additional buttons may appear: Owner and Site. When a folder level has been tied to the address book, an address for that folder level can be entered when creating a new Job or editing Job properties. The addresses entered will then be used to organize the Job tree. Do not delete jobs from the Job List to 'make space' or 'clean up the job list' without careful review and evaluation.

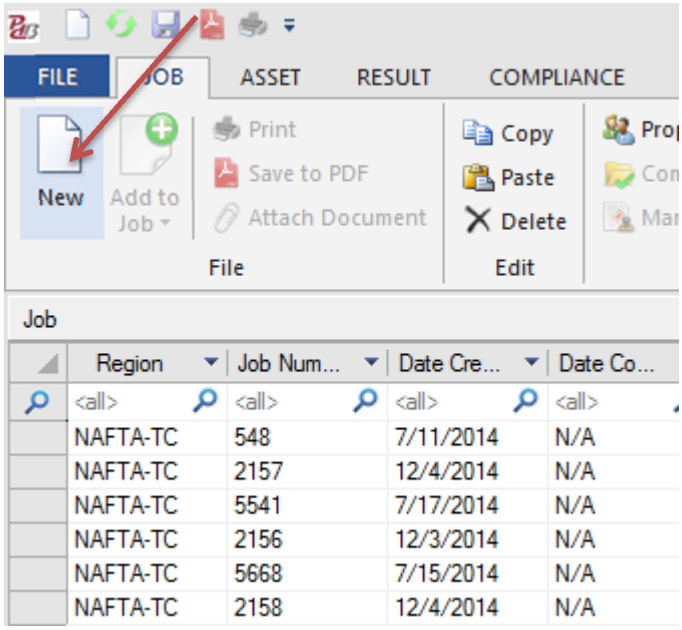
2.1 Create New Job – Testing Company

For a testing company, a Job might be defined by a contract, work order, purchase order, or recurring maintenance. Once assets and results are stored in the database they can easily be associated with repeated testing.

1) Click on the **Job** tab to bring up the Job List.

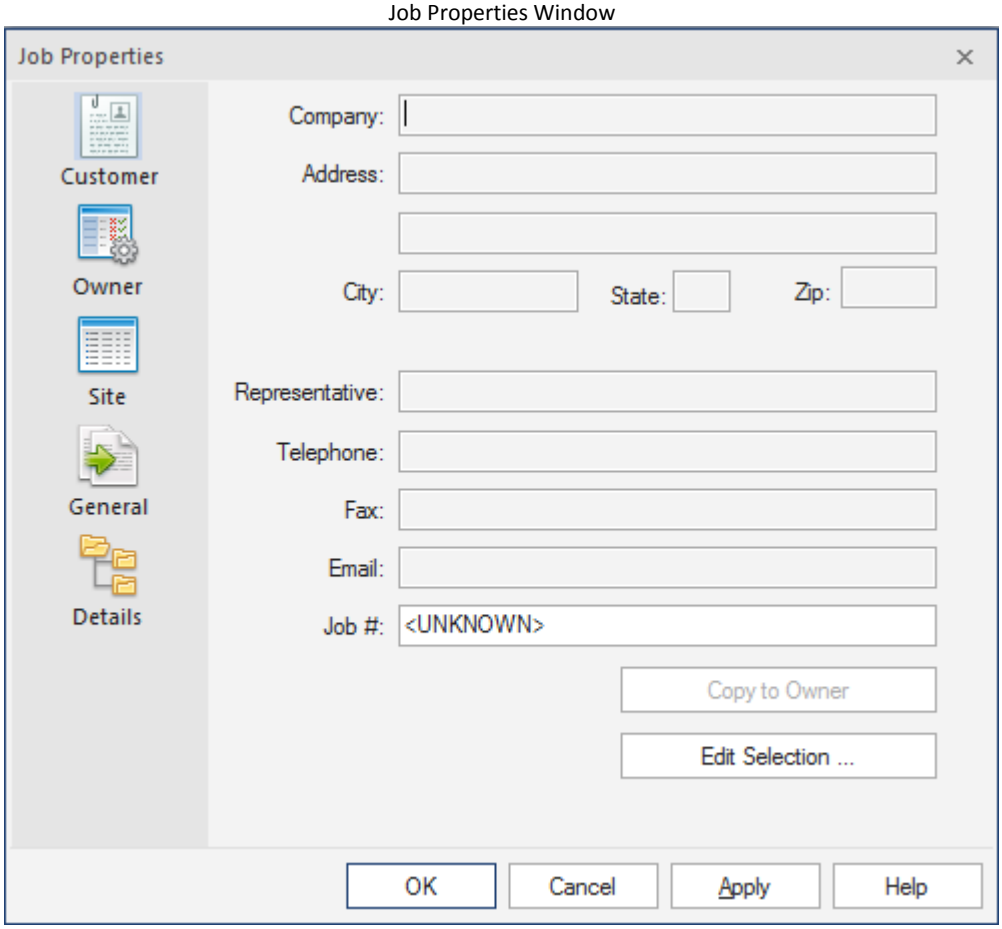


2) From the Job List view, click on the **New** button on the ribbon bar.



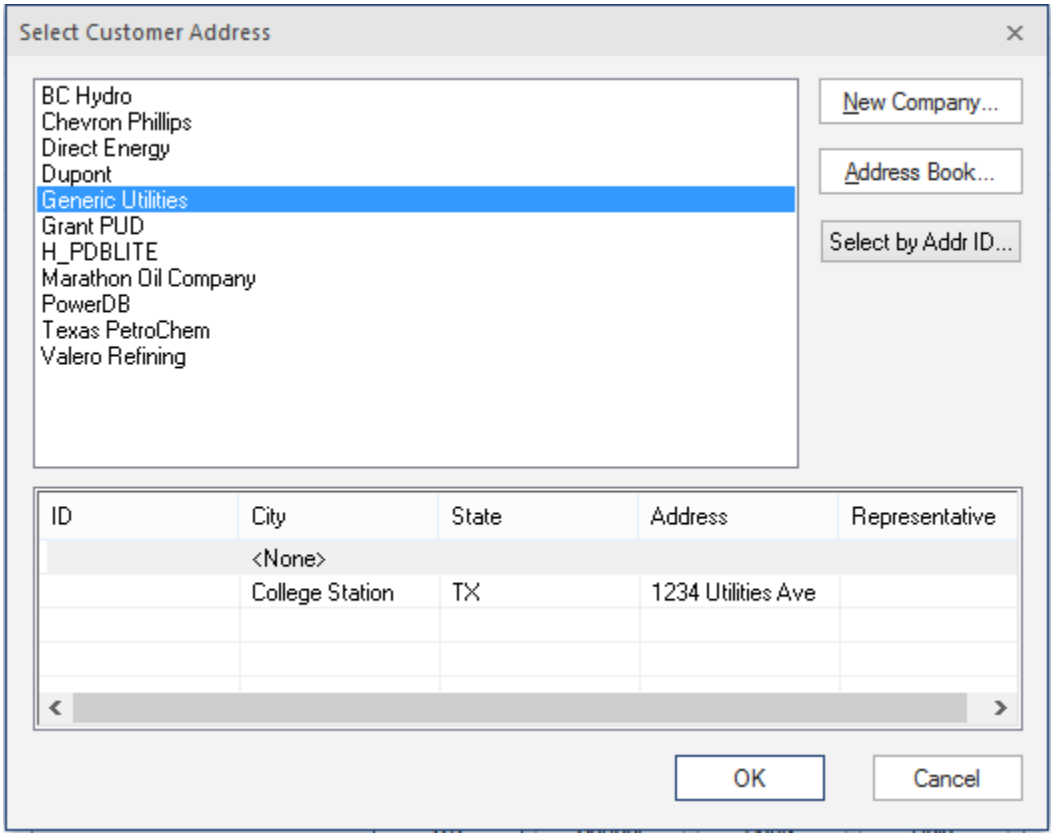
3) The Job Properties window will appear. Screen captures in this section reflect a default database where Level 1 (named Owner) has been tied to the address book in the Application Style. [Note: Text cannot be entered into any fields except Job #] Click on Edit Selection.

Job Properties Window



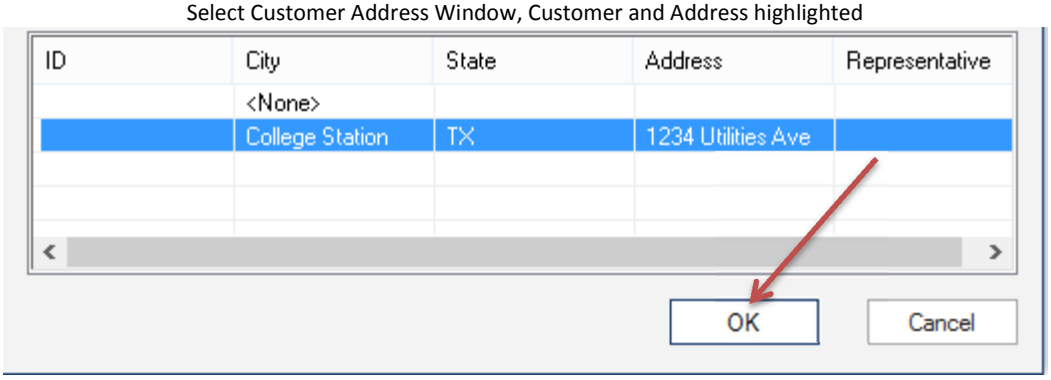
4) The Select Customer Address Window will appear. Look through the listed customers [who is paying for the work] to see if the desired customer is listed, if so click on the customer's name. [If the customer is not listed skip to step 10].

Customer Address Window



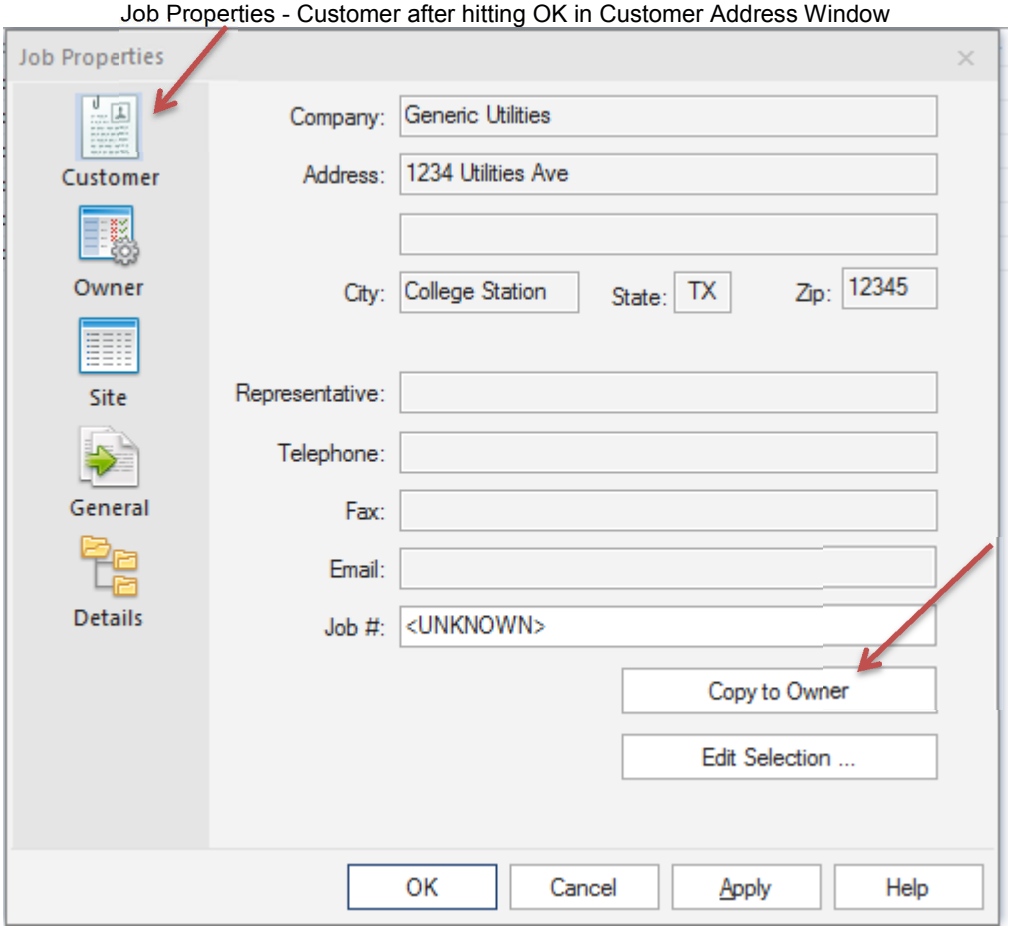
5) After highlighting the desired Customer Name, select the appropriate address from the bottom half of the window [if the correct address is not listed skip to Step 17], then click OK.

Select Customer Address Window, Customer and Address highlighted



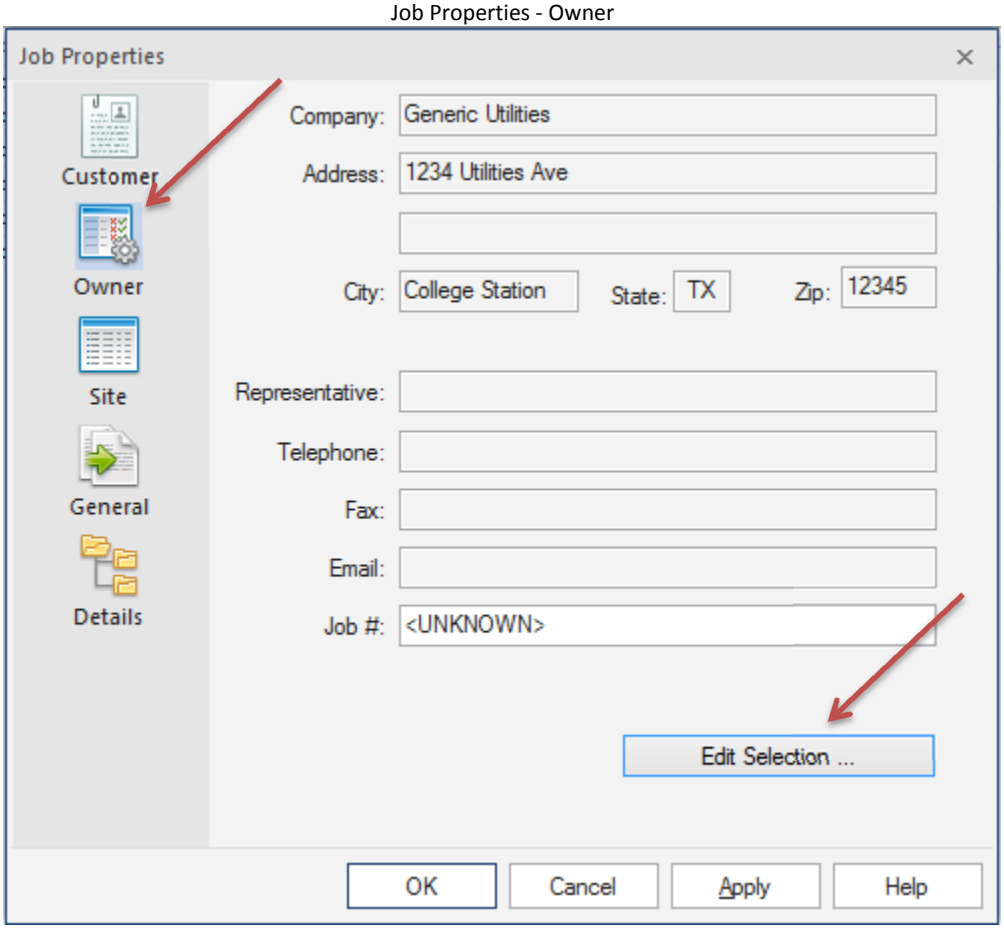
6) After hitting OK, the Job Properties window reappears with the Customer fields filled in. If the Owner [who owns/uses the asset being tested] is the same as the Customer, click on the Copy to Owner button and skip to Step 9. If not, click on the Owner tab. The Owner tab will be in the Job Properties window only if folder level 1 is tied to the Address Book.

Job Properties - Customer after hitting OK in Customer Address Window



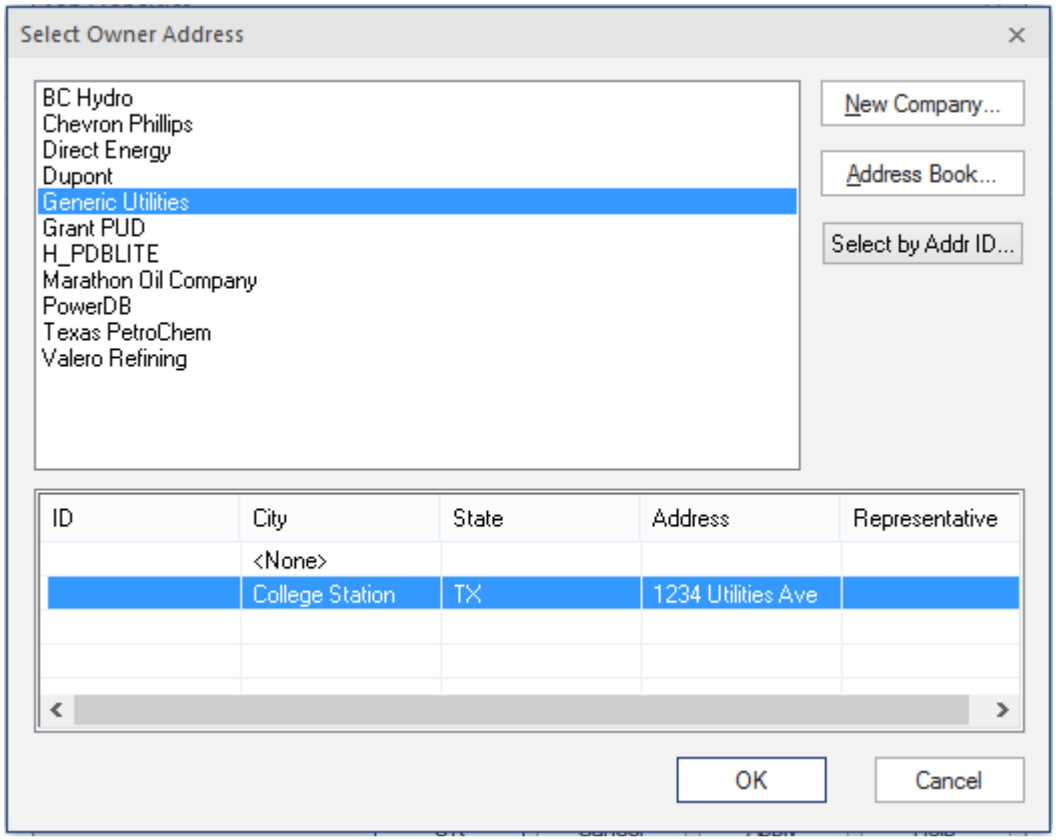
7) From the Owner tab, click on Edit Selection, the Select Owner Address window will appear.

Job Properties - Owner



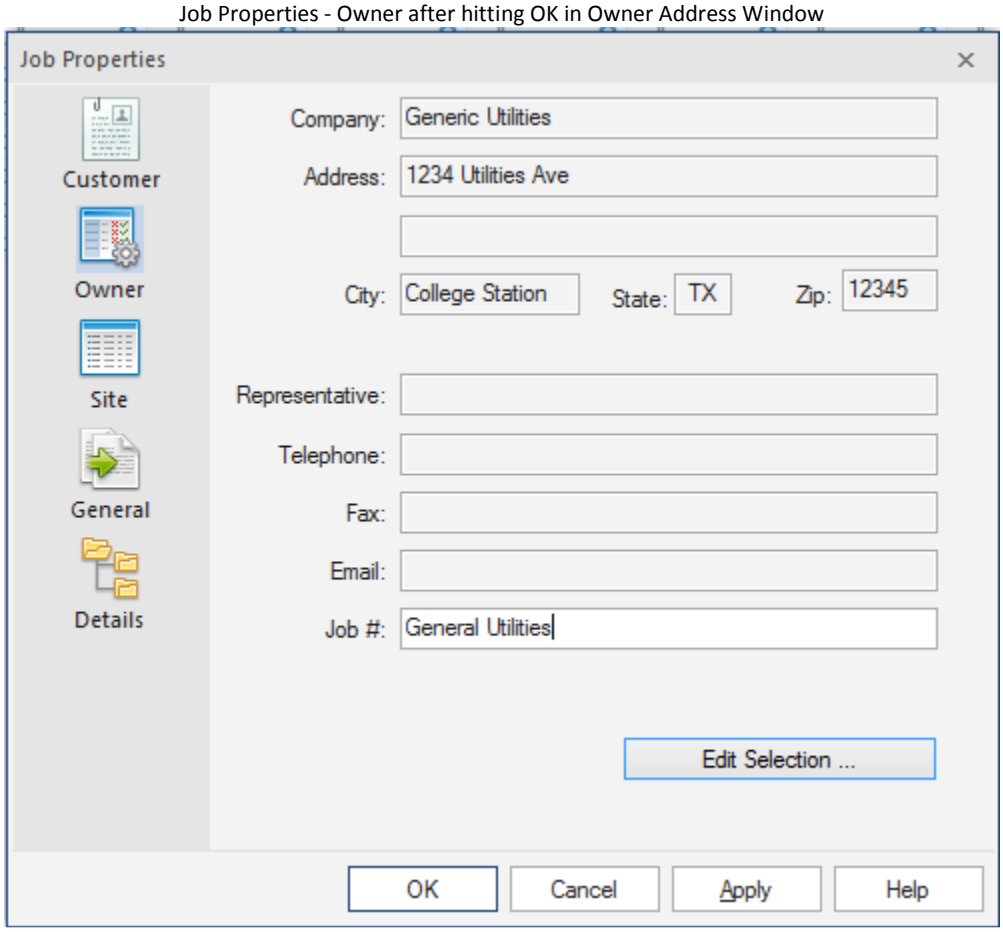
8) From the Select Owner Address window, scroll down to find the appropriate Owner and address and click OK. If the Owner is not listed, skip to Step 10 [same procedure, but return to step 8 instead of Step 4 when finished]. If the Owner is listed, but the address is incorrect, skip to step 17.

Select Owner Address



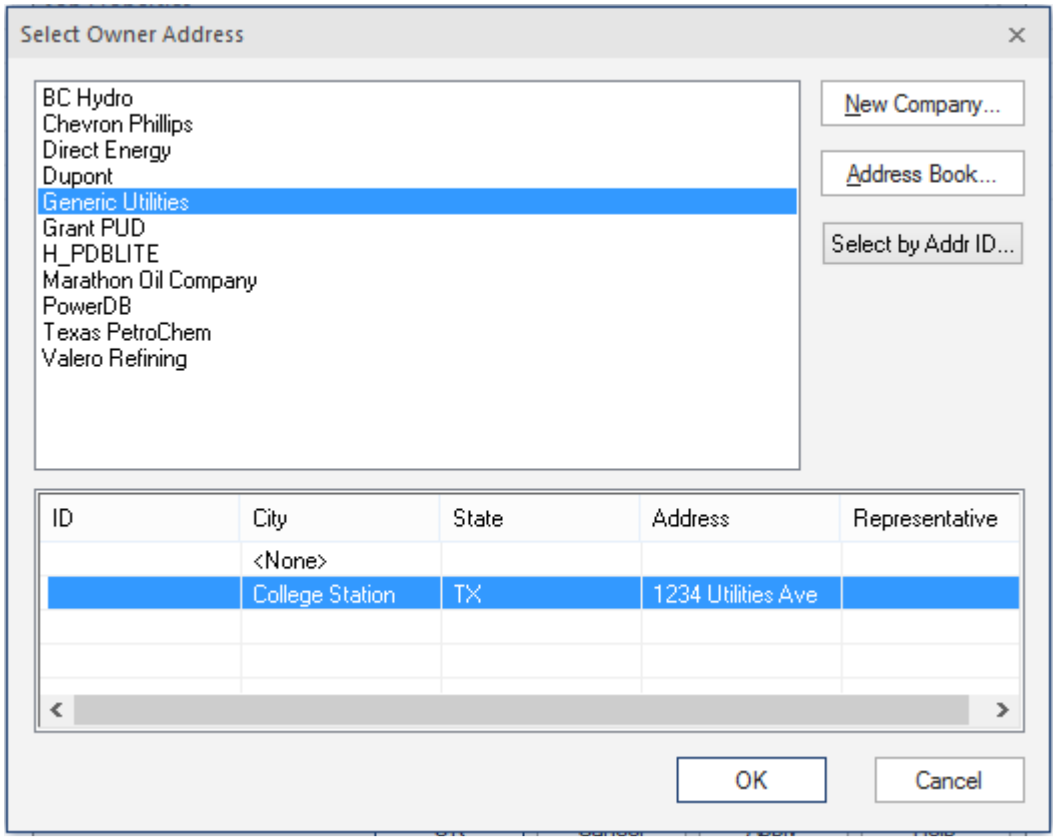
9) The Job Properties window reappears with the Owner tab filled in. Select the Job #: field and enter the Job number. Click OK and the Job will be created. No other steps are necessary. If this database was tied to folder level 2, there would also be a tab for Site, which would have the same functionality as Owner.

Job Properties - Owner after hitting OK in Owner Address Window



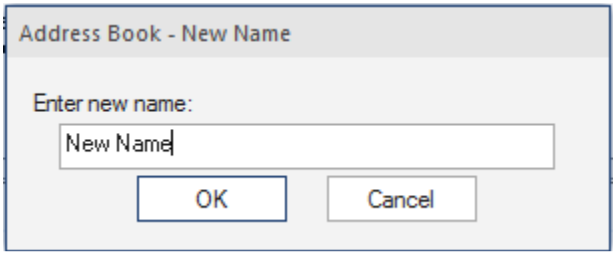
10) If the Company name is not already listed in the Select Owner Address window, click on the New Company button.

Select Owner Address



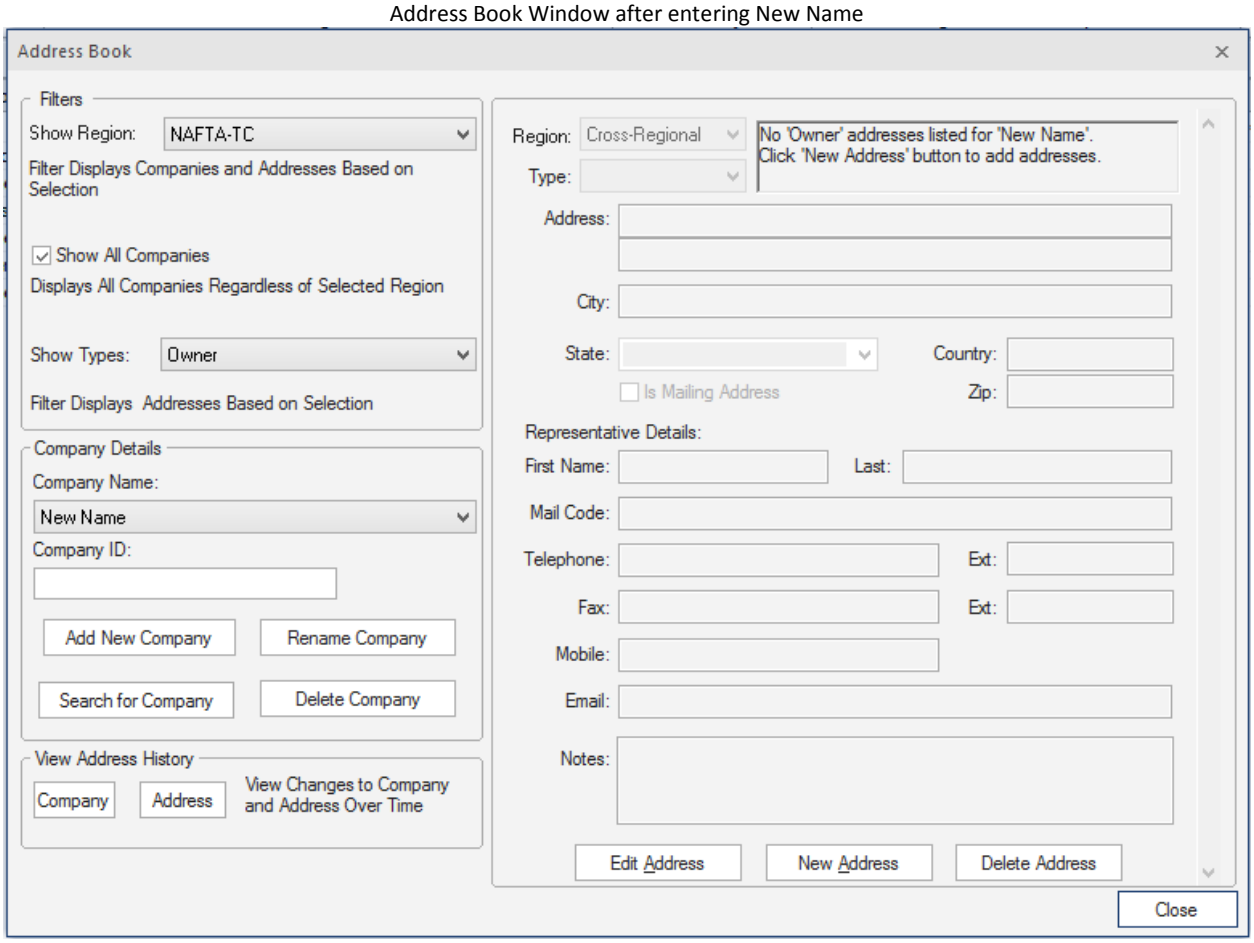
11) The Address Book –New Name Window appears, enter the name of the new entity and click OK.

Address Book – New Name Window



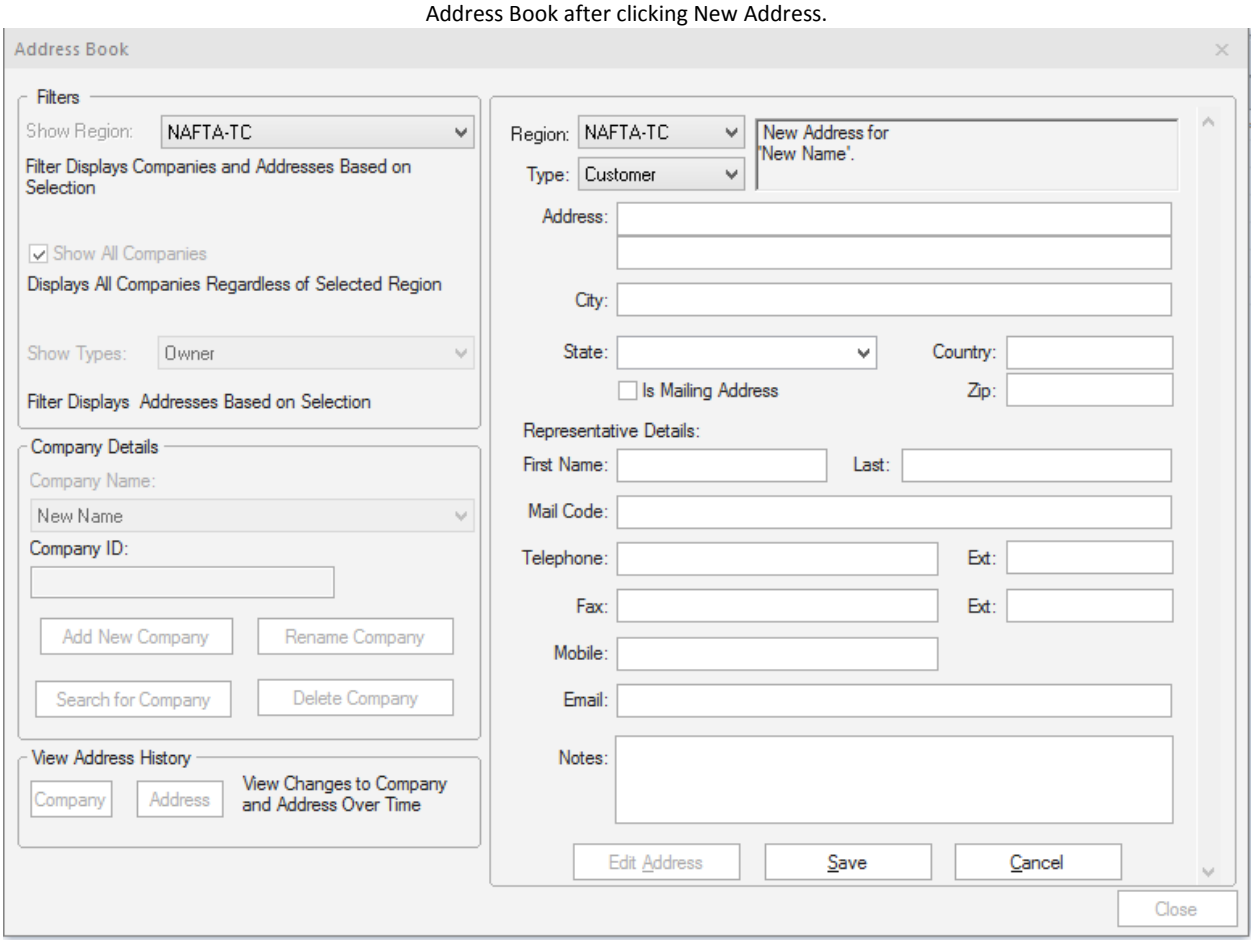
12) The Address Book window reappears with the newly created company name filled in [note all of the other fields are still grayed out]. Click on the New Address button.

Address Book Window after entering New Name



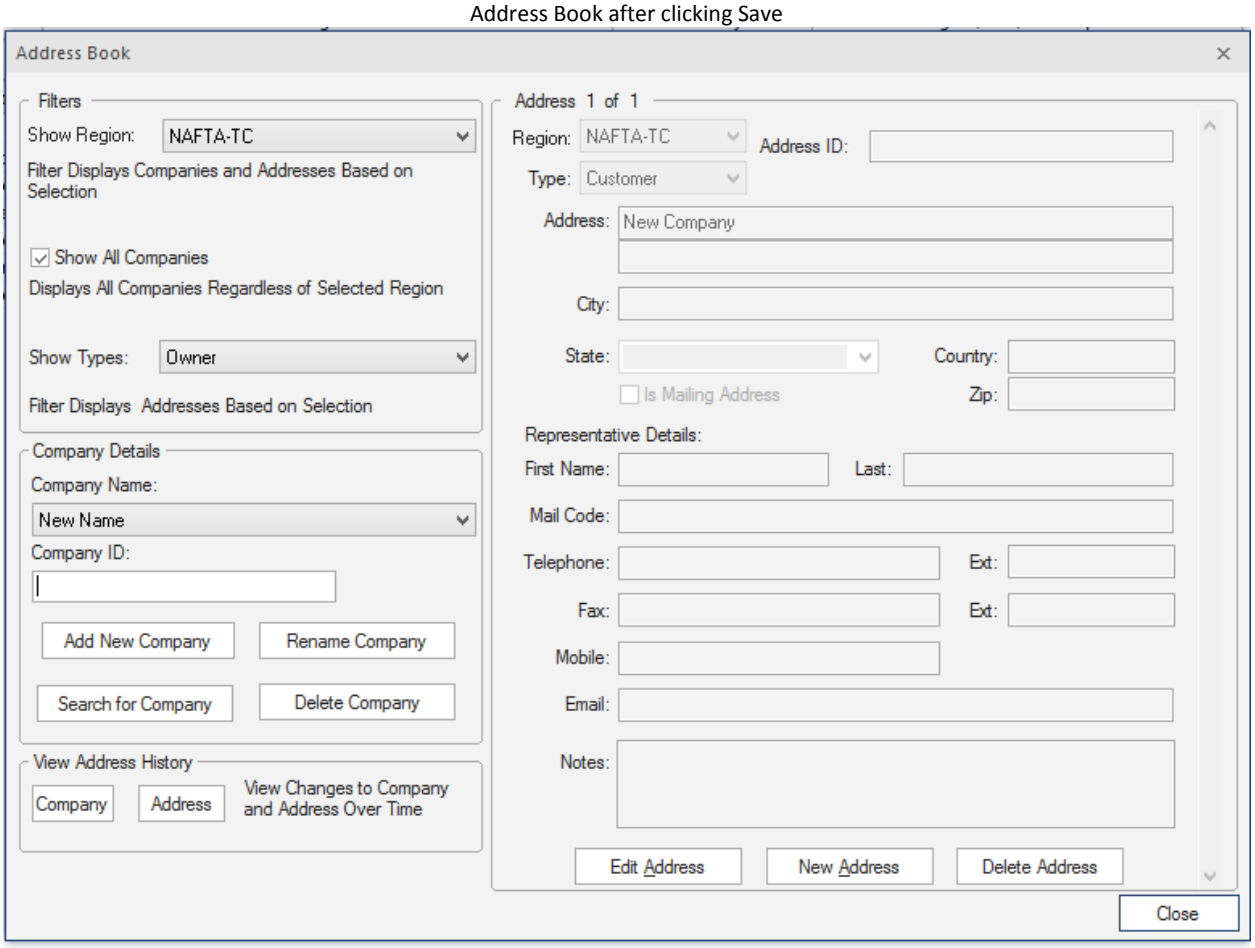
13) After clicking on the New Address button the fields are no longer grayed out. Make sure the Type dropdown list is set to Customer, Owner or Site as appropriate. Enter the information and click the Save button.

Address Book after clicking New Address.



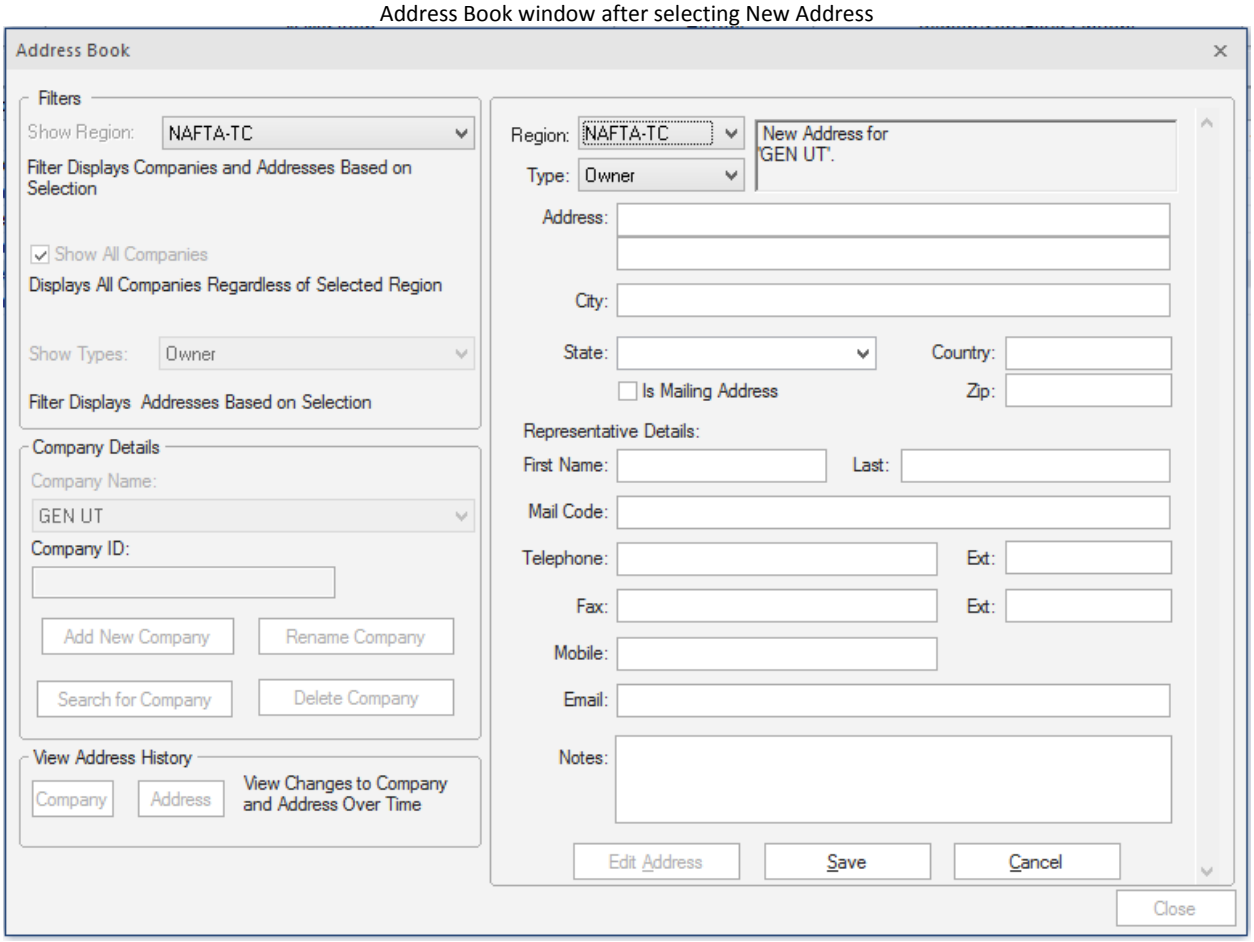
14) After clicking Save, the address will be displayed. If the Owner address is the same as the Customer address click OK and go back to Step 4, the customer that was just entered will be available for selection. If not, click on New Address.

Address Book after clicking Save



15) The following window will appear. Make sure the Type dropdown list is set to Owner. Enter the Owner information and then click on the Save button.

Address Book window after selecting New Address



16) After saving the information, the Address Book Window will list the recent input information as Address 2 of 2.

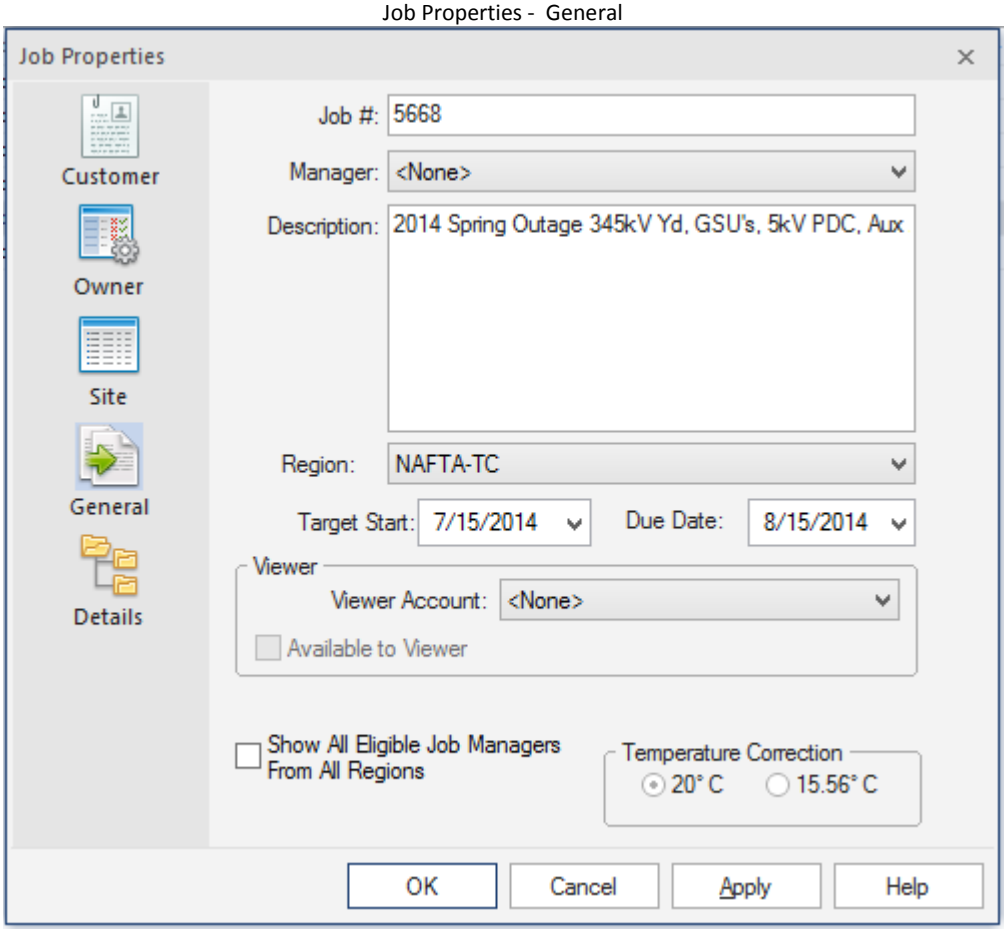
If the database is set up to also tie level 2 to the address book, the preceding step may be repeated to add a Site address making sure the Type dropdown is set to Site. After saving the information, the Address Book will list the information as Address 3 of 3.

Click on OK and return to step 4.

17) If the correct address is not listed from either the Select Customer Address or Select Owner or Site Address windows, click on the Address Book button and then the New Address button to add new address information to existing Customers, Owners, and Sites. To add a new address follow the steps 12-14 for adding a new customer address or steps 15 and 16 for adding a new user address.

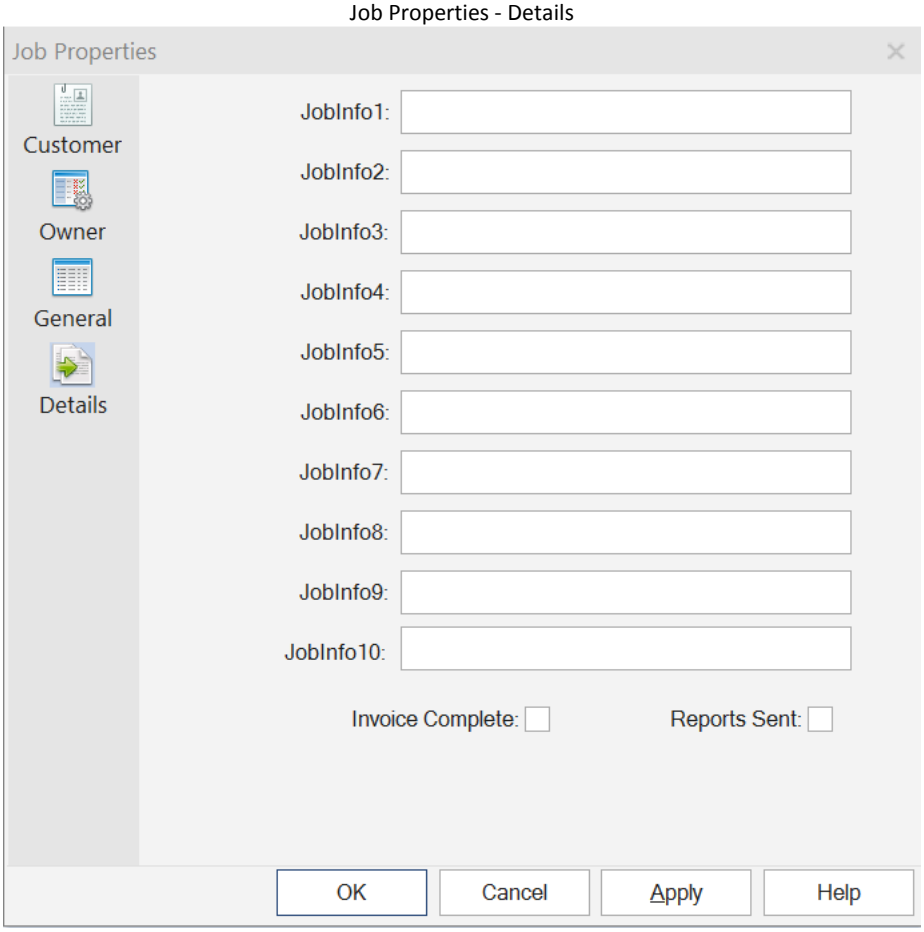
Note: The Address Book may be accessed at **Tools>Address Book**.

Job Properties - General



The General Tab helps to edit the Job Number, designate the Job Manager (optional), enter internal descriptive notes, designate a region, default the temperature corrections, and assign a Viewer Account for the job (Section 4.13)

Job Properties - Details



The Details (optional) helps track information that will display in the Job List. The default field names can be modified. (Section 9.2.3)

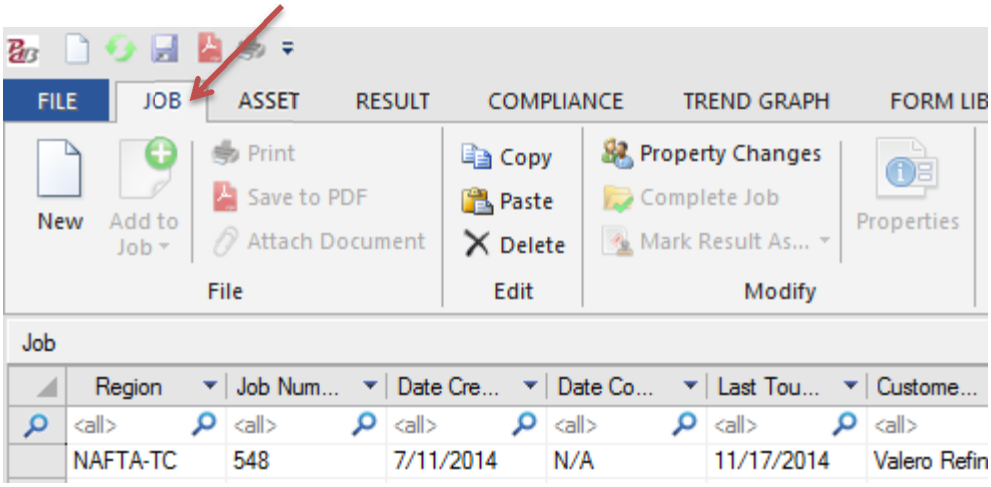
The default Job Tree folder level names can also be changed. (Section 9.2.1)

2.2 Create New Job – Asset Owner

A Job for an Asset Owner might be defined by a location, facility or feeder. For reporting purposes only active results associated with the Job will be printed. Use of the Address Book for this Application Style user is optional.

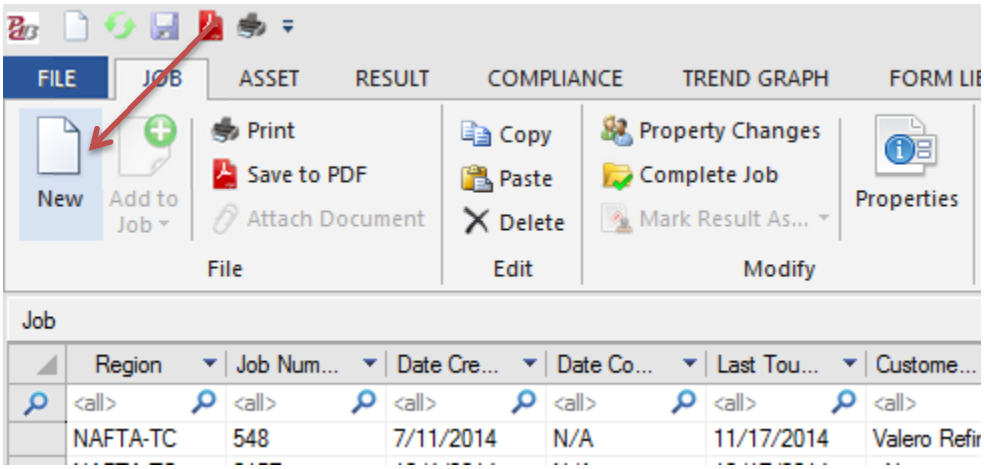
1) Click on the **Job** tab to bring up the Job List view.

Job Tab



2) From the Job List, click on the **New** ribbon bar button.

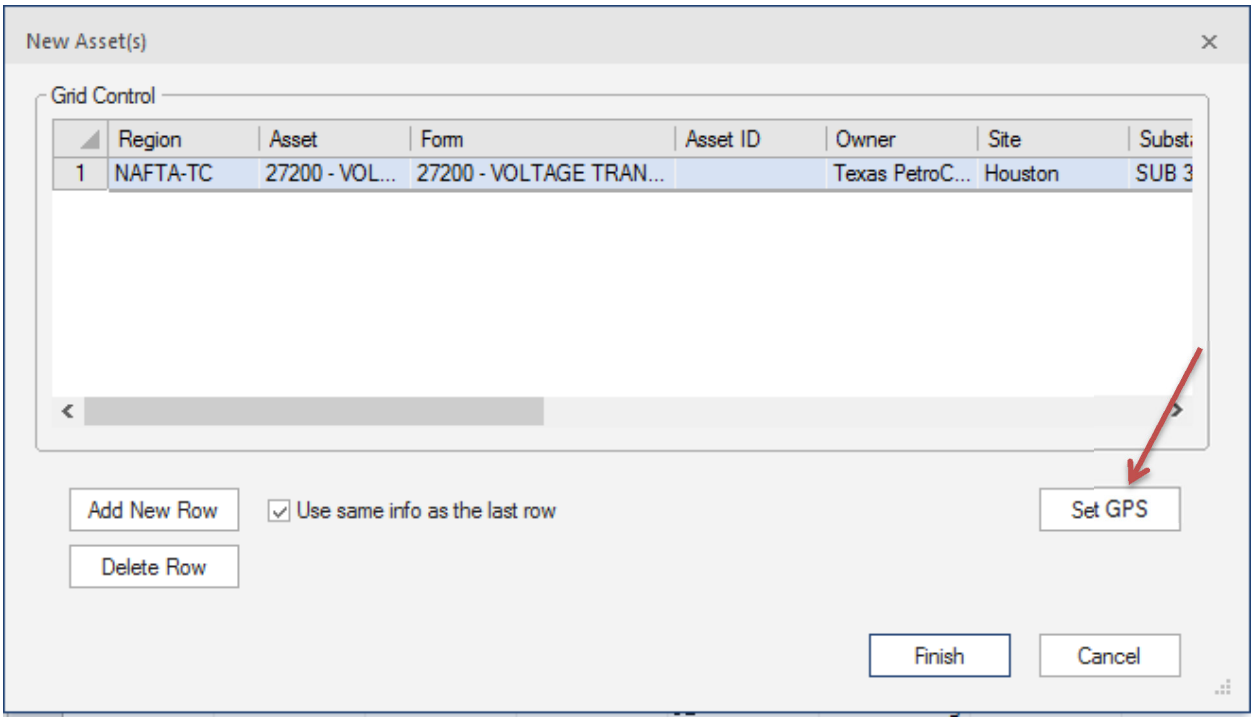
New Ribbon Bar Button in Job List View

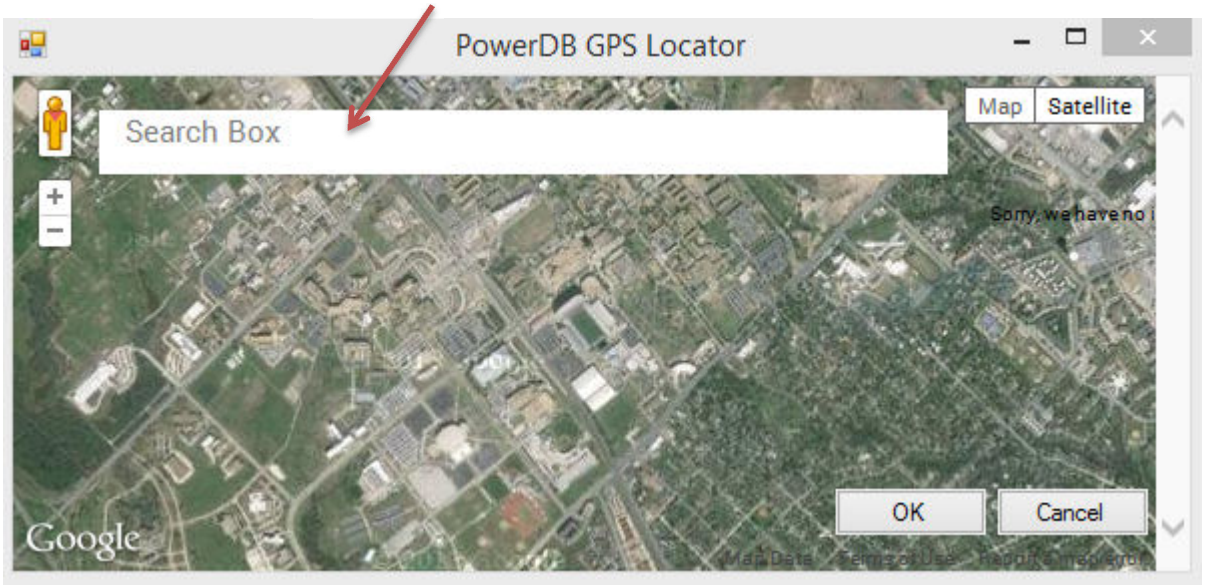


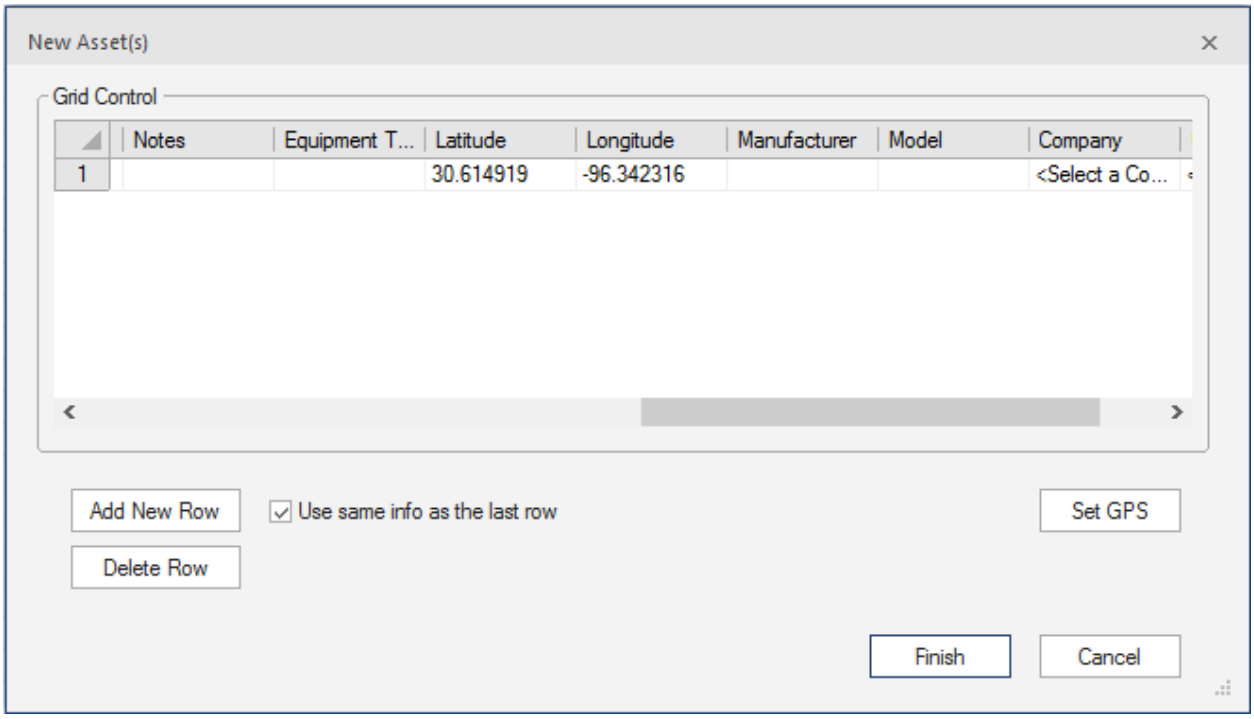
3) The contact information may be defined for a Job under the Contact tab of Job Properties by clicking the Edit Selection button and storing information in the address book. Job Numbers may be indicated in the Contact or General screens of Job Properties. Refer to Section 2.5 to add test forms to Jobs.

2.2.1 GPS Locator

When utilizing the New Asset dialog or the Asset Properties dialog, the GPS Locator tool can be opened by clicking the 'Set GPS' button while a row is selected in the dialog grid. This will open a dialog for easy application of GPS coordinates to the selected row(s). To apply the coordinates of a given address, simply type in the address into the search box and hit the Enter key when finished typing. The Locator will automatically navigate to the address. The process is finished and the coordinates applied upon clicking 'OK'.


New Asset(s)
Grid Control
Region
Asset
Form
Asset ID
Owner
Site
Subst
1
NAFTA-TC
27200 - VOL...
27200 - VOLTAGE TRAN...
Texas PetroC...
Houston
SUB 3
Add New Row
Use same info as the last row
Set GPS
Delete Row
Finish
Cancel

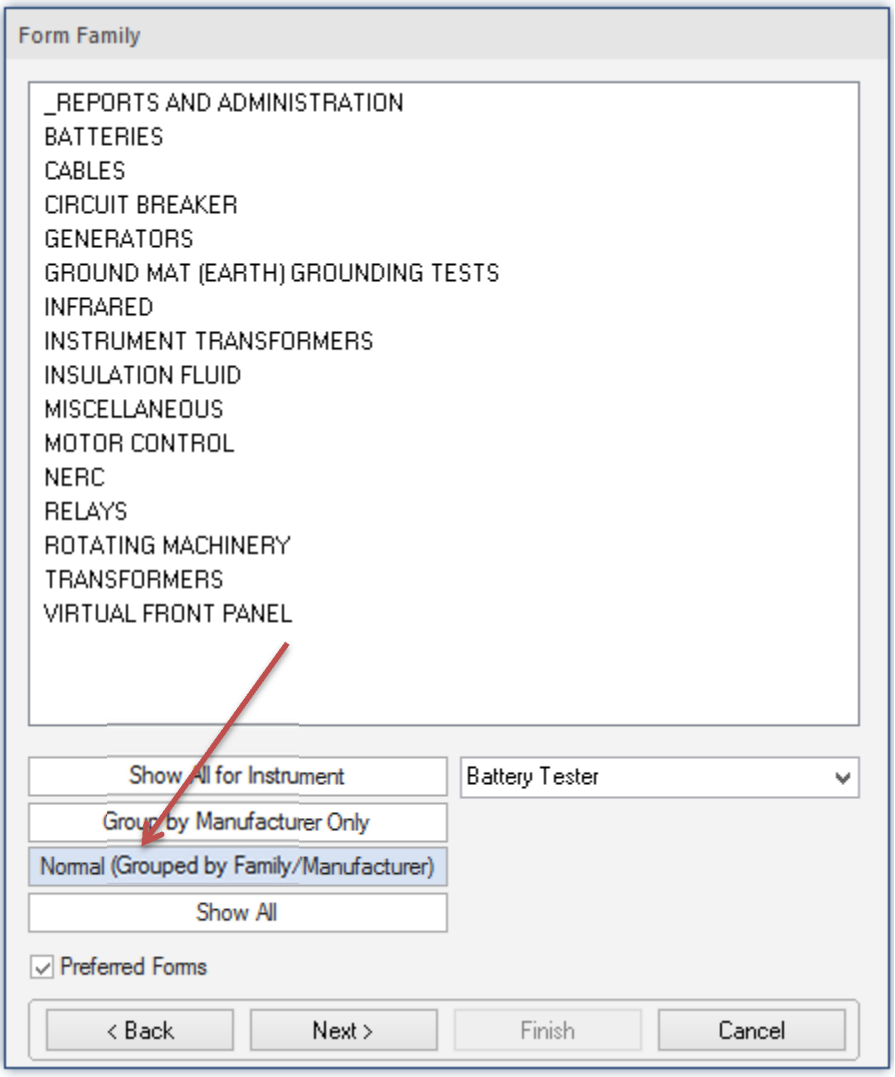

PowerDB GPS Locator
Search Box
Map
Satellite
Sorry, we have no
OK
Cancel
Google



2.3 Add Assets to Job

This section will provide instructions for adding assets to jobs. After opening a job in the 'Job Tree' view, clicking the 'Add to Job' button (or *Ctrl+J*) will start a wizard to add assets and test forms to the Job Tree. The wizard will go through all four folder levels unless the first level or first and second levels are tied to the Address Book, in which case the wizard will start at the first untied folder level. Once at the desired folder level, a new Asset or an already existing Asset can be inserted. At the end of the wizard, select 'Finish.' The new folder descriptions and assets will be shown in the Job Tree. To streamline the Add to Job procedure, no mouse clicking is required; all navigation can be done quickly using only the Up and Down arrows and the Enter key on the keyboard. The last step of the wizard allows selection and addition of multiple test forms at once. To select multiple tests by using a mouse, hold down the Control key while clicking the desired tests from the list. To select multiple tests by using the keyboard, hold down the Control key while using the up and down arrows to navigate the list and the spacebar to select tests from the list.

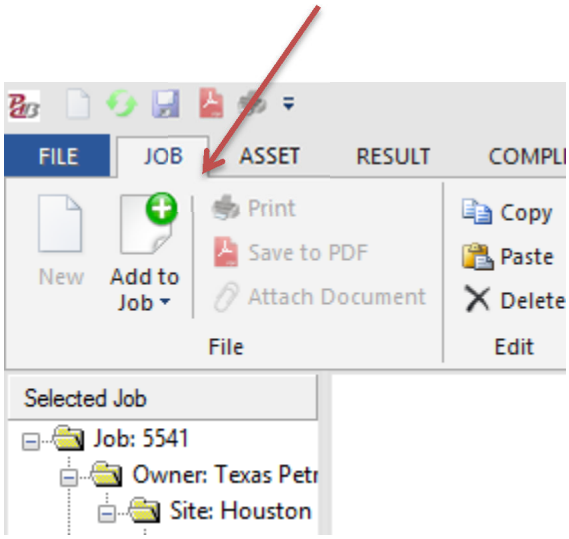
Changes to the default maintenance period for a form can be affected in the right click menu Properties item in either a master or development database. Similarly, a form can be indicated to be a 'Preferred Form'. Flagging a form as 'Preferred' will streamline selection options in the Add to Job wizard.



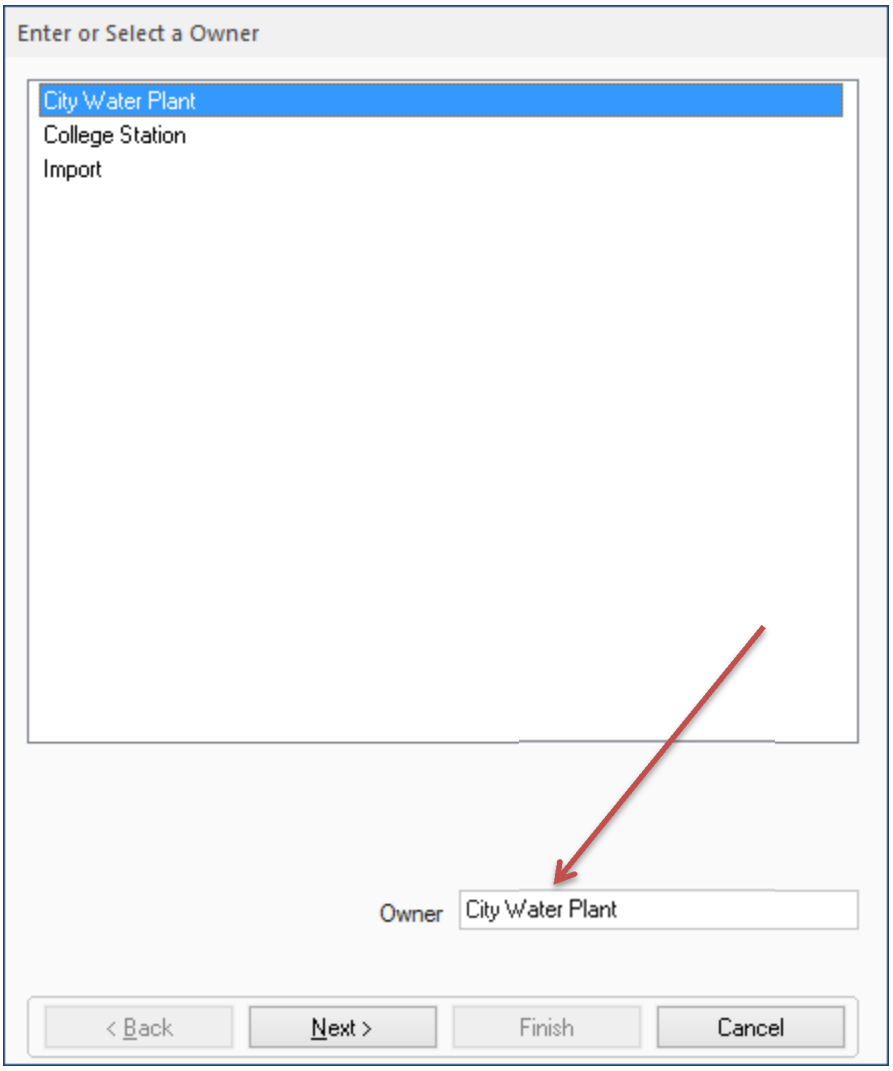
The PowerDB Asset and Job Trees contain up to four folder levels. The Asset Folder names below can be modified at Tools > Database Administration > Labels Tab. Screen shots in this section reflect a database with the default folder names.

Default Folder Name	Folder Level
Owner	Level 1
Site	Level 2
Substation	Level 3
Equipment	Level 4

1) The job to be added to must be opened by double clicking it in the Job List. This will open the selected job in the Job Tree. Click on the Add to Job toolbar button. [Note: If Asset folder level 1 is tied to the address book, skip to step 3. If both level 1 and 2 are tied to the address book, skip to step 4.]

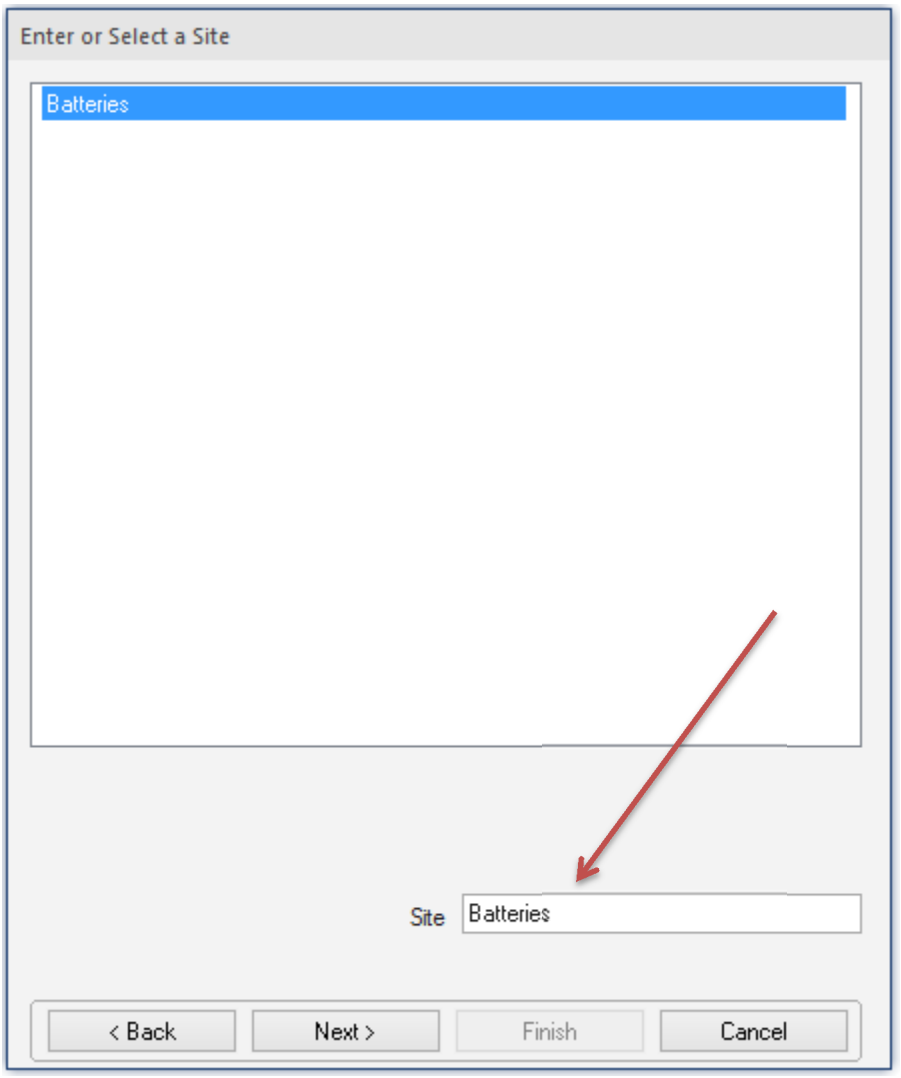


2) The 'Enter or Select an Owner' window will appear (steps 2 and 3 reflect administrative selections that levels one and two are not tied to the address book; if these levels are tied the Select screen will open to select Substation as shown below). An Owner name may be selected in the upper portion of the screen. If <Insert Test Form at This Level> is selected, assets will be added to Level 1. If using a pre-existing Owner name, skip to Step 13. If an Owner name is entered in the edit box, the Level 1 folder will be named as entered.



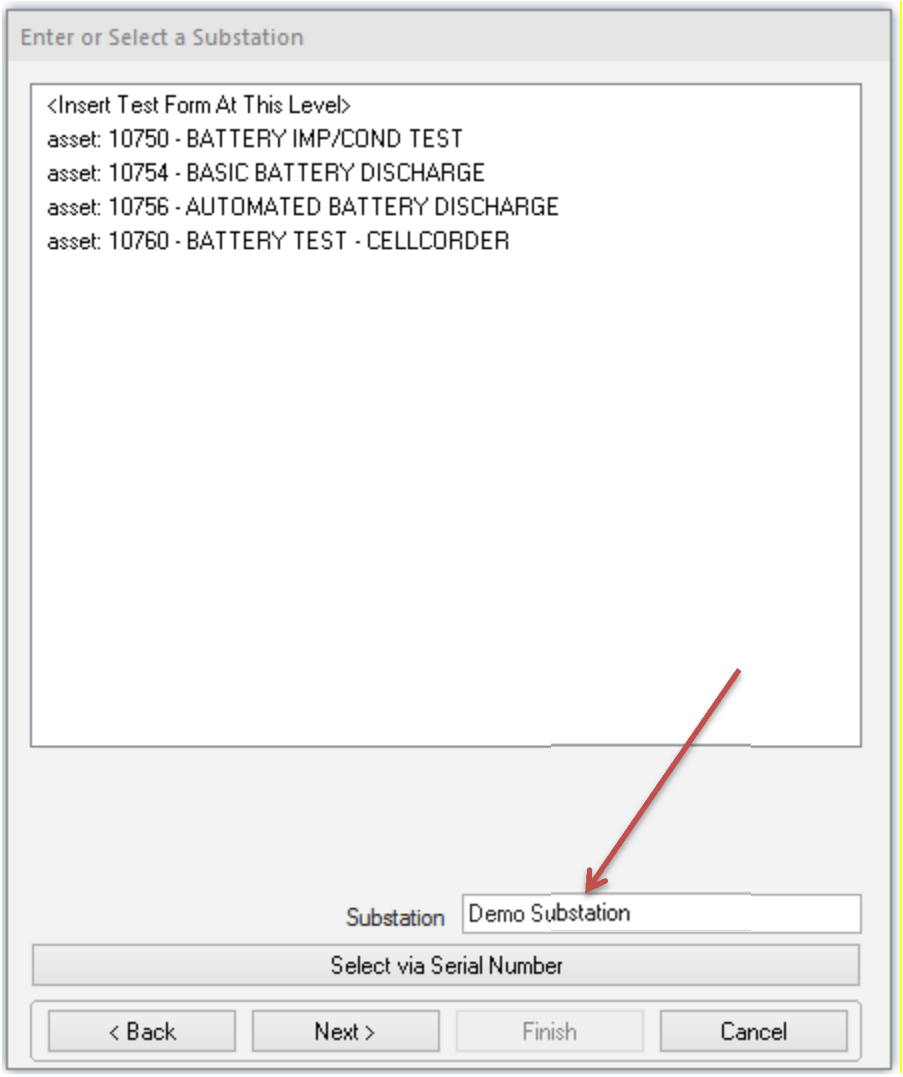
Next, the Enter or Select a Site window will appear.

3) At this point existing Sites can be selected from the upper portion of the window or a new Plant name entered in the edit box. If <Insert Test Form At This Level> is selected, assets will be added at Level 2. If using an existing Site in the list, skip to Step 13. For this example, an existing Site is selected. To continue, click 'Next >'.



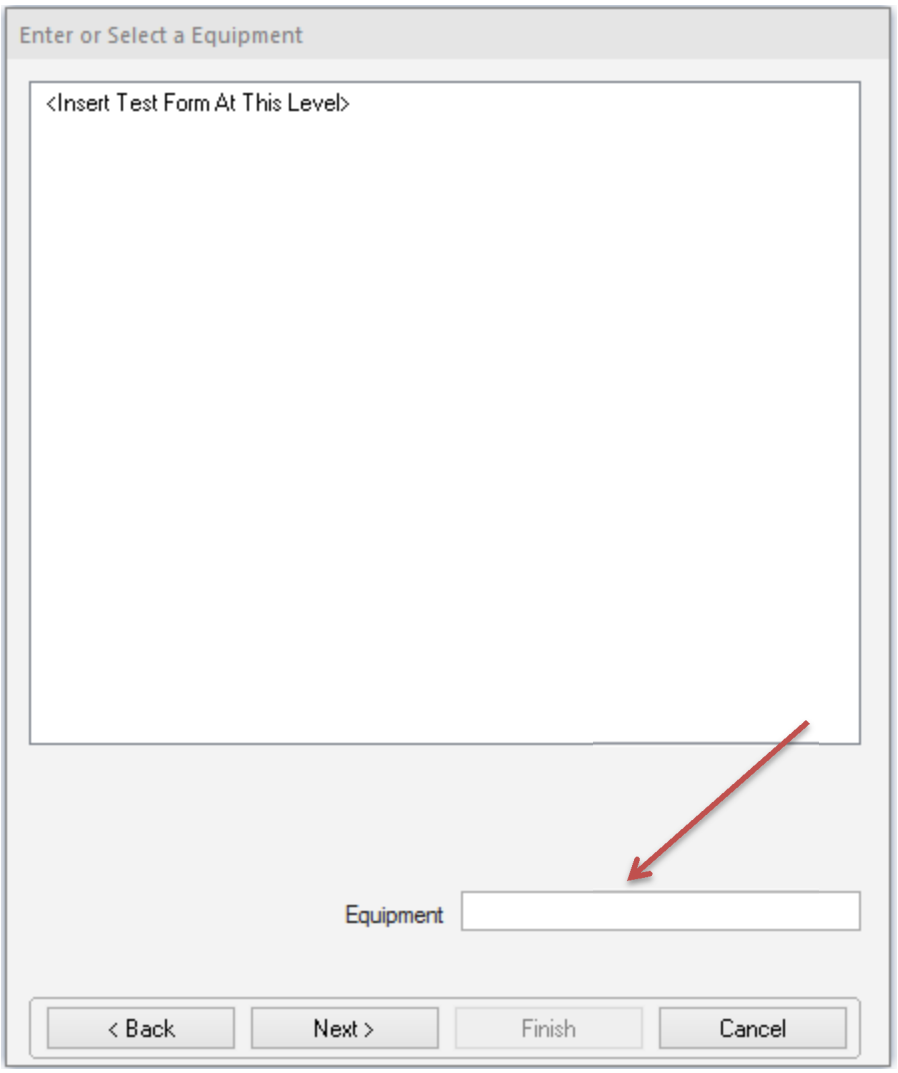
Now the Enter or Select Substation window will appear.

4) The option is presented to either select an existing substation from the upper portion of the window or enter a new substation in the edit box. If <Insert Test Form At This Level> is selected, the asset is added at Level 2. If using an existing substation in the list, skip to Step 13. For this example a new substation is added by entering a substation name in the Substation edit box and clicking ‘Next >’.



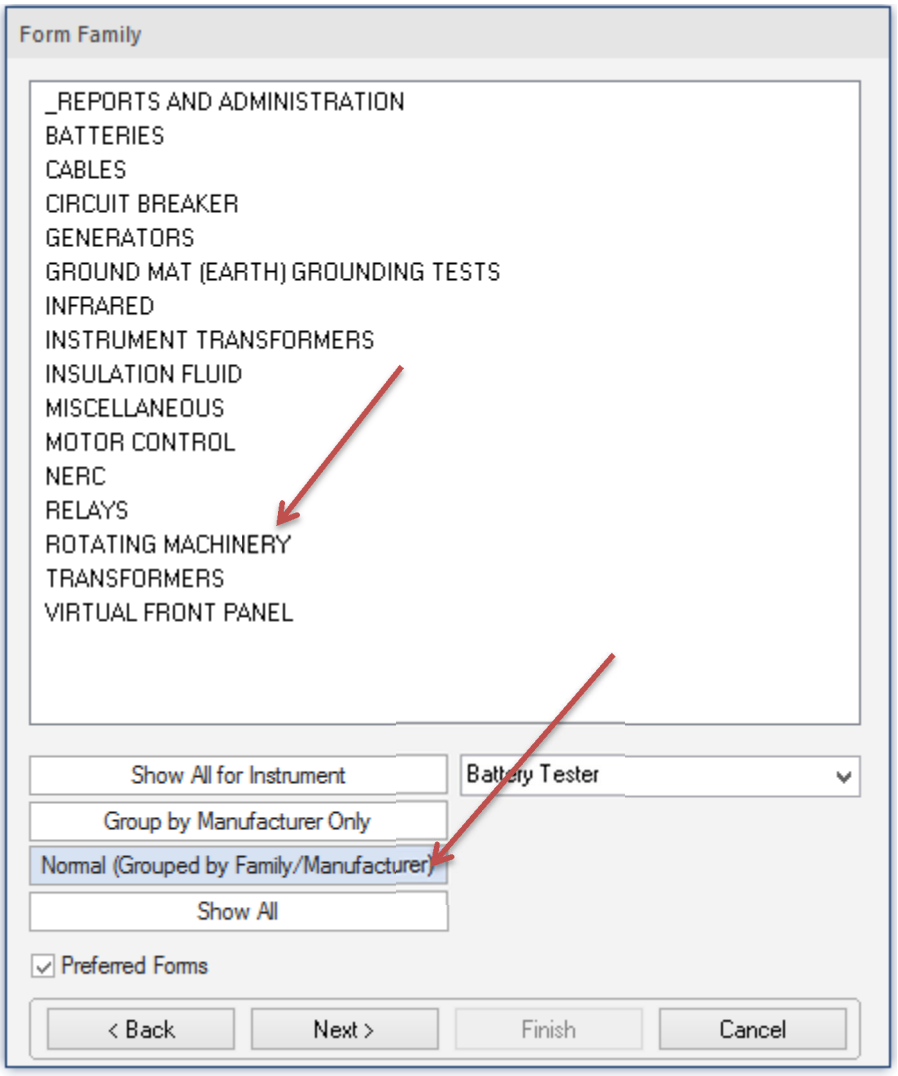
Now the Enter or Select Equipment window will appear.

5) Next the Enter or Select a Equipment window appears; enter the Equipment name and click on 'Next >'. Adding assets at Level 3 may be done by selecting <Insert Test Form At This Level>.

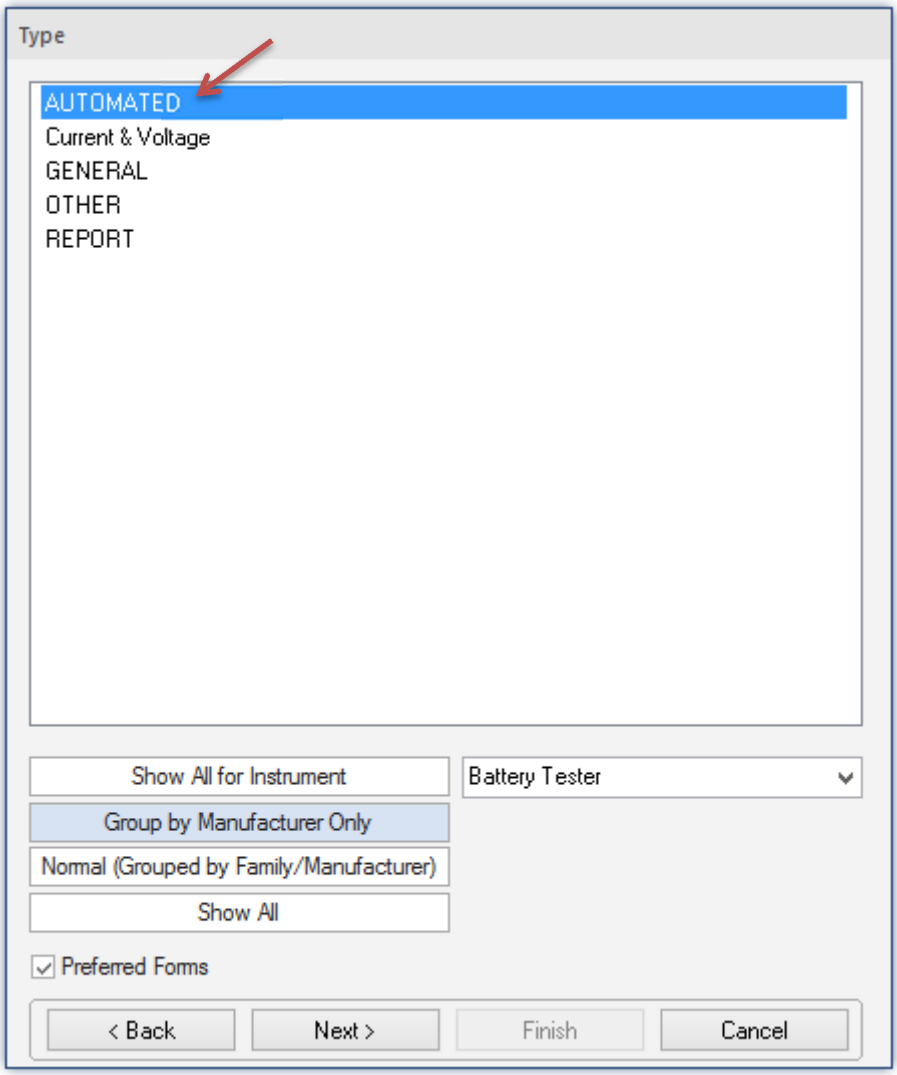


Now the Enter or Select Family window will appear.

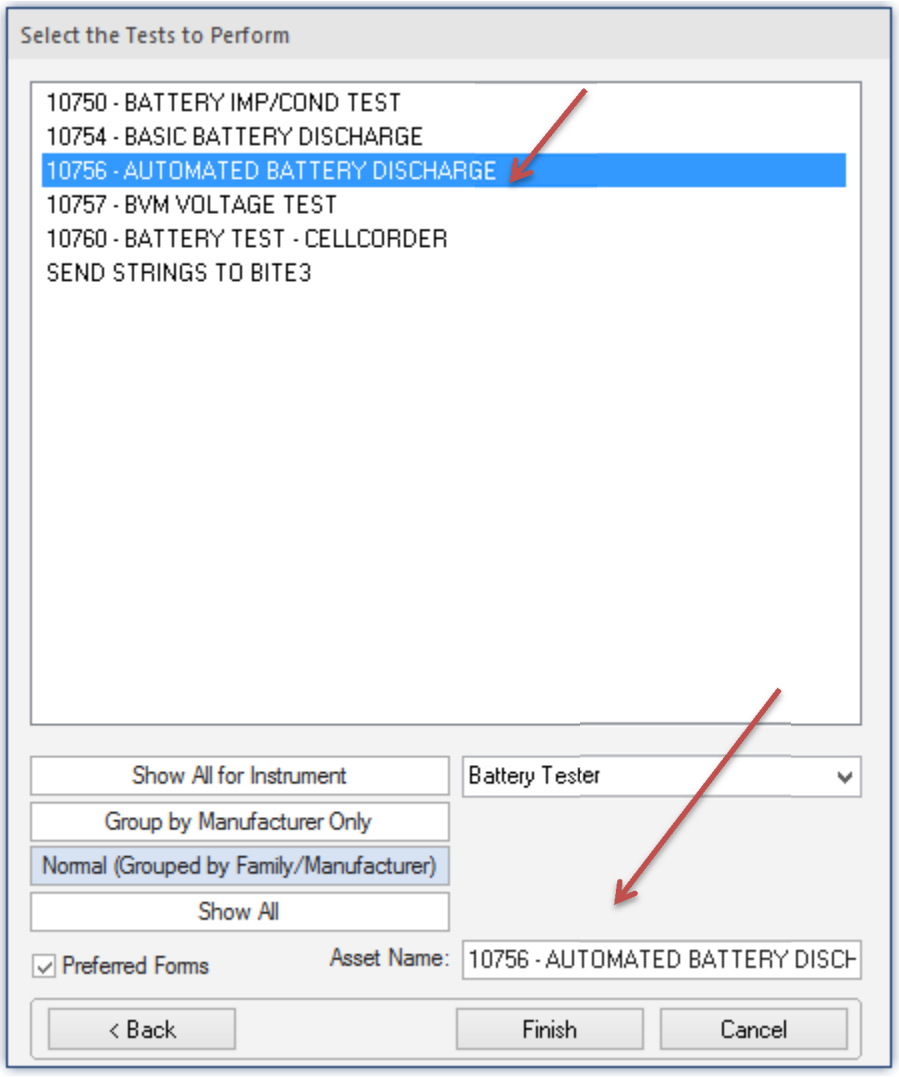
6) The Form Family window will appear. Checking the Preferred Forms checkbox will filter the available list to show only forms designated as Preferred. Unchecking the Preferred Forms checkbox will broaden the available selections. Radio button selections will filter and regroup the viewable listing. Select a Form Family and then click ‘Next >’.



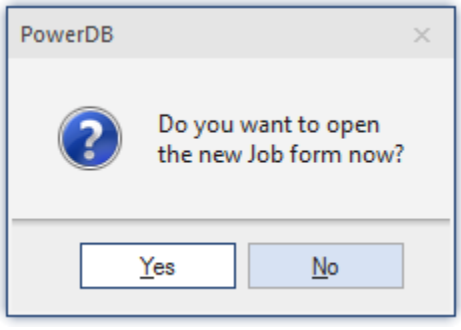
7) If more than one type is available, the Select a Type window appears. The Automated category includes forms with instrument communication or import features. Select the appropriate category from the list and click ‘Next >’.



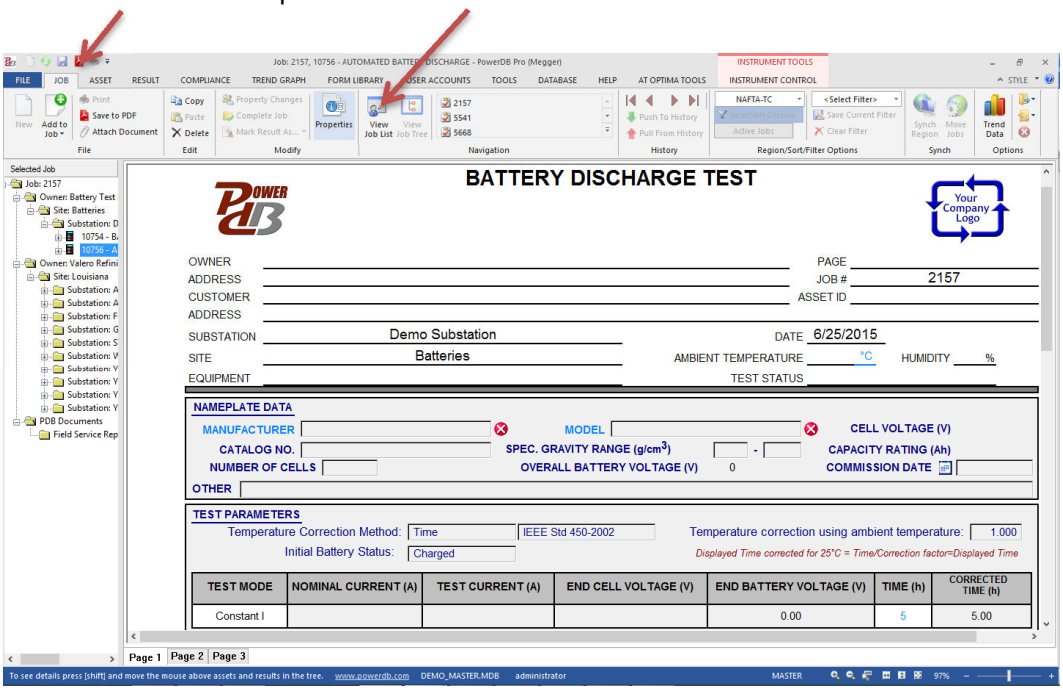
8) The Select the Tests to Perform window will appear. Select the test form(s) to add and click ‘Finish’. Multiple forms may be selected by pressing the Ctrl key during selection.



9) If a single form has been added, a window will appear asking if the new form should be opened. If entering data, click 'Yes'.



10) The test sheet will be opened and test data can now be entered.

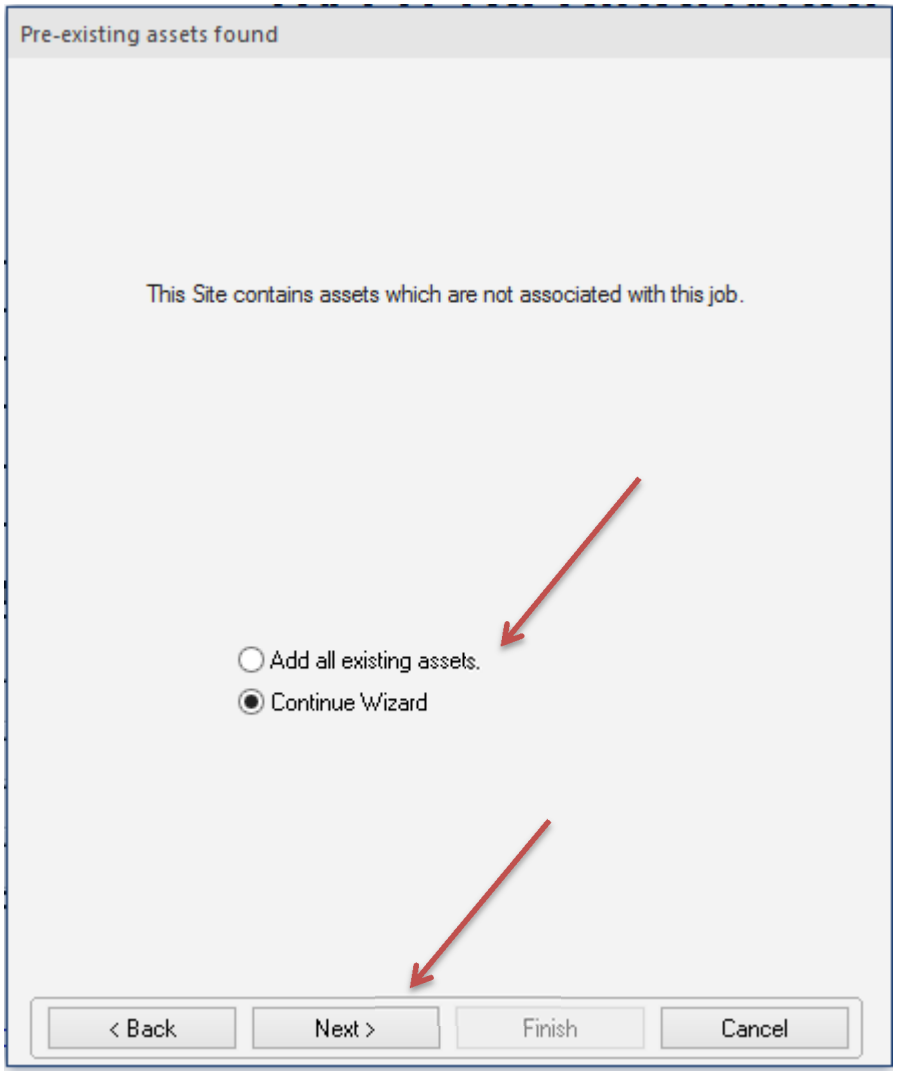


Enter the data in the test sheet then click the Save icon. After saving, click the 'View Job List' button to return to the Job List.

2.4 Add to an Existing Job

This is especially applicable for jobs that are done repeatedly on the same set of assets, but are given a different Job Number for billing and reporting purposes. From Step 3, select a Site that is already listed and click 'Next >'.

The following screen will appear:

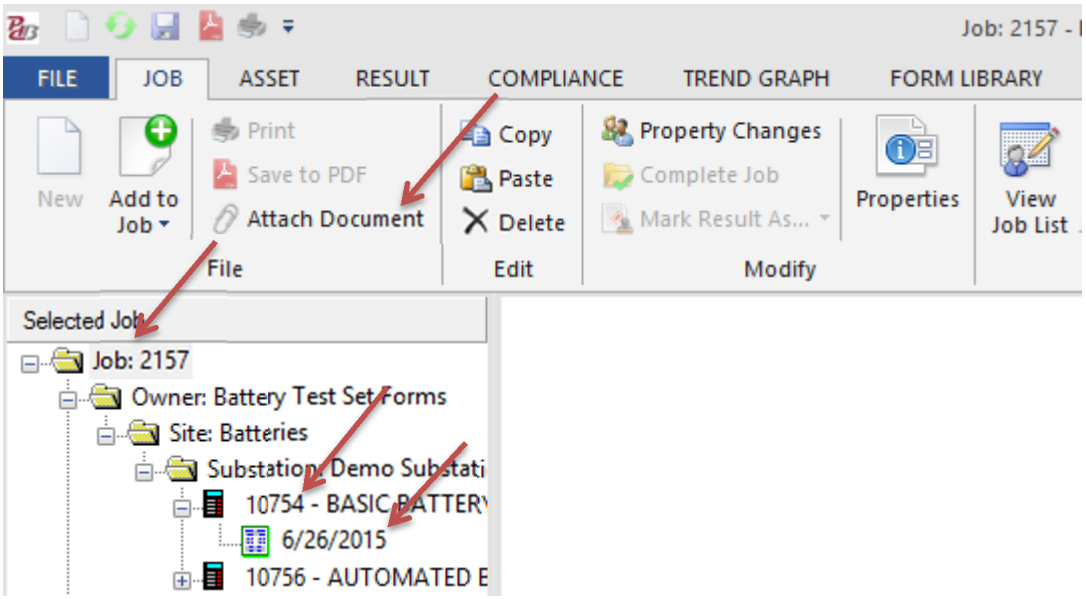


At this point, 'Add all existing assets' may be selected. If 'Finish' is then clicked, all assets previously tested at that Site will be added to the job. Similar options are available for Substations and Equipment. Click 'Finish' to complete the wizard.

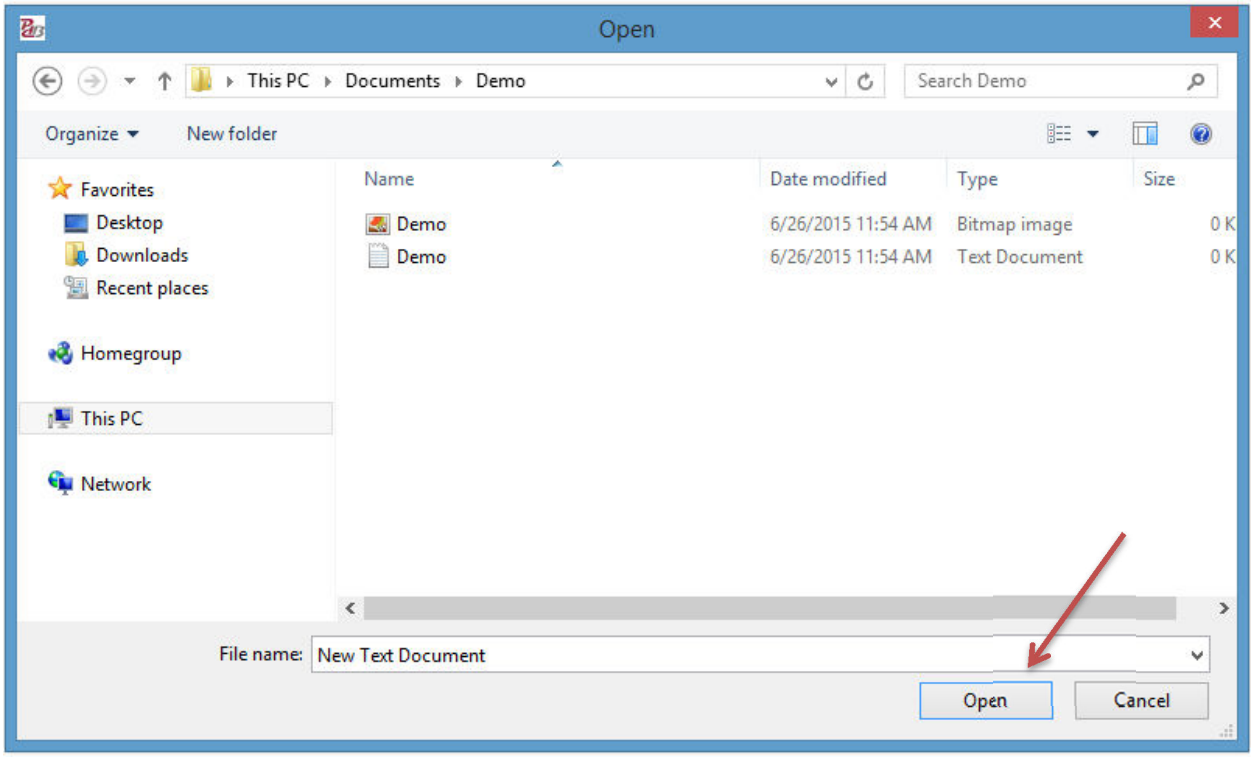
Note that the new test form(s) is added to the Job Tree. The Nameplate data is filled in from the prior test and current test results need to be entered and saved. Only current test results are part of the new job. Prior test results are shown and available to open, but will not be included in the job report.

2.5 Attach External Documents

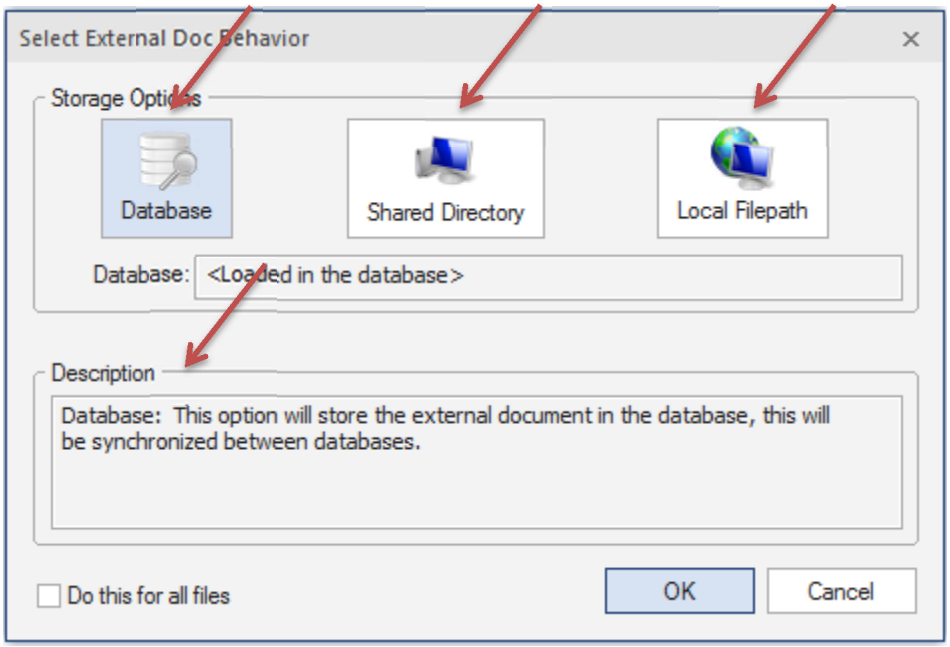
To attach external documents, select either the Job, Asset, or Result being attached to in the Job Tree then click the 'Attach External Doc' button.



This will open a file browsing window which is used to navigate to the document to be added. Select the document to be added and click 'Open'.



After opening a file, a dialog is presented to select how the external doc behaves.



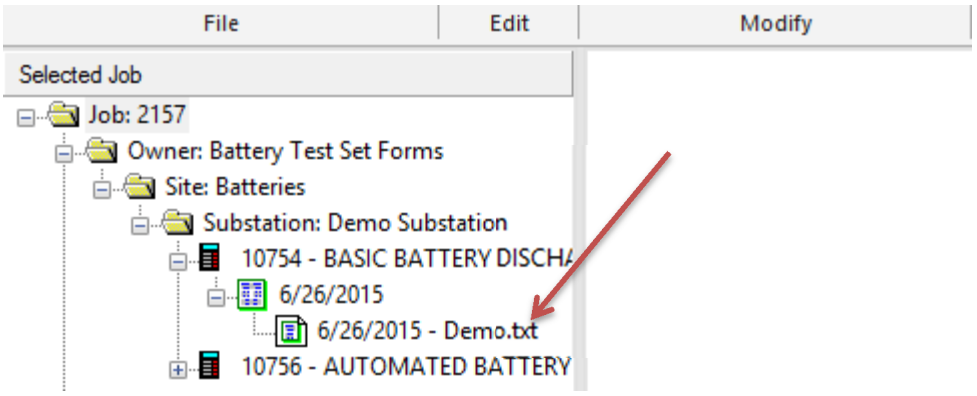
When one of the options is selected, the Description will change appropriately. The descriptions are as follows:

Database: This option will store the external document in the database, this will be synchronized between databases. Other users of PowerDB will be able to view the document in their own database.

Shared Directory: This option will store the external document to a shared directory on the network this computer is connected to. If the document gets deleted from the network, or there is no network connection the user will be unable to access the document. Other users of PowerDB will be able to view the document in the shared folder, providing they have access to the network folder.

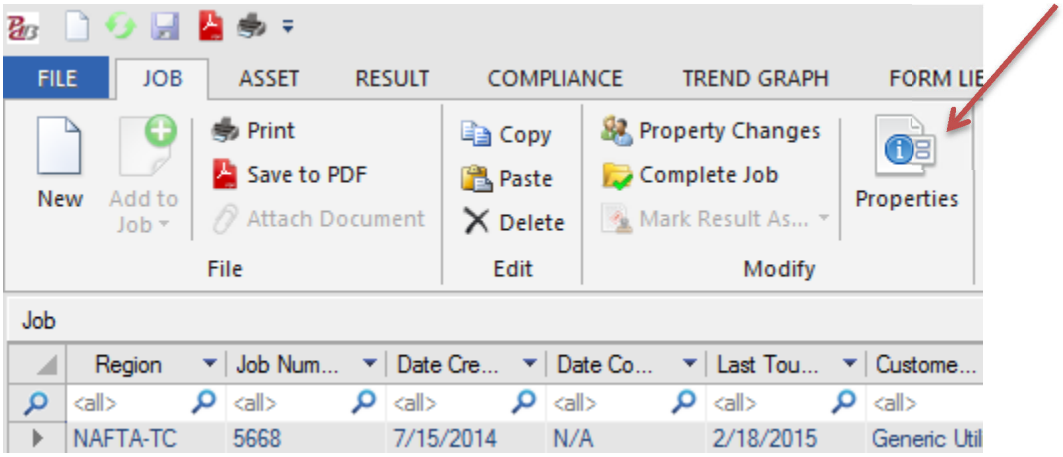
Local: This option will store the external document to a local directory on this computer. If the document gets deleted from this computer, the user will be unable to access the document. Other users of PowerDB will not be able to view this file, unless they also create the same folder on their PC and include a copy of the document in that location.

After selecting one of the options, clicking ‘OK’ will close the dialog and add the chosen document to the Job/Asset/Result originally selected.



2.6 Job Properties

The job properties dialog may be accessed at any time. Go to the **Job** tab. Ensure that the Job list is visible by selecting 'View Job List' button on the Ribbon Bar. To then access the Job Properties, select a row in the list and then select the 'Properties' button in the Ribbon Bar.



Please refer to section 2.2, for use of the Job Properties dialog.

NOTE: If the application style has been set to Asset Owner, the 'Owner' and 'Site' pages will be unavailable in the Job Properties dialog.

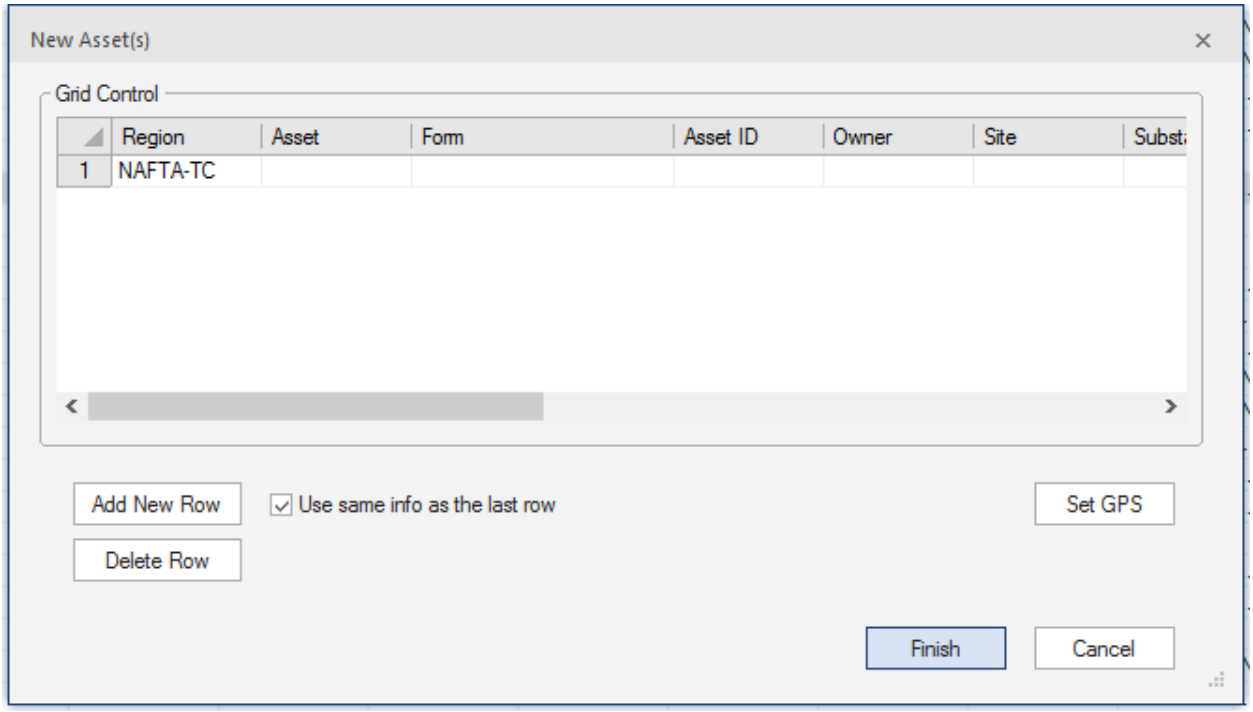
2.7 Copy/Paste Job

To copy a Job, select a Job from the Job List, then chose Copy/Paste Job from the right click menu. The duplicated job should be given a new job number under the General tab of the Job Properties dialog box. The duplicated job will be added to the Job List.

2.8 Asset Owner Jobless Style – Create New Asset

Jobless Style is only available if the overall Application Style is set to Asset Owner, Jobless Style is not available if Testing Company is set as the overall Application Style. To create a new asset in Jobless Style, go to **Asset>New**. A dialog will appear containing a grid with several columns. To add an asset, simply fill in the grid with information available making sure to give the new asset unique identifying details. If

adding more than one asset at a time, simply click the ‘Add New Row’ to add an additional row to the grid which must also be provided with information. Using this dialog, it is possible to quickly create similar assets by having checked the ‘Use same info as the last row” checkbox which will use the information already filled out for the last asset in the grid to create a copy of that asset. This feature is selected by default. Similarly if an asset is selected before clicking the ‘New’ asset button a dialog box with the option to use the selected asset as a template will appear. If this option is selected the asset will appear as a row loaded into the ‘New Asset Dialog’ previously mentioned. When done adding information, click the ‘Finish’ button to finish the process and add the asset(s). GPS coordinates can be added either manually or through the included GPS Locator tool explained in 2.2.1.



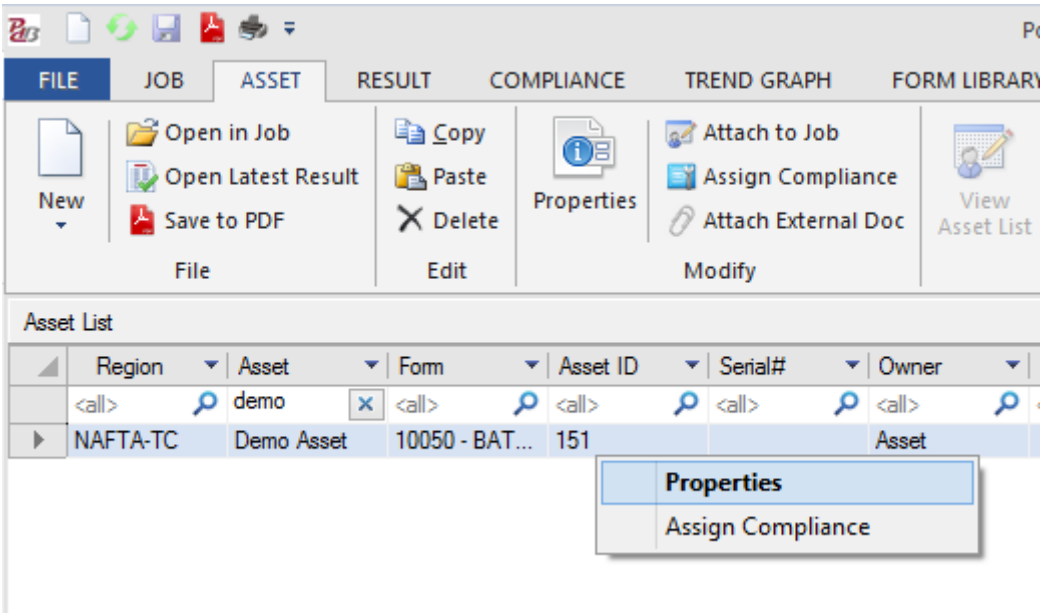
2.9 Asset Properties

To alter Asset Properties, utilize the Asset Properties dialog.

There are quite a few ways to access Asset Properties:

- Right-click an asset in the Job Tree and select the ‘Properties’ menu option.
- While selecting an asset in the Job Tree, click the ‘Properties’ button.
- Right-click an asset in the Asset Tree and select the ‘Properties’ menu option.
- While selecting an asset in the Asset Tree, click the ‘Properties’ button.
- Right-click a folder in the Asset Tree and select the ‘Properties’ menu option, this potentially selects multiple assets.
- Right-click an asset in the Asset List and select the ‘Properties’ menu option.

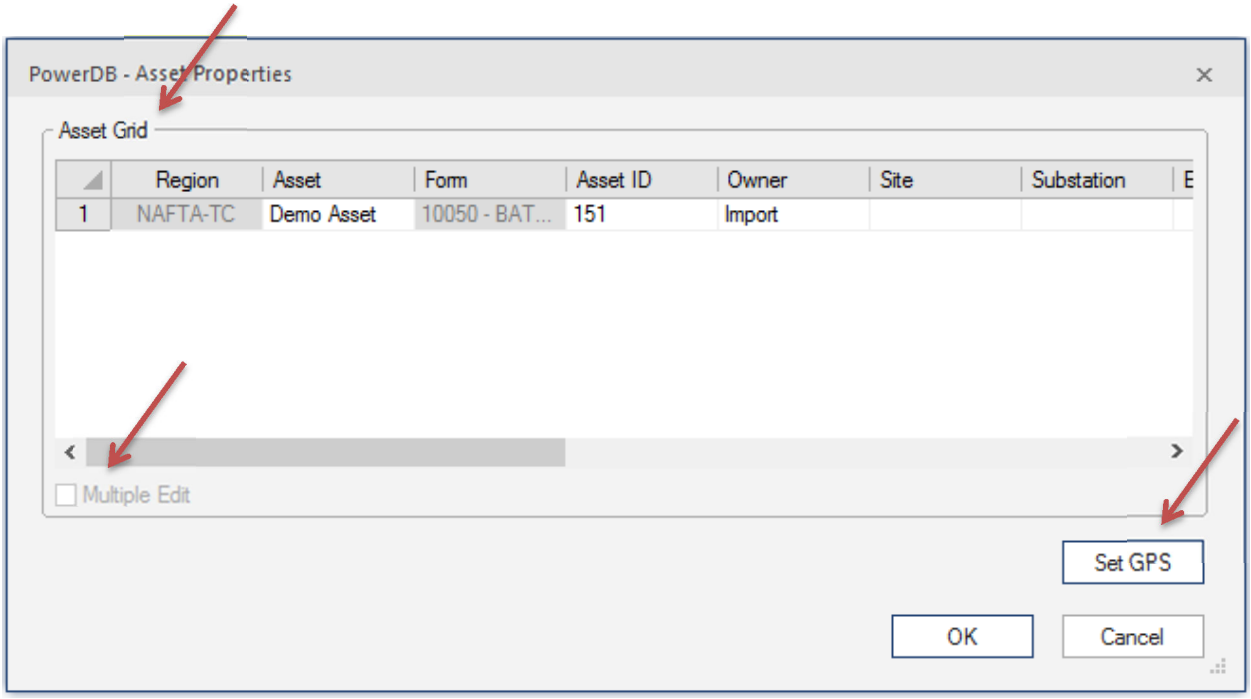
- While selecting an asset in the Asset List, click the ‘Properties’ button.



It is also possible to select multiple assets at once before selecting ‘Properties’ by using the ‘Ctrl’ key and clicking multiple assets. Note that this only works for the Asset List.

Once open, the Asset Properties dialog will present a grid containing the selected asset(s). If a folder was used to access the Asset Properties dialog, the grid will contain the assets directly underneath the folder.

It is possible to affect multiple assets in the grid simultaneously by using the ‘Multiple Edit’ checkbox. When checked, all assets except the first will grey out and become disabled. Any changes made to the first asset will be made to all other assets in the grid of the dialog. Un-checking the ‘Multiple Edit’ checkbox will re-enable the assets and keep any changes made during the multiple edit mode.

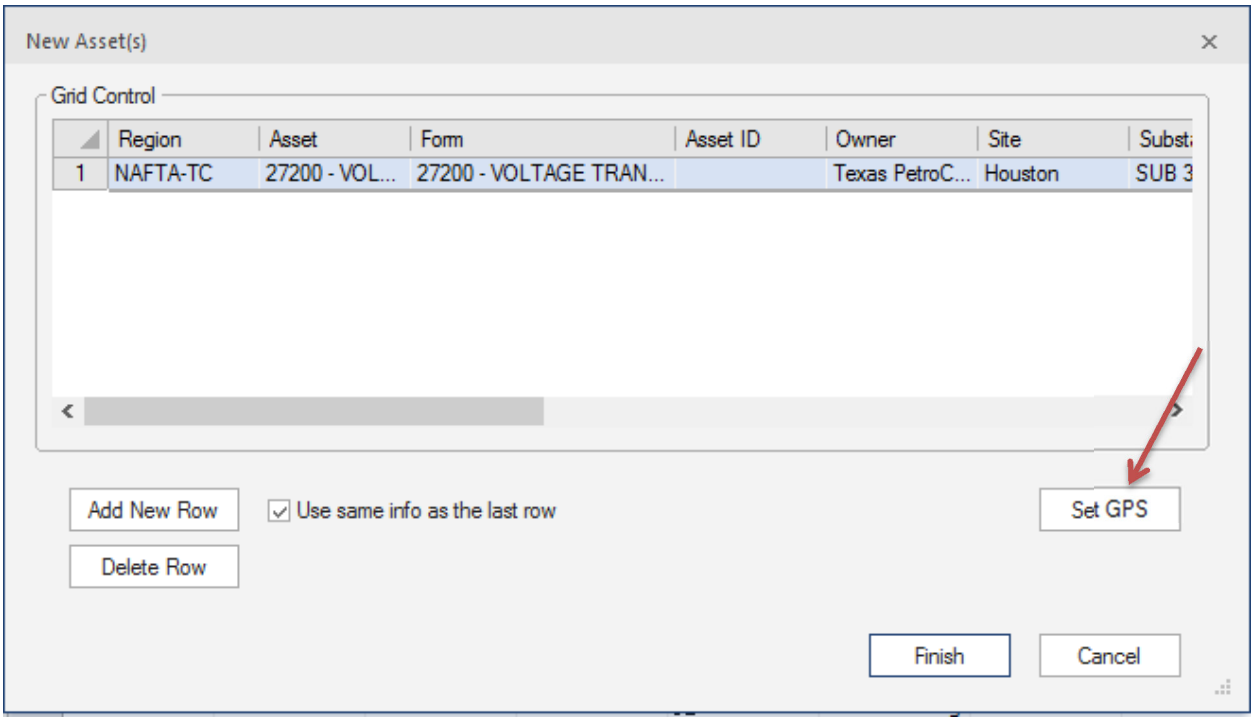


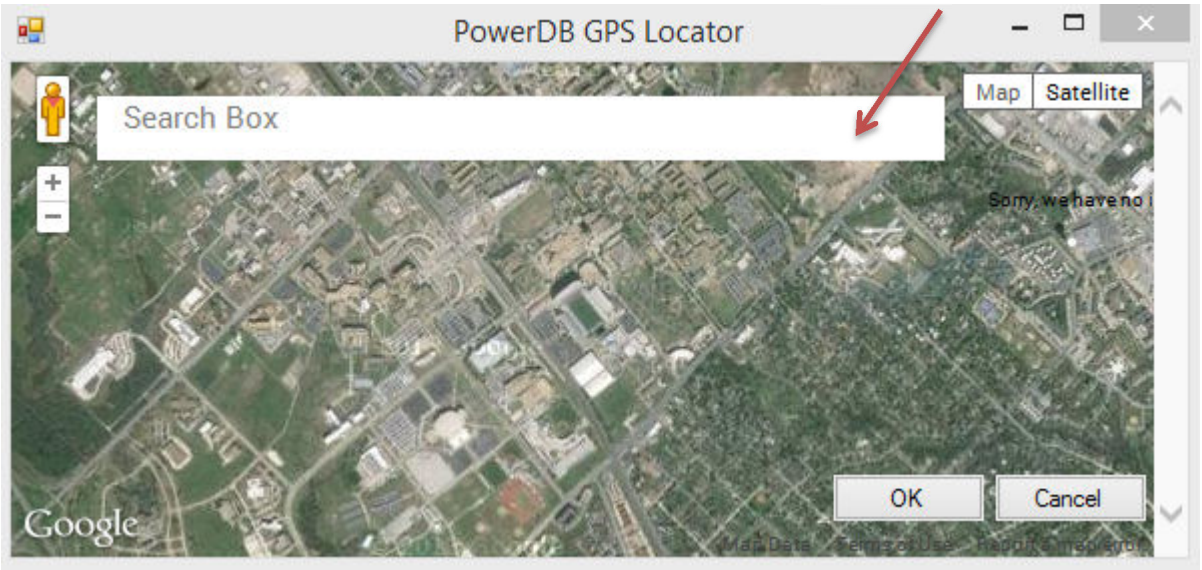
To easily input GPS coordinates, the GPS Locator tool can be accessed by clicking the 'Set GPS' button. See **Section 2.9.1 GPS Locator** for instructions on how to use the tool.

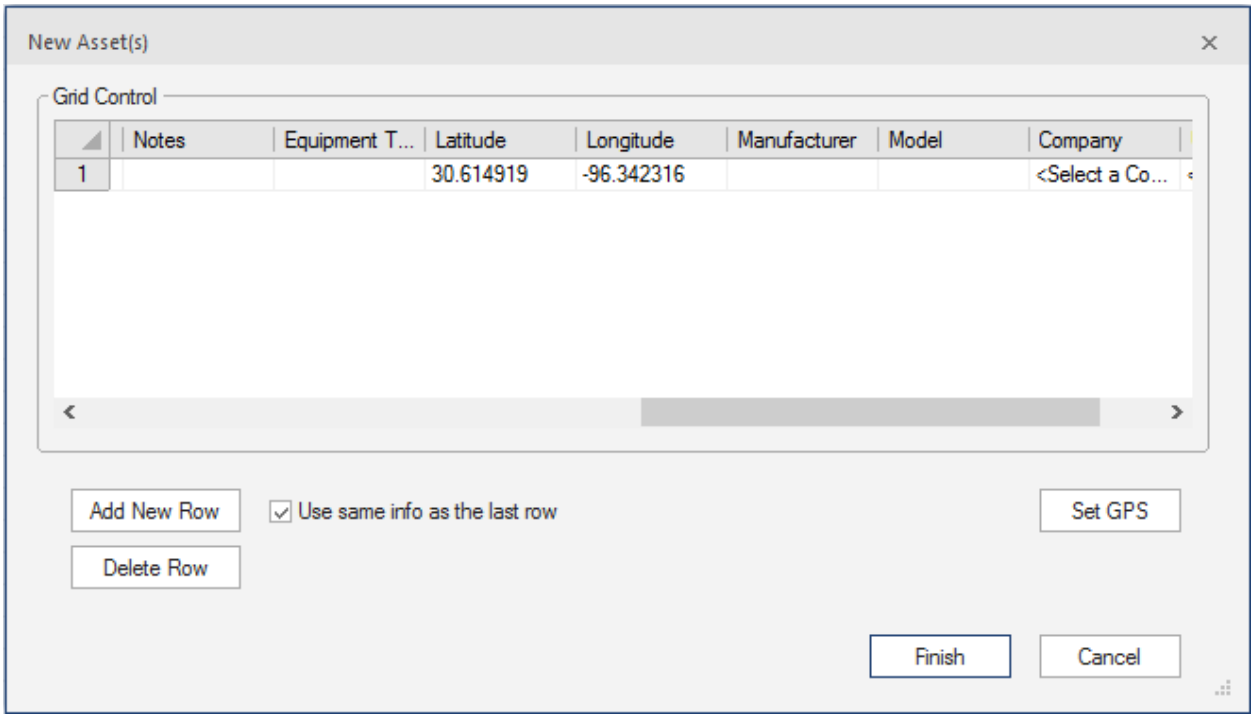
When done modifying properties, clicking 'OK' will apply the changes to the database. Alternatively, clicking 'Cancel' will prevent the changes made from being applied. Both cases will close the dialog window.

2.9.1 GPS Locator

When utilizing the New Asset dialog or the Asset Properties dialog, the GPS Locator tool can be opened by clicking the 'Set GPS' button while a row is selected in the dialog grid. This will open a dialog for easy application of GPS coordinates to the selected row(s). To apply the coordinates of a given address, simply type in the address into the search box and hit the Enter key when finished typing. The Locator will automatically navigate to the address. The process is finished and the coordinates applied upon clicking 'OK'.


New Asset(s)
Grid Control
Region
Asset
Form
Asset ID
Owner
Site
Subst
1
NAFTA-TC
27200 - VOL...
27200 - VOLTAGE TRAN...
Texas PetroC...
Houston
SUB 3
Add New Row
Use same info as the last row
Set GPS
Delete Row
Finish
Cancel


PowerDB GPS Locator
Search Box
Map
Satellite
Sorry, we have no i
OK
Cancel
Google



3 Recording Test Results

To store results to the database, test forms are opened and test results are entered into the test forms by manual data entry, data import, or data capture from a test instrument.

3.1 Recording Test Data

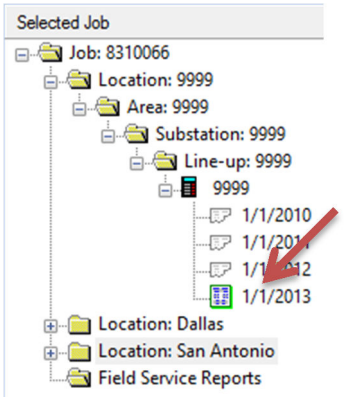
Test data can be manually entered into a form for each asset that is part of a Job or that has been added directly into the Asset List. This can be done by opening a Job and then double-clicking the asset in the tree, or by selecting the asset from the Asset List. If the asset has previously been tested, the most recently saved data will be loaded into the form. Clicking in or tabbing to a field will set focus to it so that the data may be changed. A checkbox or radio button state may be changed by clicking in the field or by pressing the space bar. A selection may be made in a dropdown box by clicking on the desired entry or by pressing the up and down arrow buttons to scroll through the possible options. The tab key will move the cursor to the next field in the tab order of the test form; shift-tab will go back to the previous field. The test form's fields can be quickly navigated by using the up and down arrow keys. Each form provides a field-testing data entry tab order. This can be changed to a left to right, top to bottom sequence or disabled at **Tools>Reading Data Entry Order** (see section 13.1.12 for more about Tab Order).

The data may be saved at any time by clicking the 'Save' button (or *Ctrl*+*S*).

3.1.1 Changing Previous Test Data

Each set of results for an asset is identified in the Job tree by a test date below the asset name. Data from a particular dated set of results test may be viewed by selecting the results and choosing 'Open'

from the right-click menu, or double-clicking the results. If the set of results is also from the Selected Job the test results may be modified.



The entire test history for an asset is shown in the tree. A full report form icon (the green icon above) indicates results from the Selected Job, while a partial report form icon (the grey torn icon) identifies those from other jobs or historical results. Any set of results can be opened from the Selected Job, but only results associated with the Selected Job or currently active results may be edited.

3.1.2 Flagging Problematic Test Values

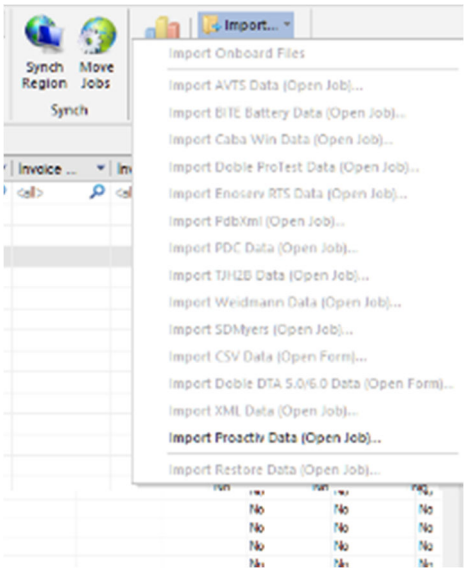
While entering data in a job, right-click on the problematic field's label and select "Toggle Flag as Error" option which will display and print the selected value in red.

3.2 Data Acquisition from Test Instruments

Data can be imported in from Test Instruments provided that the computer PowerDB is currently running on has a working connection with the test instrument, the form matching the instrument is available in the Form Library, and the import corresponding to the instrument is used. For more on importing from Test Instruments see the relevant section in Importing Test Data below.

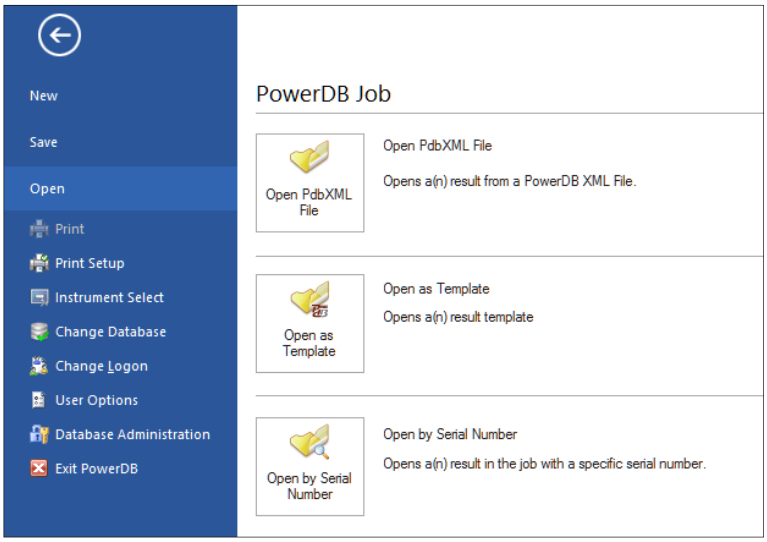
3.3 Importing Test Data

Data can be imported into PowerDB from various applications and sources. Import options are disabled if the conditions, noted in the parenthesis, for the import are not met.



3.3.1 Importing PowerDB Lite Results

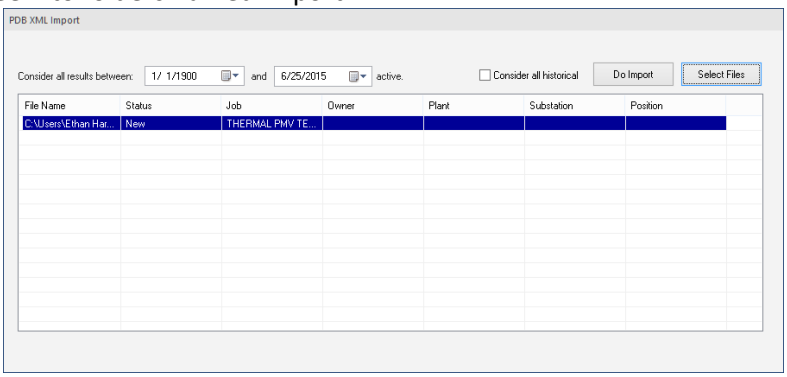
PowerDB Lite is a companion product to the full version of PowerDB. PowerDB Lite is a turnkey reporting tool provided with many of the Megger test instruments. Results saved in PowerDB Lite can be imported into PowerDB. To move Lite results into PowerDB, open the Job the results of the import should be brought into. Go to **File > Open > Open PdbXML File** and browse to and select the data file saved in Lite, then click the Open button.



Alternatively both Lite and Pro Results can be imported using the Import PDB XML interface found in the Import dropdown menu. The difference between the two is the PDB XML import allows multiple PdbXML files to be imported simultaneously and the Results imported are treated as part of the Job they are being imported into therefore are editable. Opening the files via the File option retains the Results original Job IDs so they are treated as read-only. Results can be imported as Historical either by checking the 'Consider all Historical' box or by excluding them using the active results time ranges.

If a location in the Job Tre is selected before Lite or Pro file is selected, the results will be added to that location in the tree. If location information is indicated in the imported file, the results will be added in

the Job Tree as defined in its original location. If no location information is present the results will be brought into the tree into folders named Import.



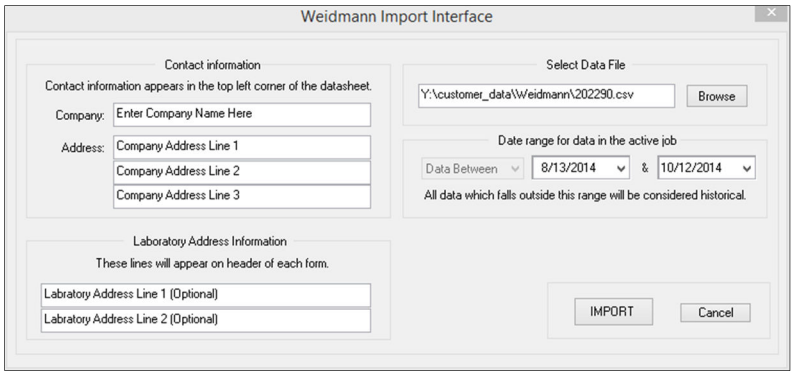
3.3.2 Importing PowerDB Onboard Results

PowerDB Onboard is a companion product that runs PowerDB Software on a computer inside certain Megger test instruments. Test results are transferred from the instrument with a standard USB drive and can be imported into PowerDB. Open the Job the results of the import should be brought into. Go to **File > Open > Open PdbXML File** and browse the USB drive directory to select the data file saved with Onboard, then click the Open button. If a location is selected in the Job Tree before the Onboard file is selected, the results will be added to that location in the tree. If location information is indicated in the Onboard file, the results will be added in the Job Tree as defined in Onboard. If no location information is present the results will be brought into the tree into folders named Import.

3.3.3 Oil Analysis Results

PowerDB will import result files from several oil analysis laboratories. For each of these imports described below simply open the job that the results should be imported into. From the menu select Import, and then select the appropriate data results.

3.3.3.1 Weidmann-ACTI Data

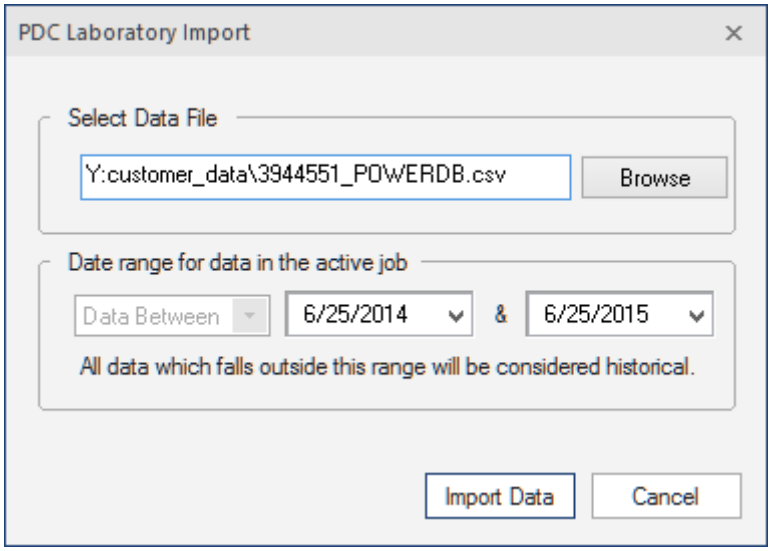


The Weidmann Import can be found in the Import dropdown menu. Once the import interface is open enter the address information in the left side of the dialog box. Click the Browse button and select the data file in .csv format provided by the laboratory. Complete the date range selections and click the Import button. PowerDB will automatically add the required number of test forms based on the number of results sets contained in the data file. Header and results data will be populated to each test form.

Job tree hierarchy such as Substation and Position are not part of the data file. The first time results are imported into PowerDB all will be saved to the tree in a folder named Import. The designation can be

changed by renaming the Import folder, moving the assets in the Asset Tree or by opening the results sets and entering the appropriate asset location in the form header fields. Subsequent imports of results for assets will match automatically based on the asset serial number and associate new results with results already stored in the database.

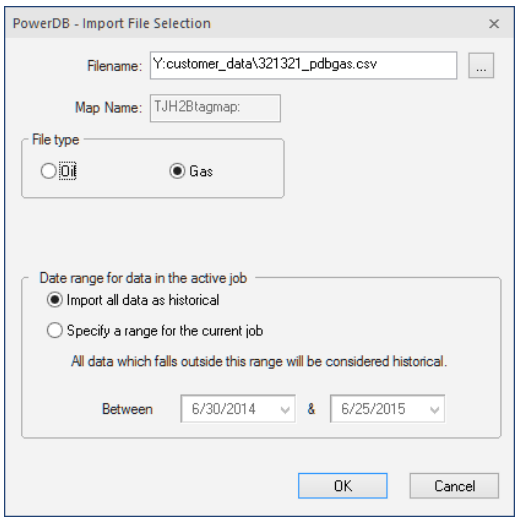
3.3.3.2 PDC Data



The PDC Import can be found in the Import dropdown menu. Once the interface is open, click the Browse button and select the data file in .csv format provided by the laboratory. Complete the date range selections and click the Import button. PowerDB will automatically add the required number of test forms based on the number of results sets contained in the data file. Header and results data will be populated to each test form.

Job tree hierarchy such as Substation and Position are not part of the data file. The first time results are imported into PowerDB all will be saved to the tree in a folder named Import. The designation can be changed by renaming the Import folder, moving the assets in the Asset Tree or by opening the results sets and entering the appropriate asset location in the form header fields. Subsequent imports of results for assets will match based on the asset serial number and associate additional results with results already stored in the database.

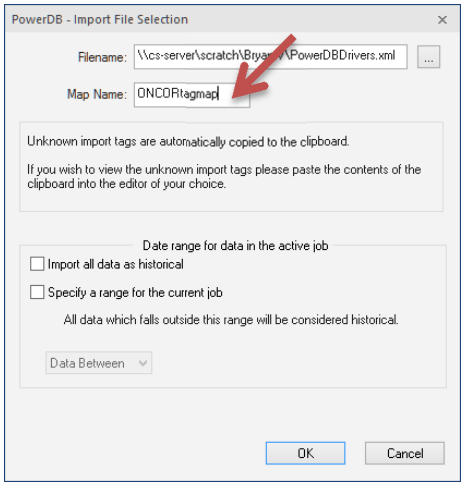
3.3.3.3 TJH2b Data



The import interface can be found in the Import drop down menu. Click on the Browse button and select the data file to import. Select the appropriate File Type radio button as to Oil or Gas. Complete the date range selections and click the Import button. PowerDB will automatically add the required number of test forms based on the number of results sets contained in the data file. Header and results data will be populated to each test form.

Job tree hierarchy such as Substation and Position are not part of the data file. The first time results are imported into PowerDB all will be saved to the tree in a folder named Import. The designation can be changed by renaming the Import folder, moving the assets in the Asset Tree or by opening the results sets and entering the appropriate asset location in the form header fields. Subsequent imports of results for assets will match based on the asset serial number and associate new results with results already stored in the database.

3.3.3.4 Oncor Data

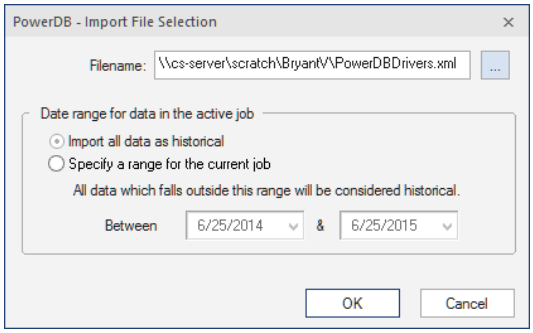


The import interface can be found in the Import dropdown menu labeled as Import XML Data. Click on the Browse button and select the data file to import. Complete the date range selections and click the Import button. The Map Name needs to be entered as “ONCORtagmap:” in order for the Import to

recognize the data is provided by Oncor. PowerDB will automatically add the required number of test forms based on the number of results sets contained in the data file. Header and results data will be populated to each test form.

Job tree hierarchy such as Substation and Position are not part of the data file. The first time results are imported into PowerDB all will be saved to the tree in a folder named Import. The designation can be changed by renaming the Import folder, moving the assets in the Asset Tree or by opening the results sets and entering the appropriate asset location in the form header fields. Subsequent imports of results for assets will match based on the asset serial number and associate new results with results already stored in the database.

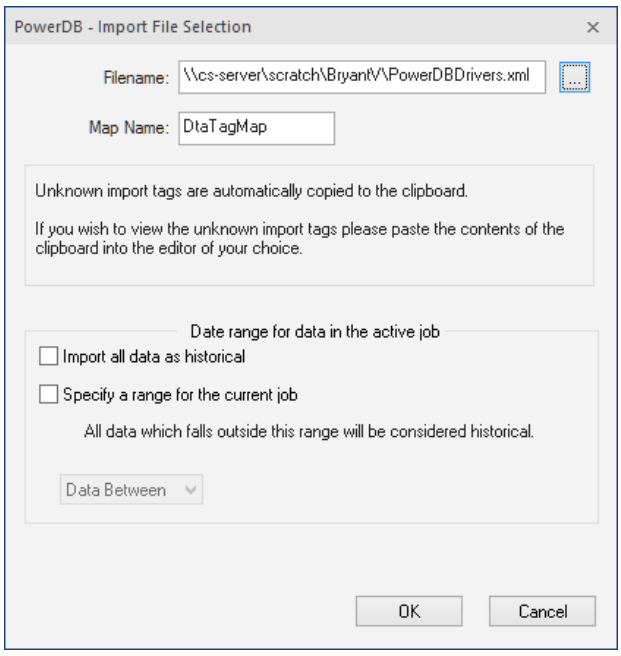
3.3.3.5 SD Myers Laboratory Data Import



An automated import of laboratory data provided by SD Myers is available in PowerDB Pro. Form 57956 must be in the database before the first import of data. Open a Job and begin the process by left clicking the **Import > Import SDMyers**. Select the appropriate .xml data file in the file selection window by left clicking the '…' button. Indicate if results are to be imported as all historical or specify a range for current results. Click the Open button, confirm the selections, and then click the OK button.

The designation can be changed by renaming the Import folder, moving the assets in the Asset Tree or by opening the results sets and entering the appropriate asset location in the form header fields. Subsequent imports of results for assets will match based on the asset serial number and associate new results with results already stored in the database.

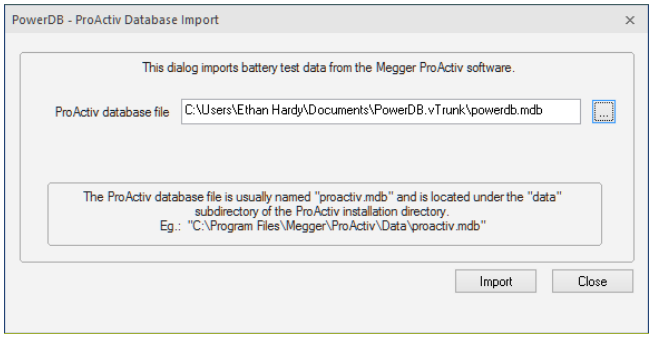
3.3.4 Doble DTA



To import Doble DTA results into PowerDB the appropriate test form must first opened in the job. From the Options panel select **Import > Import Doble DTA 5.0/6.0 Data**. Browse to the appropriate DTA data .xml file, specify the date range selections and click the OK button. All specified results sets for the asset will be imported.

3.3.5 ProActiv

PowerDB is designed to be a replacement for ProActiv. The intended interface between these two software applications is to import all results from the ProActiv database file into PowerDB and then to stop using ProActiv going forward.



To launch the ProActiv import select **Import > Import ProActiv Data** from PowerDB Options panel. This must be done while viewing the Job listing. Browse to the ProActiv file and click Import. The imported ProActiv data can be viewed in the Asset Tree. The results may be relocated in the Asset Tree using the right-click menu 'Move Assets' option. The results may also associated with a Job by stepping through the Add to Job wizard and selecting the folder names associated with the ProActiv results.

After the ProActiv database is imported once, new battery test results gathered with the Megger Bite 2 or Bite 3 should be brought into PowerDB following steps described in Sections 3.3.6 and 3.3.7 below.

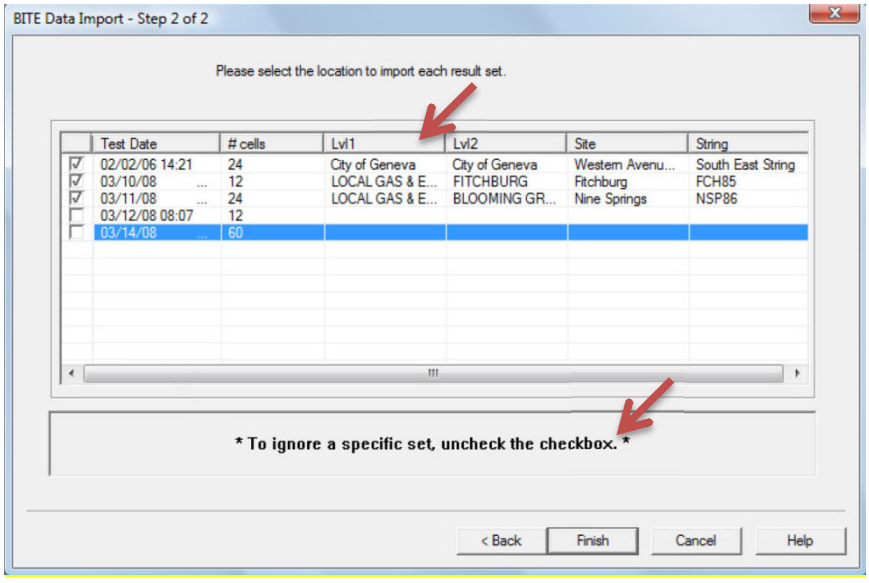
3.3.6 BITE 2, MBITE and EBITE

Open the Job in PowerDB that the test results should be brought into. Add form 10750 to the Job at the desired Position. Step through the Instrument Setup procedures described in Section 4.10 specifying the Battery Tester and model identified above. There are two methods to load BITE 2 data into PowerDB.

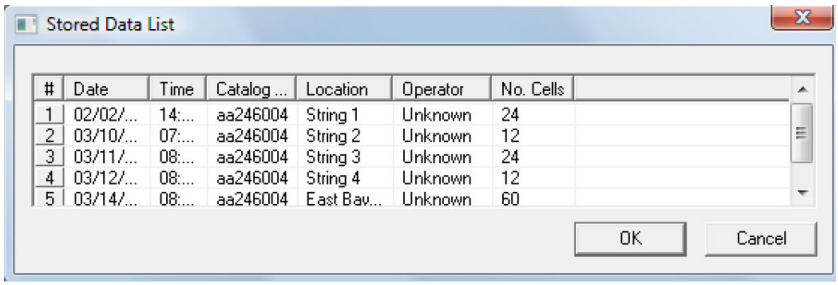
Method 1: From the Options Panel select **Import > Import BITE Battery Data**. This will trigger the BITE Data Import Wizard.



Once the BITE Data Import – Step 2 of 2 dialog appears, each set of results downloaded can be selected with a checkbox. For each set of results, the four org level (Lvl1, Lvl2, Site and String as shown below) columns should be populated in order to import the results into the desired asset location in the Job tree.

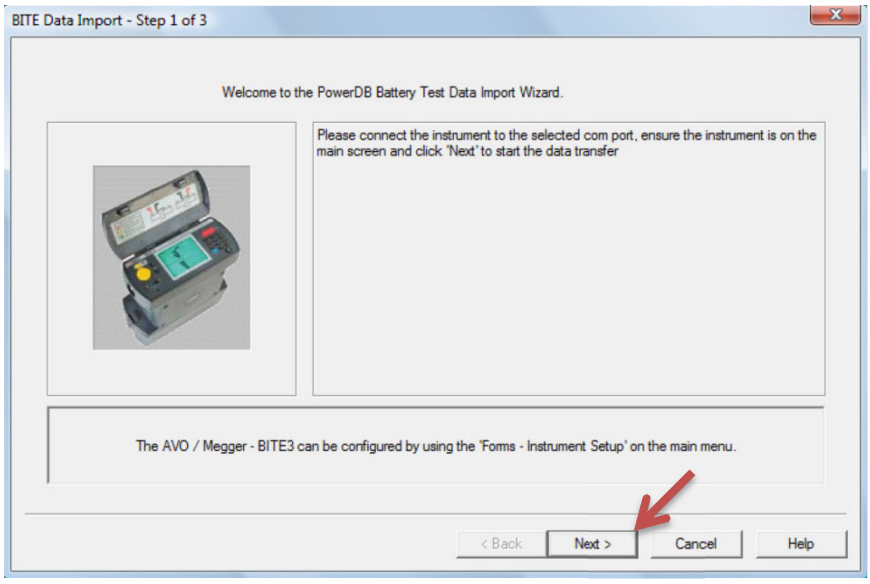


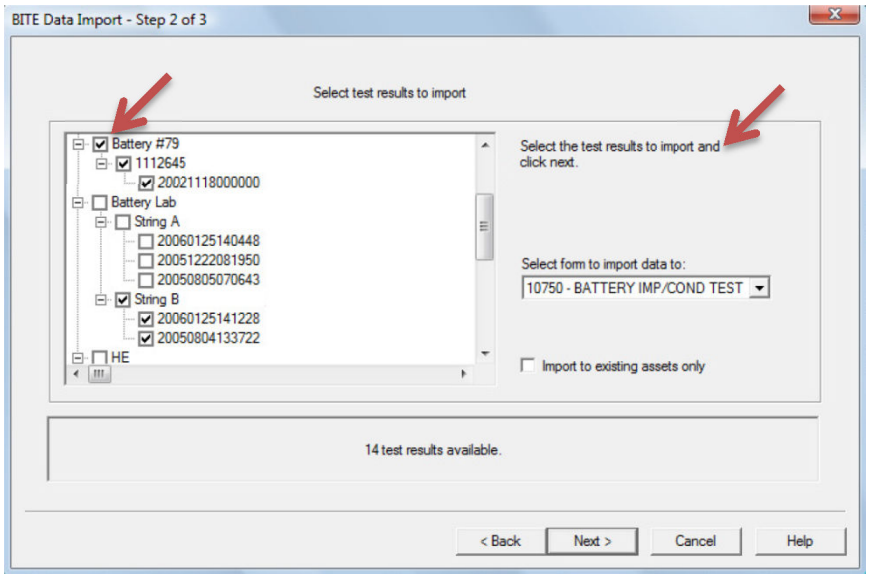
Method 2: To load result sets individually, add and open form 10750 in a job at the desired location. From the right-click menu on the test form select 'Load BITE II Data'. Select the appropriate file from the Stored Data List dialog and click OK. The selected result will populate directly into the open test form. Note that any data currently in the test form may be overwritten using Method 2.

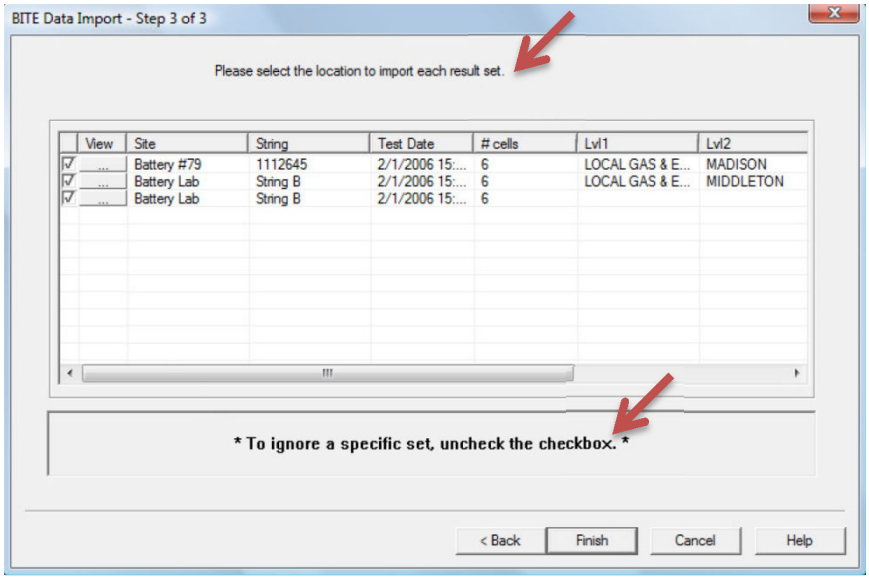


3.3.7 BITE3

Open the Job in PowerDB that the test results should be brought into. Tree levels or forms do not need to be created in the job using the Add to Job Wizard. These will be handled via the import process. Step through the Instrument Setup procedures described in Section 3.3.6 specifying the Battery Tester and model identified above. From the Options panel select **Import > Import BITE Battery Data**.
This will trigger the BITE Data Import Wizard. In Step 3 of the wizard the window may need to be scrolled to the right to complete all location selections.







3.3.8 AVTS

To import AVTS data simply have the job open that is the destination for the results of the import. From the Options panel select **Import > Import AVTS Data**. Browse to select the appropriate AVTS database file. The results may be filtered by date. If results for multiple users are in a single database a holding Job may be created to import results into and then move results to the appropriate Job(s). Subsequent AVTS imports to PowerDB will match results based on the asset name and folder level names from the AVTS database.

The following are also part of the AVTS Import:

- **Asset Category Flags**: This specifies particular AVTS yes/no settings as asset category flags. These flags, such as one used to classify an asset for NERC audits, will be set for PowerDB assets but will not be cleared. To clear a flag it must be set to “no” in AVTS and then unchecked in the PowerDB asset properties screen.

- **Asset Attributes**: Import of AVTS string settings as attributes to be associated with the asset in PowerDB. The attribute names could be then queried for custom reporting.
- **Unique Asset Identifier**: This allows using the AVTS Barcode ID as the unique Asset ID in PowerDB. There is also an option for managing the tree location for these assets in PowerDB; i.e., if an asset is moved in AVTS then the move will be mirrored in PowerDB.
- **Evaluate All Settings**: Imports asset category flags and asset attributes regardless of test date. If unchecked only AVTS settings for assets that were tested in the specified date range are evaluated for import. Note this will still be limited to assets by 'Match Folders'.
- **Match Folders**: This filter limits the import to AVTS assets matching particular folder names. The highest AVTS folder value is specified in the leftmost box. Not all values need to be used. A second, third, or fourth level value can be specified while leaving higher levels empty.

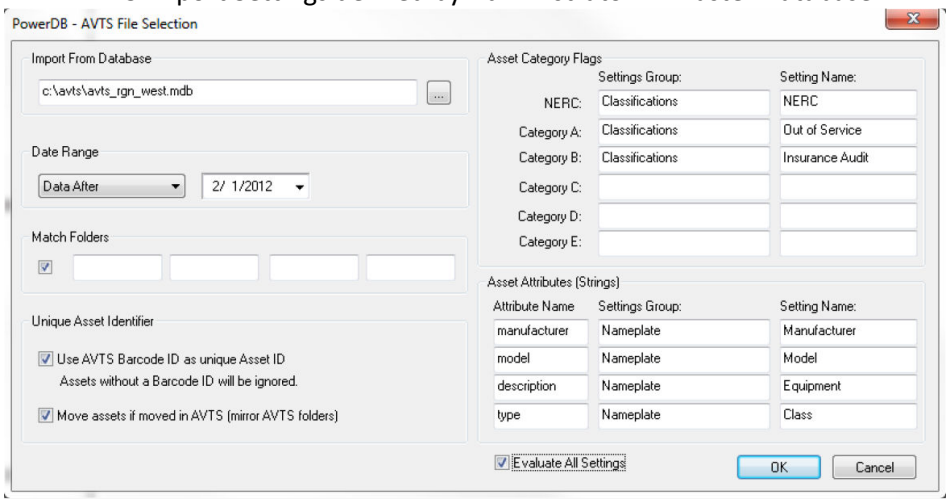
The following values are administrative settings for the AVTS Import and can only be defined by an administrator in the master database:

- Unique Asset Identifier
- Asset Category Flags
- Asset Attribute Strings

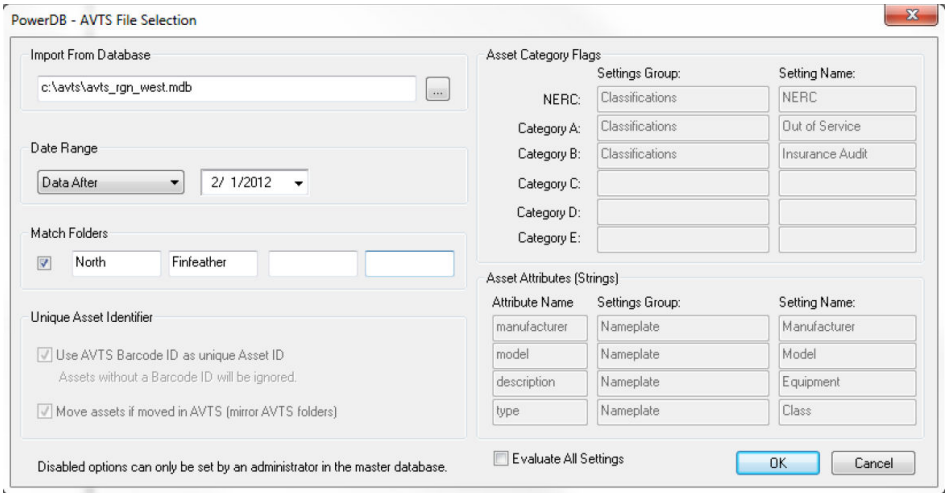
When running an AVTS import in a field database or without administrator privileges these sections are read-only.

To set the administrative AVTS Import settings, access the window shown below by logging into a master database with an administrator level user account. Open a Job and select **File > Import > Import AVTS Data**. Select the AVTS database file and specify a date range (a future date is fine for the purpose of configuring these settings). Fill unique asset identifier, asset category flags, and asset attribute values that will be used. Press OK. This will configure the AVTS import administrative settings.

AVTS Import Settings defined by Administrator in Master Database



AVTS Import in Field Database



4 Data Management

4.1 Asset Tree Right-Click Menu

To view the Asset Tree, click on **Asset>View Asset Tree**. The right-click menu in the Asset Tree allows the management of data with a variety of options. Use the cursor to expand the folders. When an asset is selected, a single right-click will bring up the following list of options:

- **Open**
  Click 'Open' to open the selected asset results. When selected, the form is brought up.
- **Address**
  Click 'Address' to view the address book.
- **Delete**
  Click 'Delete' to permanently delete the selected asset from the database (dependent on user account login). Once selected, a prompt will appear confirming the desire to permanently delete the record or not.
- **Rename**
  Allows the name of the item selected to be edited. Clicking off of the name will save the changes made during the renaming process. Can also be used to move assets to a new tree location.
- **Expand All**
  Expands the folder contents to the Asset level or to Data Sets level.
- **Collapse All**
  Collapses the folder contents.
- **Find Serial # or Asset ID**
  Performs a search of the Asset Tree for data sets through input serial number or Asset ID.
- **Move Assets**
  Allows moving of the selected asset to another location in the tree. A dialog box will appear, prompting where to move the selected asset to.

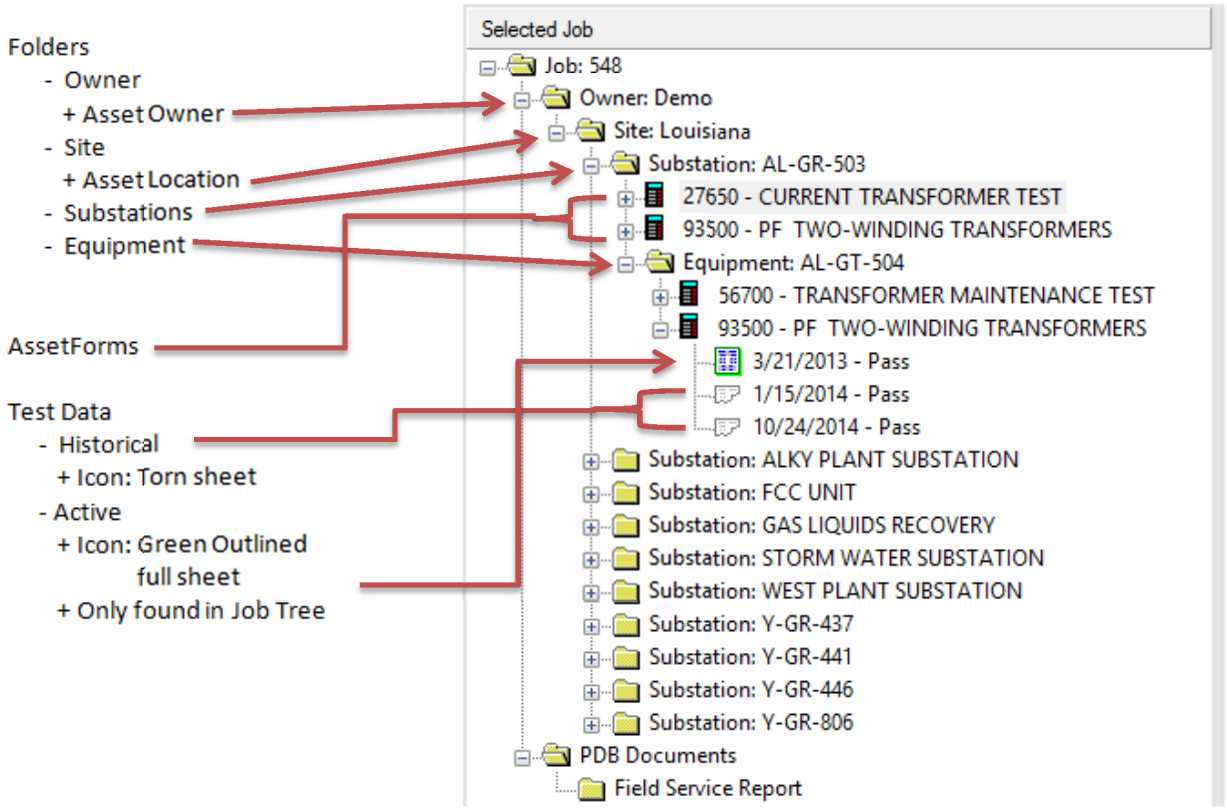
- **Attach External Document**
  Allows attachment of a document to the asset form. See **Section 2.5 Attach External Documents** for more information.
- **Print Results**
  Prints results associated with the asset, selected from the print results dialog.
- **Maintenance Report**
  The maintenance report is used to set a timeframe that repeat maintenance is schedule to be performed in and display only those assets that fall within that maintenance time period.
- **Select Different Form**
  Allows a different form to be used in future data sets of the selected asset, but will keep data association with current results. Historical results will be reported in their original form definition.
- **Print Asset Tree**
  Will begin the printing process for the selected Asset.
- **View Outside Relay Changes**
  Displays changes made by other users.
- **Properties**
  Gives information related to the selected asset for viewing and editing. See **Section 2.9 Asset Properties** for more information
- **Assign Compliance**
  Assigns compliance categories to selected asset. Refer to Section 5.5 for further instructions.

- **Cut Results**
  Will copy selected results to be moved to another place in the tree.
- **Paste Results**
  Will paste copied results to the selected place in the tree.
- **Attach Assets to Current Job**
  If the job currently opened matches the folder level properties of the selected area of the Asset Tree, assets and results can be added to the open Job Tree.
- **Open in Job**
  Opens selected asset in the Job Tree view.
- **Move to Region**
  Assets may be associated with a different region. This change will not affect related addresses or jobs.
- **Point in Tree Download**
  Publishes assets and results to a field database.

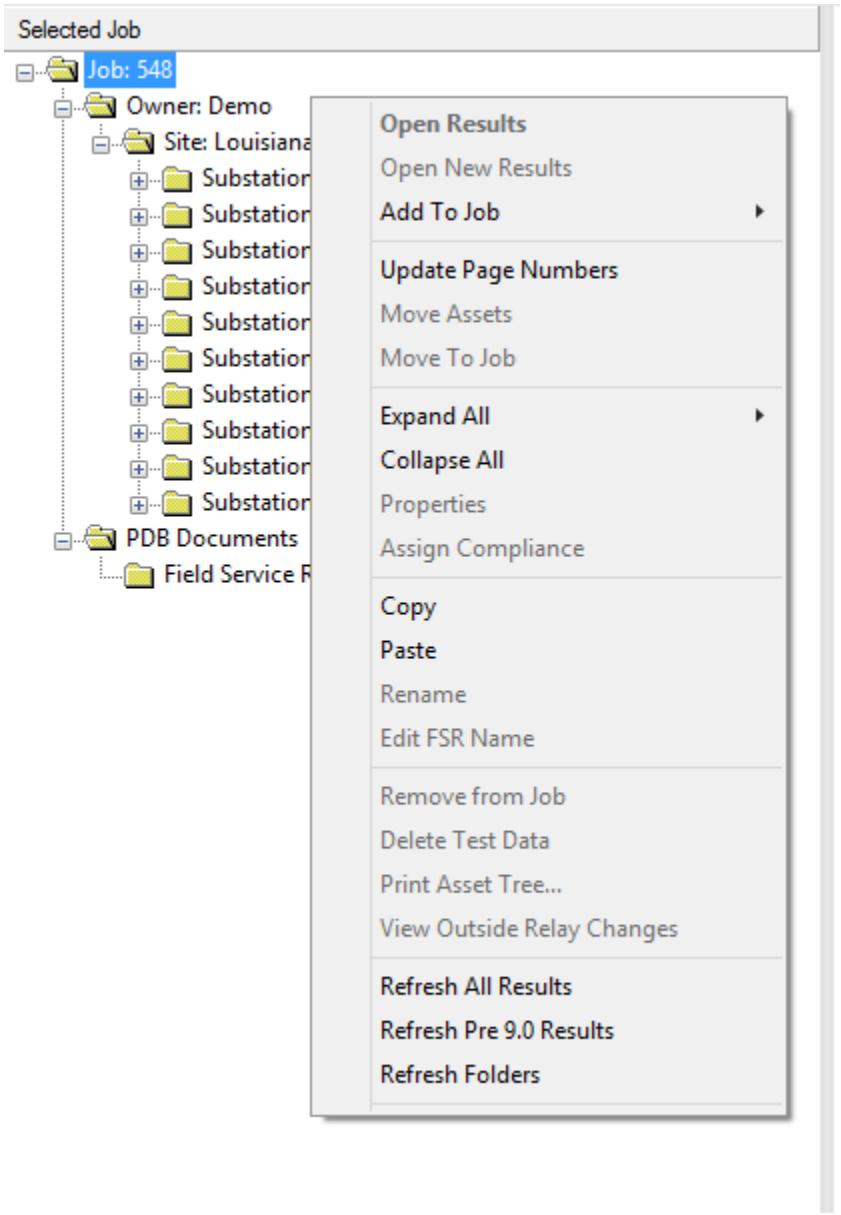
4.2 Job Tree Right-Click Menu

The Job Tree can be displayed by double clicking a job on the Job List, or by selecting a Job and choosing 'Open' from the right-click menu. The Job Tree should describe the equipment location and identifying name. All subfolders may be expanded in the Job Tree by selecting Expand All from the right click menu, or expand one-by-one by pressing individual plus signs (+). The Job Tree will always show any Field Service Reports, located inside the PDB Documents Folder, associated with the Job.

The following image identifies the Job Tree hierarchy.



The right-click menu in the Job Tree allows users to manage data with a variety of options. When a Job is selected a single right-click will bring up the following list of options:



Open Results
Click “Open Results” to open the data results. This is active following right-click on a test form.

Open New Results
Click Open New Results to push existing data results to history and open a new set of results for the same asset, pre-populating fields flagged as Nameplate or Copy History. This is active following right-click on a test form.

Add to Job
Opens menu with the options to add a Field Service Report, Maintenance Report, Cover Page, Cover Letter, External Document or to add test forms via the Add to Job Wizard.

Update Page Numbers

To be used after sorting and pagination has been set through Print Job Results to refresh page numbers for new data sets or changes.

Move Assets
Allows moving of the selected asset to another location in the tree. A dialog box will appear, prompting where to move the selected asset to. This menu item is only enabled when navigating the Asset Tree.

Move to Job
Will move the select results to a different Job.

Expand All
Expands all folder contents in the job tree.

Collapse All
Collapses all folder contents in the job tree.

Properties
Selecting "Properties" gives the user information such as description, location, form number, and attributes for the asset. Allows asset folder levels to be edited in order to relocate an asset.

Assign Compliance
Will open the Assign Compliance box providing this option has been enabled. Refer to Section 5 for more information on Compliance.

Copy
Will copy the tree structure at any tree level below Level 2.

Paste
Will paste the tree structure at any tree level below Level 2. The pasted information will be followed by '(2)' at the highest pasted level.

Rename
When selected allows the name to be edited. Clicking off of the name will save the changes made when renaming.

Edit FSR Name
Edit a Field Service Report Name.

Remove from Job
This will remove the selected asset from the tree. This will not delete the asset or its historical results from the database. If there are active results in the open job, these will be deleted.

Delete Test Data
Selecting this will permanently remove results from the database.

Print Asset Tree
Will begin the printing process for the selected Asset.

View Outside Relay Changes
Displays changes made by other users.

Refresh all results
Opens and resaves all results sets.

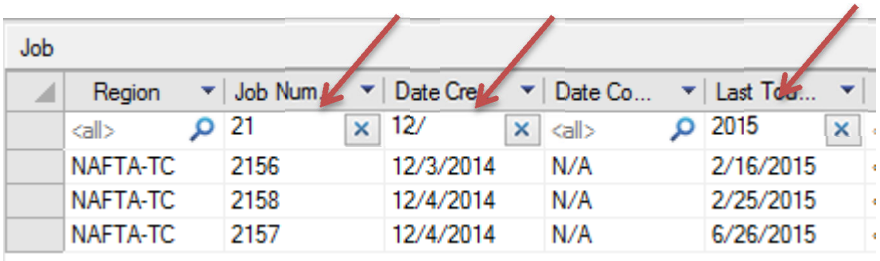
Refresh Pre 9.0 Results
Updates and resaves all results sets previous to 9.0.

Refresh Folders
Restructures tree to reflect all results to the User and Plant as specified by Job Properties.

4.3 List Filtering

Available for the Job, Asset, and Result lists.

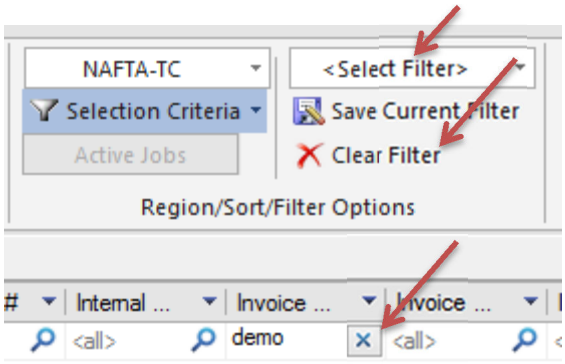
Using the fields available at the top of each column, it is possible to narrow down the displayed items by "filtering" the list. By typing into the blank fields along the top of the lists, the list will be limited to displaying only the items that contain the text entered in the column. This makes it quick and easy to find specific jobs, assets, or results.



To quickly remove a filter from a column, simply click the 'X' button that has appeared next to the filter. This will clear that column of its filter.

To quickly remove all filters from all columns, click the 'Clear Filter' button.

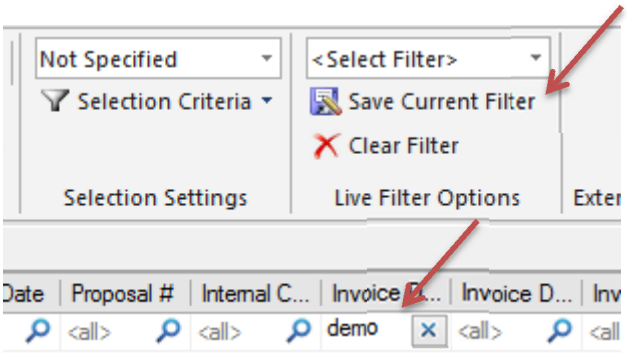
If wishing to switch between stored filters, select from the '<Select Filter>' dropdown style menu.



4.3.1 Saving and Deleting Filters

It is possible to save the currently applied filter for future use. Saved filters will be available until deleted.

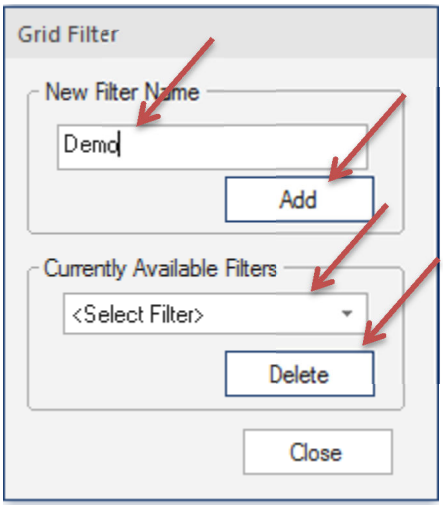
To save the currently applied filter, click the 'Save Current Filter' button while a filter is applied.



Doing this will open the Save Filter dialog. This dialog allows both Saving and Deleting of stored filters.

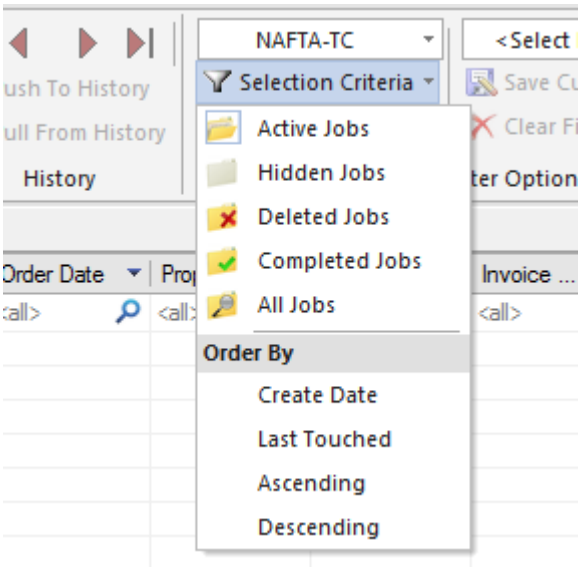
To save the current filter, enter a new filter name and click 'Add'. This will close the dialog.

To delete a stored filter, select a filter from the Currently Available Filters and click 'Delete'.



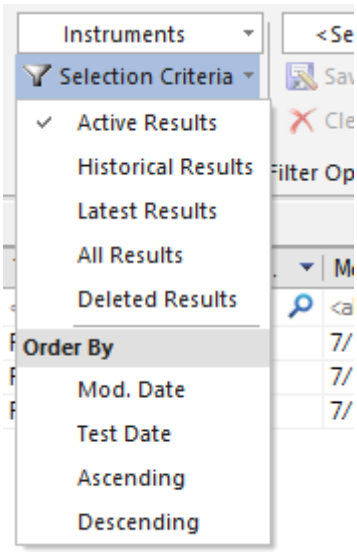
4.4 Selection Criteria

There are times when the database contains large amounts of data. The amount of Jobs and/or Results displayed can be reduced by applying Selection Criteria to the list(s). There are different possible criteria for the Jobs and Results Lists.



For the Job List, the Selection Criteria are as follows:

- **Active Jobs**
  Selecting 'Active Jobs' will display only active jobs.
- **Hidden Jobs**
  Selecting 'Hidden Jobs' will display only hidden jobs.
- **Deleted Jobs**
  Selecting 'Deleted Jobs' will display only deleted jobs.
- **Completed Jobs**
  Selecting 'Completed Jobs' will display only completed jobs.
- **All Jobs**
  Will remove any previously selected criteria and display all jobs.
- **Create Date**
  Will sort the displayed jobs in order of their creation dates.
- **Last Touched**
  Will sort the displayed jobs in order of when changes were last made.
- **Ascending**
- **Descending**



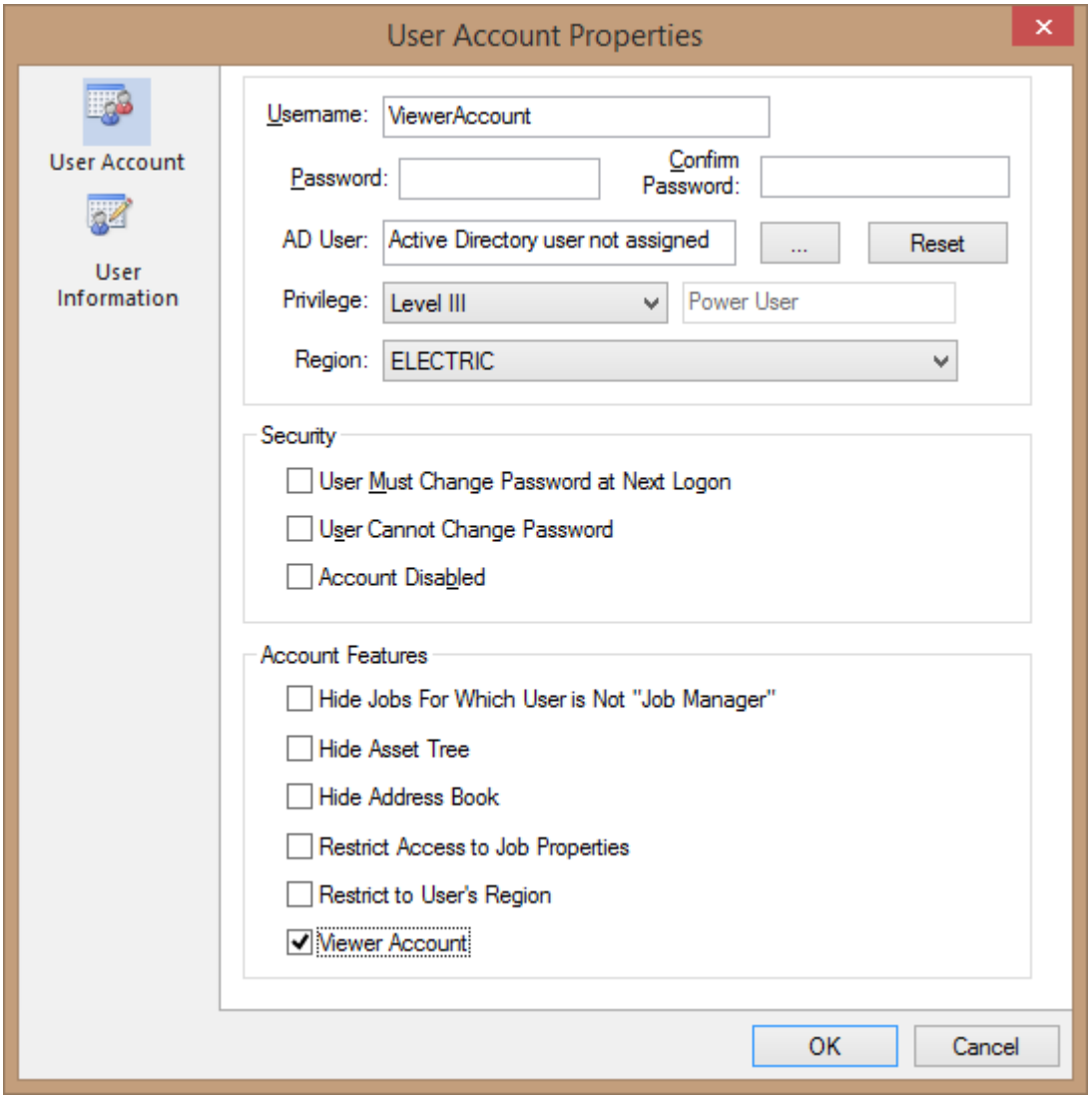
For the Result List, the selection criteria are as follows:

- **Active Results**
  Selecting 'Active Results' will display only results that are active and not pushed to history or deleted.
- **Historical Results**
  Selecting 'Historical Results' will display only results that have been pushed to history.
- **Latest Results**
  Selecting 'Latest Results' will display both historical and active results.
- **All Results**
  Selecting 'All Results' will display historical, deleted and active results.
- **Deleted Results**
  Selecting 'Deleted Results' will display only results that have been deleted.
- **Mod. Date**
  Will sort the displayed results in order of their modification dates.
- **Test Date**
  Will sort the displayed results in order of their test date.
- **Ascending**
- **Descending**

4.5 Viewer Databases and Accounts

This feature creates a Viewer Database for a specific Viewer Account, and then allows particular jobs to be copied to it. It can be used to prepare a database to deliver to a customer for their records. Or it can be used to allow customers, with instruction and permission, to retrieve specific jobs from the master database via a limited synchronization. When a user logs in to a Viewer database PowerDB will always run in Reader mode only. To utilize this feature follow the steps below. Log in to PowerDB as an

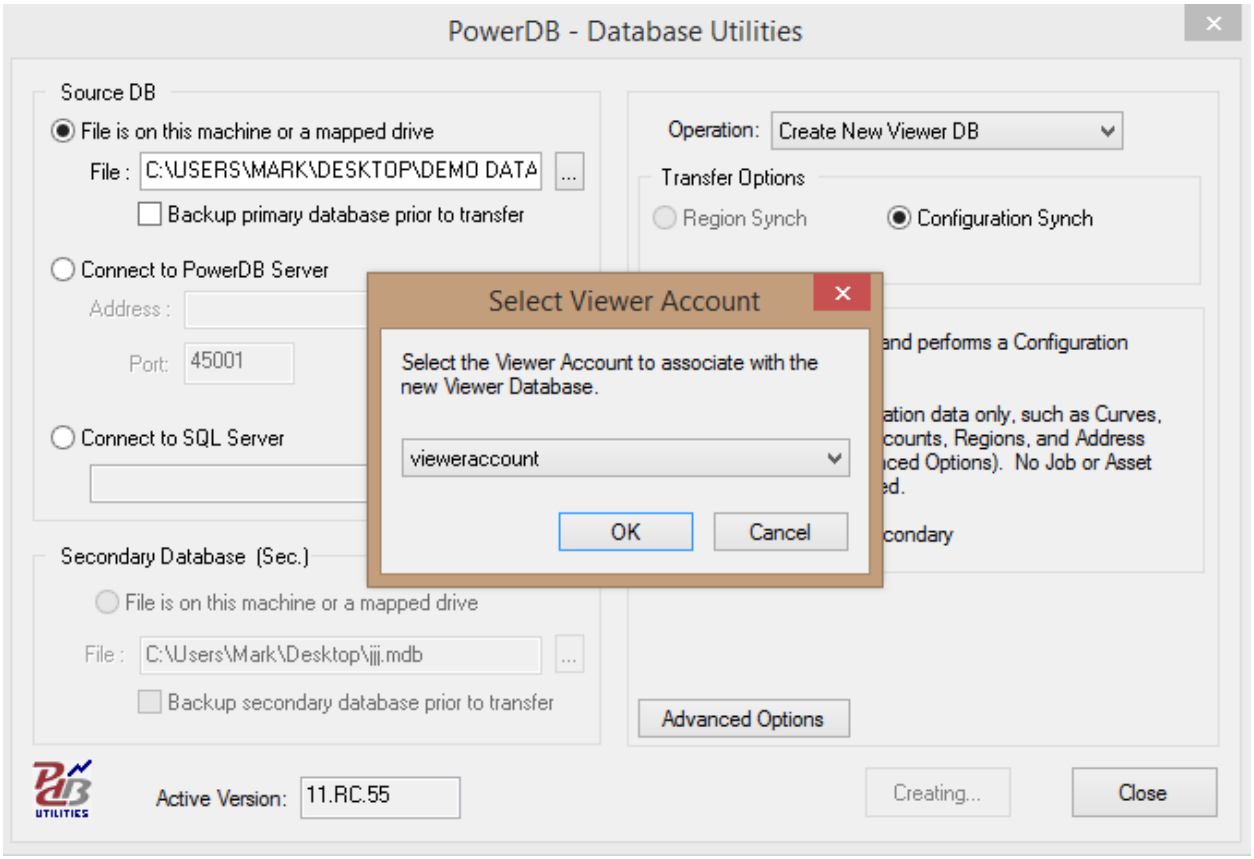
administrator level user. Under *User Accounts* tab, select a region, create a new user account. Set the username and password. Set the privilege level to Level III – Power User. Check the Viewer Account checkbox. Upload User Accounts if this step is done in a field or development database.



screen

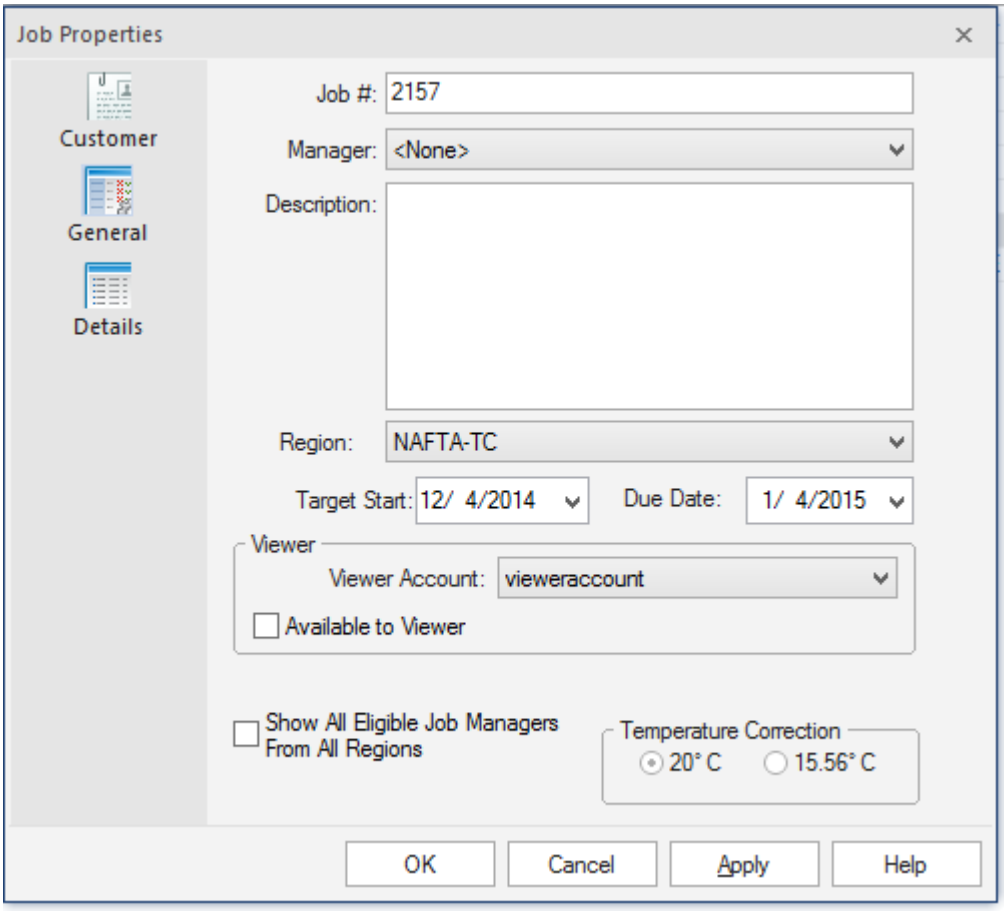
Create a Viewer Database at *File > New > New Viewer DB*. After pressing Create DB, a prompt will appear asking for

- Database name and type to create
- Login credentials for synchronization
- Viewer User Account to put into the Viewer Database



At this point the Viewer Database will only contain this single user account (no jobs, no assets, and no addresses).

To associate a job with a Viewer Account go to Job Properties for a particular job. A job may be associated with a single Viewer Account by selecting the account from the Viewer Account dropdown. For a Viewer Account to be able to retrieve a particular job, the account must be associated with the job ***and*** the job must be set as 'Available to Viewer'.



Job to Viewer Account associations can be reviewed at the *Tools* > *Viewer Accounts* menu.

4.6 Regions

Regions may be set for the Job List and Address Book at Tools > Database Administration > Database Options. Jobs are assigned to a Region through Job Properties. Addresses are assigned to a Region in the address book. Regions designations are critical to Synchronization processes described at Section 6.

4.7 Intelligent Import

When importing forms into the Form Editor, using 'Intelligent Import' will automatically use the most recent sub-forms when they begin with "INST_" and automatically skip the following sub-forms:

- Logo 1
- Logo 2
- Header
- Header - Basic Info
- Header - Title
- Header - PageNum
- User Data
- Footer
- Footer - Common

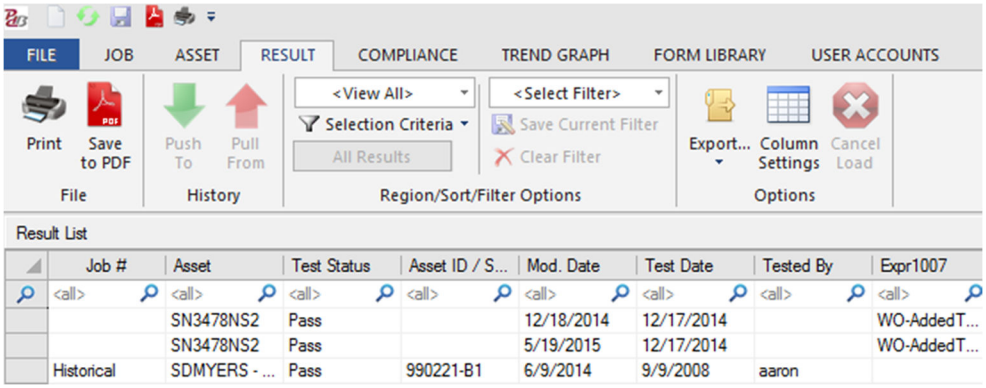
- Comments
- Divider

4.8 Completed Job Lock

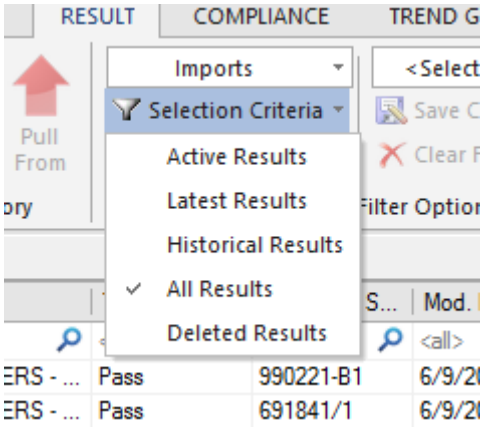
Dependent on User Account login a user may flag a job as ‘Completed’ or reverse this designation. Data cannot be changed in a completed job. To complete a job select the job in the job list, and from the right-click menu select ‘Completed’. Alternatively, select the button Complete Job on the Job ribbon in the Modify command group.

4.9 Result List

It is possible to view all the results for a given region through the use of the Result List. From here it is possible to filter the shown results using the fields located at the top of the grid. Filtering can be done based on any of the columns in the list, such as the Job# associated, test status, tester, comments, and deficiencies.



Using the Selection Criteria option on the toolbar will allow the list to populate on various criteria such as active, latest, or historical results.



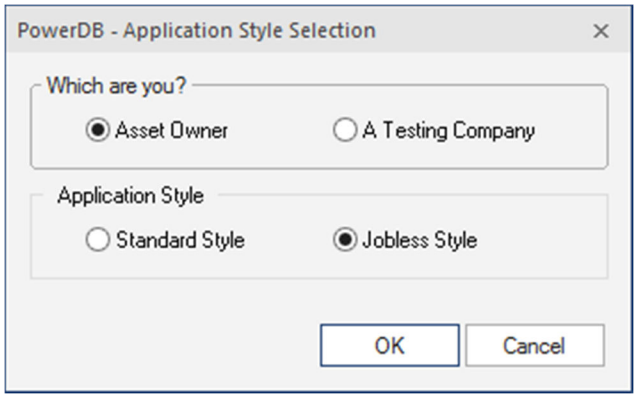
Results can be pushed to or pulled from history by using the corresponding buttons on the toolbar. To pull a result from history, either the “All Results” (and appropriate result selected) or “Historical Results” selection criteria must be selected. To push a result to history, either the “All Results” (and appropriate result selected) or “Active Results” or “Latest Results” selection criteria must be selected.

By double-clicking a result, the asset tree is opened to the selected result.

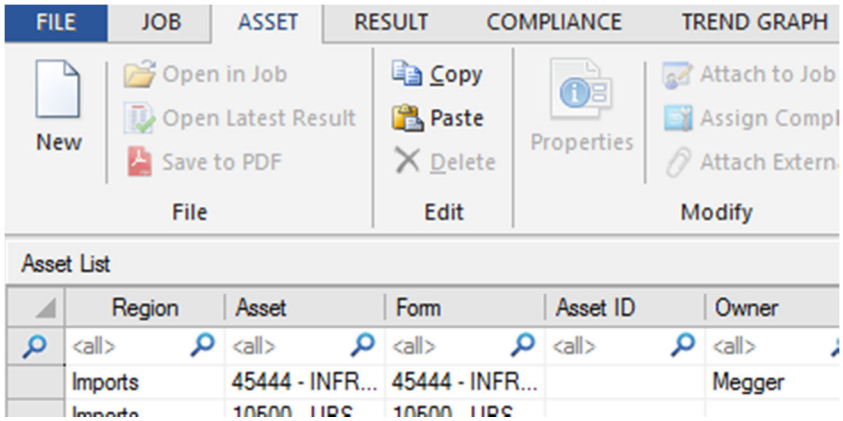
4.10 Jobless Style

Jobless Style is an optional method of data storage for asset owners that allows assets and results to not be associated with jobs. This allows the option to create a new asset from the Asset List and Asset Tree views.

Jobless Style can be activated by changing the application style selection from the Database Admin options.



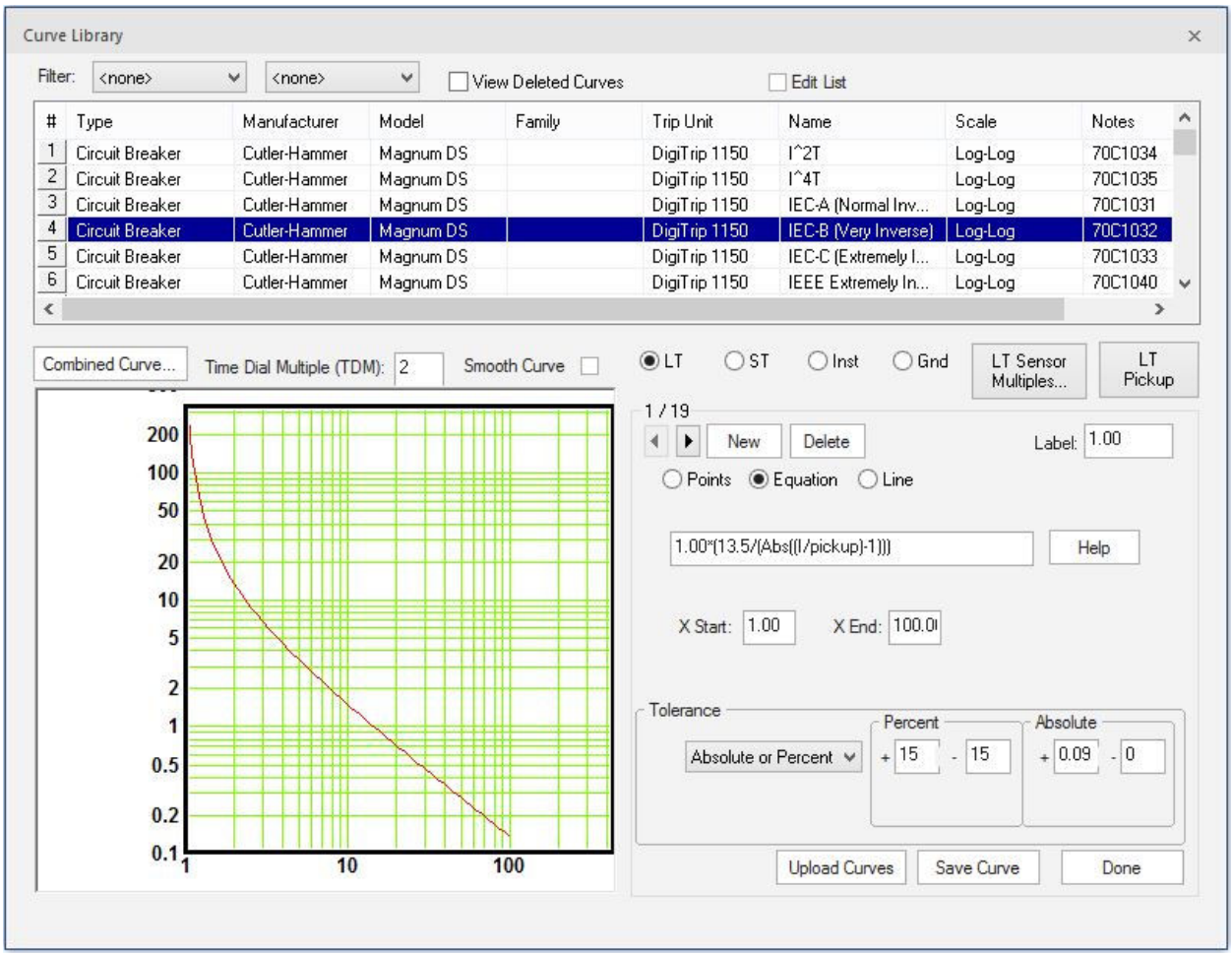
When in jobless mode, new assets can be created directly from the Asset List and Asset Tree by using the “New” button on the toolbar.



4.11 Curve Library

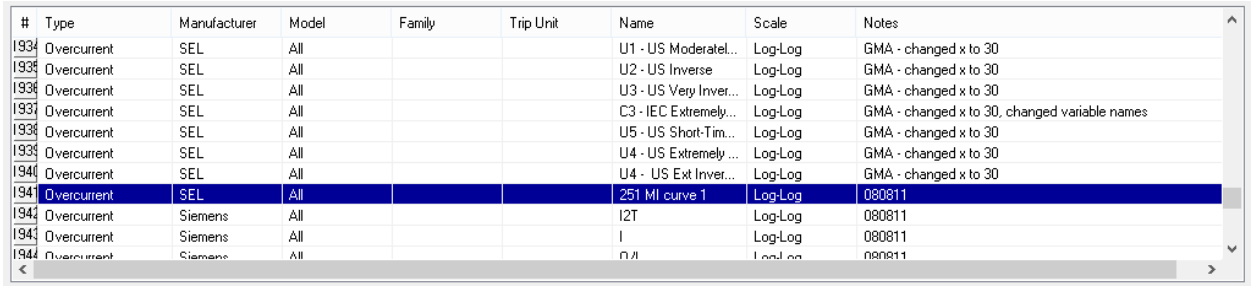
The Curve Library is used to enter and store device Time Current Characteristic (TCC) curves. It can be used when testing protective relays, low voltage circuit breakers, circuit reclosers or any other device that is tested using applied current and measured time.

The Curve Library is displayed by selecting Curve Library within the Database tab in the toolbar. The window that appears shows a listing of TCC curves that have previously been entered.



The listing at the top of the window identifies each curve on a single row, with a viewing window and table of data points shown below. In the curve viewing window, the X axis represents current (in either amperes or multiple of coil size) and the Y axis represents time (in seconds).

As mentioned, each row identifies a curve in the library with its unique characteristics. The fields include *Type*, *Manufacturer*, *Model*, *Name*, *Scale*, and N*otes*.



Type – This identifies the type of curve, such as Breaker, Recloser, Overcurrent, Frequency, etc. If a type does not currently exist in the dropdown list it will be added when a new curve is added to the library by simply typing the name into the space provided in that row.

Manufacturer – The name of the device manufacturer. Similar to Type, if a manufacturer does not currently exist in the dropdown list it will be added when a new curve is entered.

Model – The device model, for identification purposes.

Name – This identifies the name of the curve, particularly important when a device model has multiple curves in the library.

Scale – A dropdown list with options of Linear, Polar, Semi-Log X, Semi-Log Y and Log-Log.

Notes – A field for any comments related to a specific curve.



Filter selections at the top of the window provide the capability of viewing only specific curve types and specific manufacturers in the listing.

The Instantaneous, Short Time Delay and Time Dial Multiple (TDM) settings let the user preview the curve with those settings in the viewing window.

Selecting and right clicking on a curve number in the listing presents a menu of options: *Insert*, *Add*, *Delete*, *Copy Curve, Find*, *Filter By Selection*, *Cancel Filter By Selection, Import From File*, *Export To File, and Export All Curves.*

Insert – Adds a new row for entering a new curve into the library at the spot in the table that is highlighted.

Add – Creates a new row for entering a curve at the bottom of the table.

Find – Opens a text search box for quickly navigating through the list to a desired curve.

Delete – Erases the curve that is highlighted from the library.

Copy Curve – Creates a duplicate of the highlighted curve. Once a copy is on the clipboard, a new row must be created. The right click menu now contains an item *Paste.*

Filter By Selection – If the right click action was performed directly over a field, the listing will be filtered according to the value or data in that field.

Cancel Filter By Selection – Cancels the action of a previous *Filter By Selection*. This option only appears in the menu if a filter action is currently in effect.

Import From File – This option loads the contents of a .crv file into the curve library. Existing matching curves will be overwritten.

Export To File – This option creates a .crv file consisting of selected curve(s).

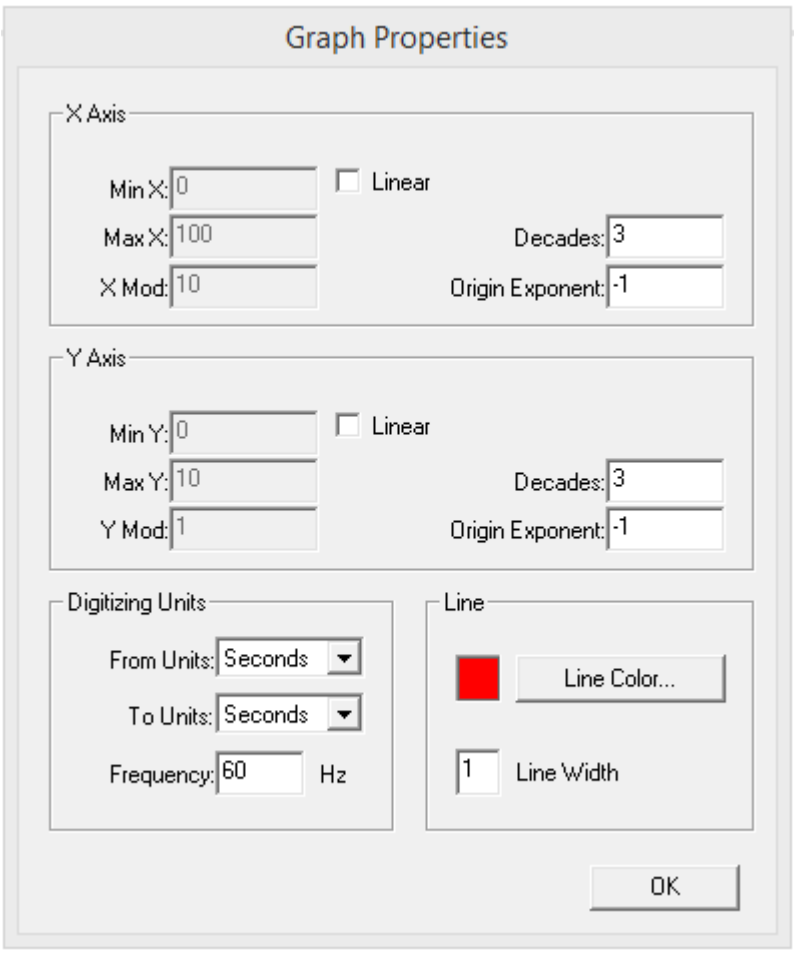
Export All Curves – This option creates a .crv file consisting of the entire contents of the curve library with the option of including deleted curves.

TCC curves can be entered into the database in several ways, including:
- X and Y data points
- Equation
- Digitizing bitmap file

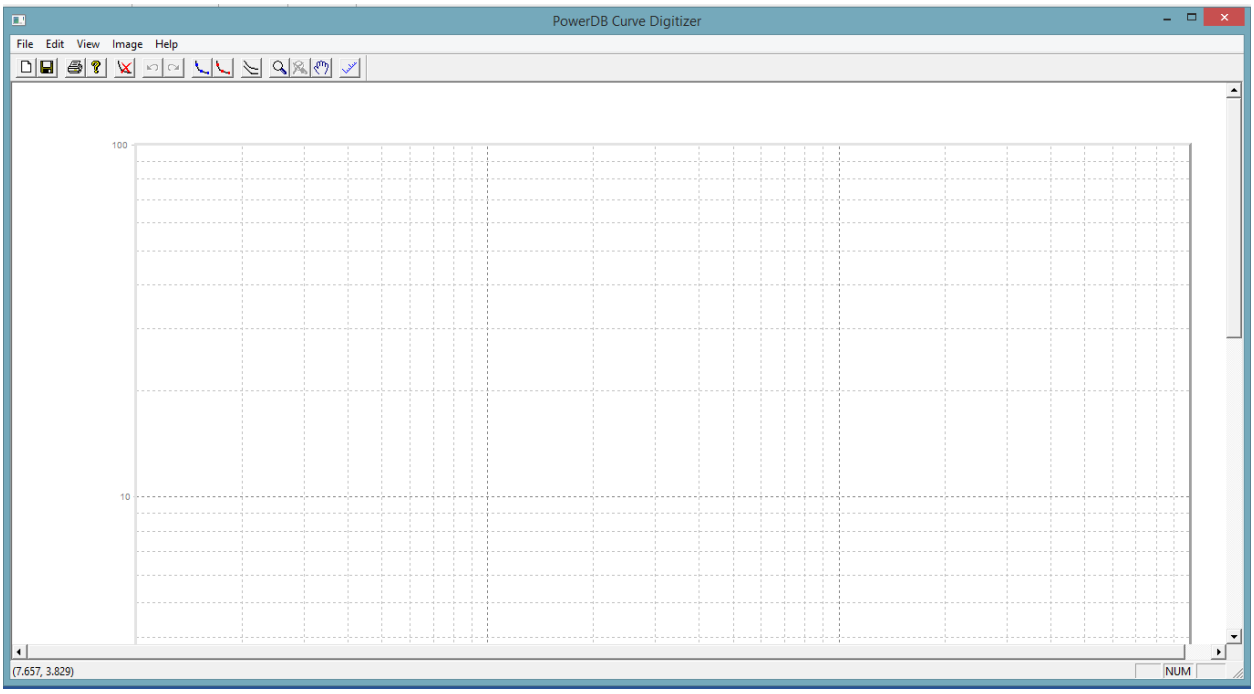
To add a new curve, simply highlight an existing curve, open the right click menu, and select *Insert*, *Add* or *Copy Curve*.

If a curve was copied, the characteristics can be modified as necessary. Once changes are made, click on a different row in the table. A prompt will appear "Do you want to save changes to row *X*?"

If inserting or adding a completely new curve into a new row, enter all identifying information. Enter the curve equation or X:Y data points as desired. If a bitmap is to be digitized, click on the *Digitize* button. Graph properties are set in the Graph Properties dialog by going to Edit > Graph Properties within the Digitize Window.

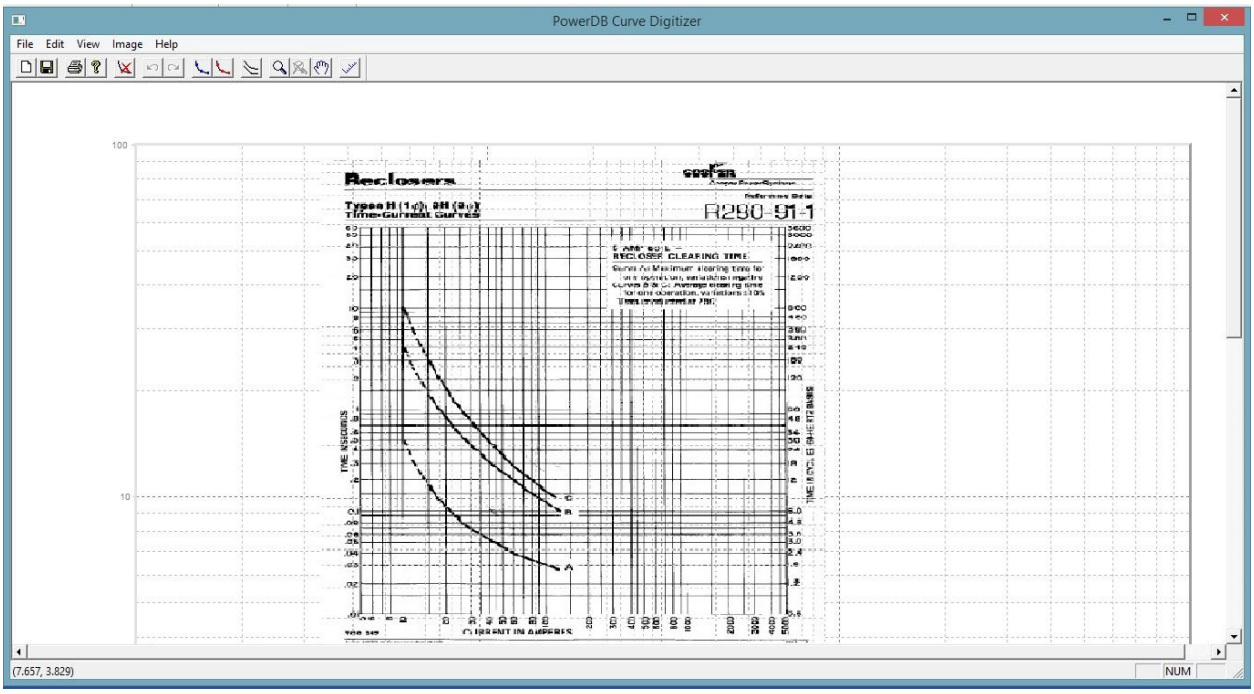


Select OK to proceed to the curve entry screen. At any time, it is possible to return to the Graph Properties dialog to update settings if necessary.

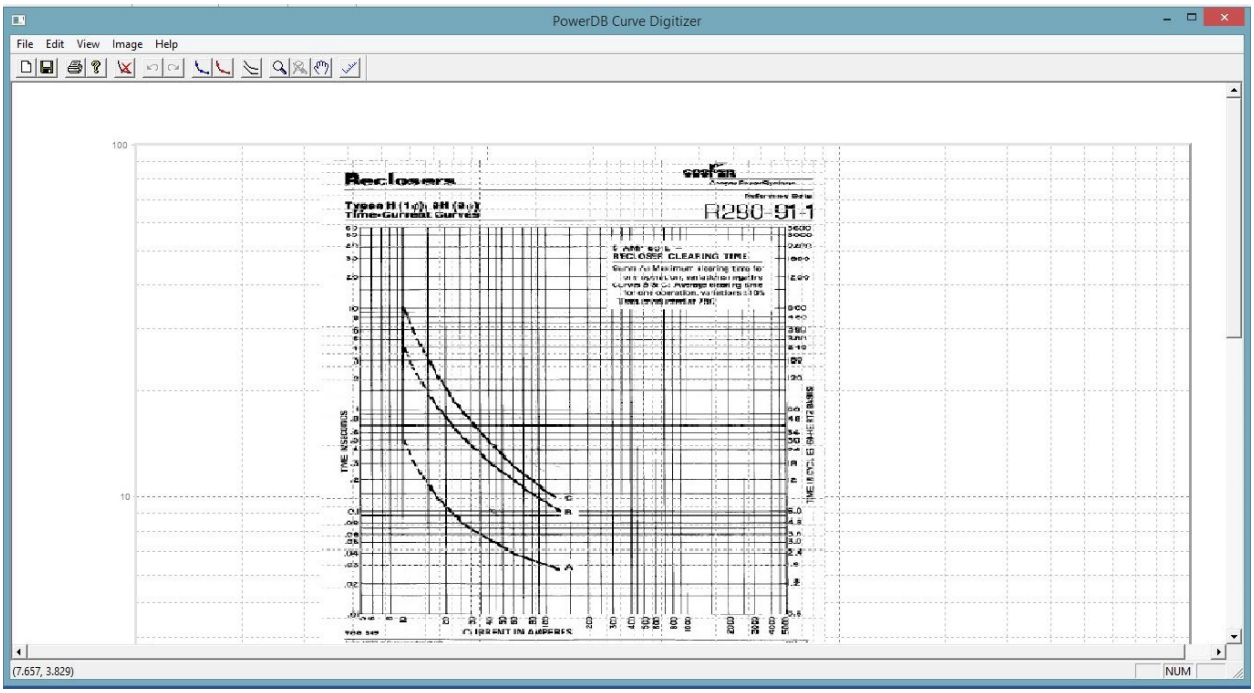


On the Digitize Window, a bitmap of a curve can be superimposed which aids in digitizing a curve and adding it to the library.

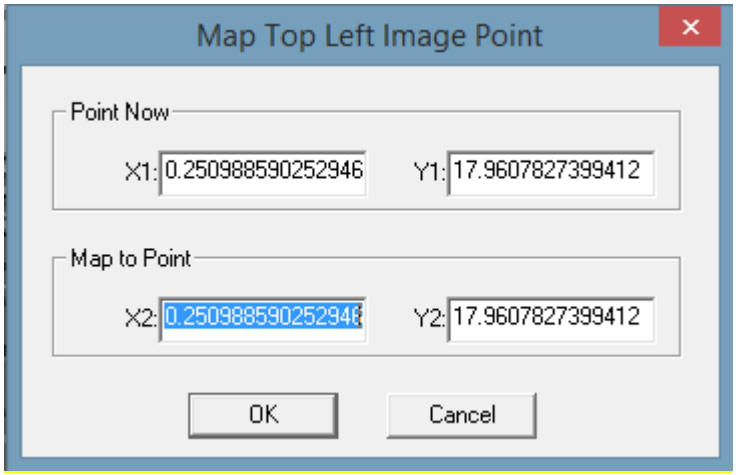
Select Image from the menu, then select Insert Background Image from the submenu. Enter the pathname to the bitmap file of the desired curve. Upon opening the bitmap it will now appear on the graph.



At this time, the Graph Properties may be selected and edited again from the Edit menu. This would typically be done to set the appropriate scale of the graph axes. In the case of the example shown where the “A” curve is to be added, the X axis will be adjusted to accommodate multiples of recloser coil rating, and the Y axis will be adjusted for the range of time values associated with the specific curve to be added.

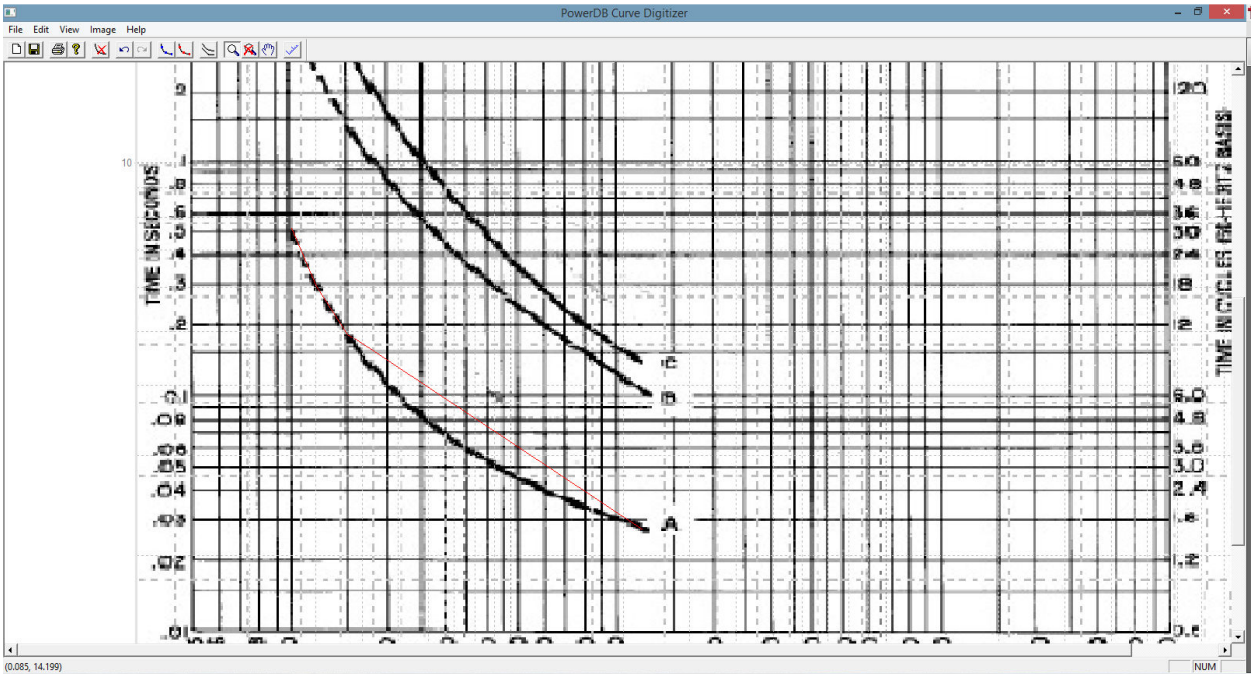


The curve would now be matched to the graph by selecting Image from the menu, then Map Top Left Image Point. A cross-hair cursor appears. Move it to the upper left point of the curve. Click the mouse to select that point, and now a dialog appears for entering the actual coordinates.



The appropriate X and Y coordinates for the top left point of the curve are entered. After selecting OK, the curve now moves to that point on the graph. The same procedure is used to map the bottom right image point of the curve. The curve endpoints should now match the appropriate coordinates on the graph. The Insert Curve Points button is now selected. Using the cross-hair cursor that appears, the

starting and ending points of the curve are selected first, creating a red line that will represent the desired curve. A suitable number of intermediate points should be selected so that the red curve line duplicates the shape of the desired curve.



When finished, save the curve and exit the digitizer. To save the curve details, back at the curve list, select a different curve. This will generate a prompt “Do you want to save your changes to Row X?” Click on Yes or No as desired.

Once a curve has been entered into the library, it can be included on a test form to provide the limits that are used for evaluating test results. Test points measured during testing can be plotted on the same chart for quick visual comparison of actual to desired timing.

To view examples of how a curve is added to a test form and utilized, go to the Form Editor and review one of the following forms:
92600 – OCR, 462700 – CV-1, 465120 – CO-2

5 Compliance View

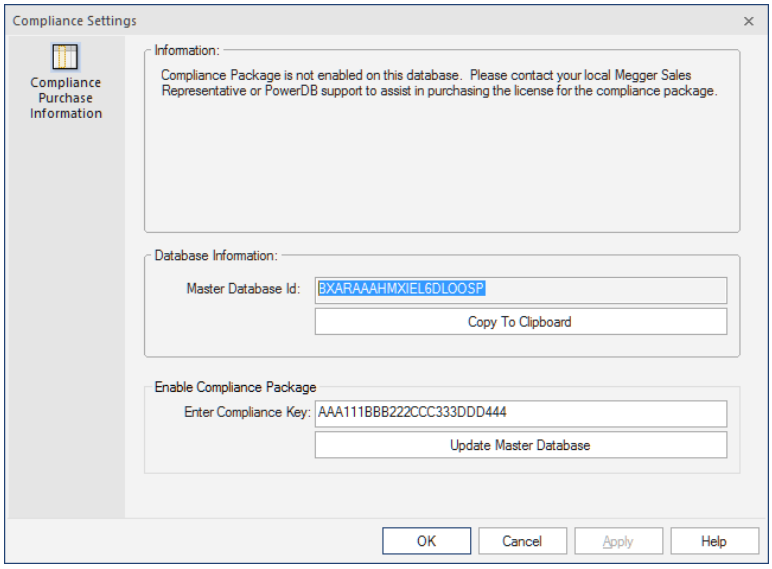
The Compliance View displays all assigned Compliances currently tied to an Asset. If an Asset has multiple assigned Compliances each one is displayed as its own entry.

5.1 Compliance Licensing

5.1.1 Enabling Compliance Package

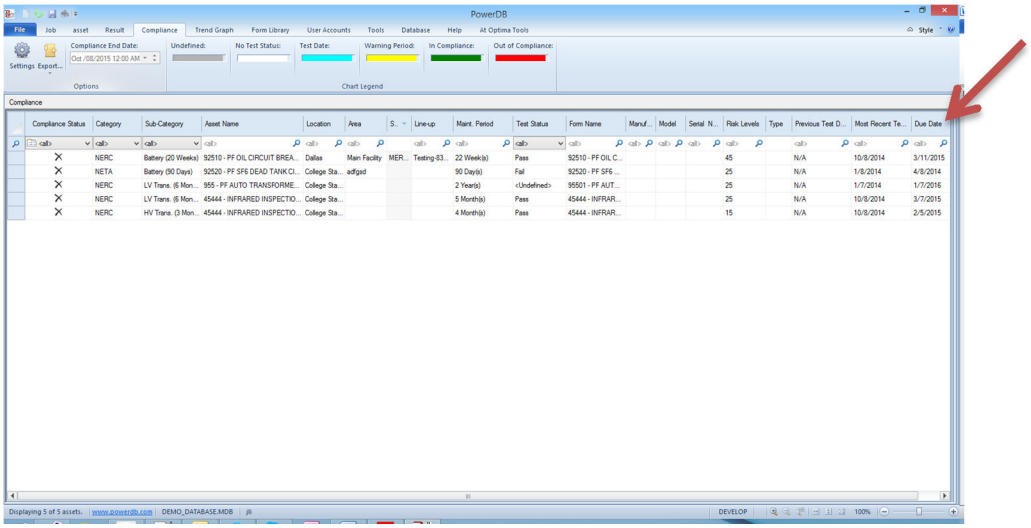
To enable the Compliance functionality contact either a Megger Sales Representative or PowerDB support and provide them with the Parent Database ID. The Parent Database ID can be retrieved by

opening the Compliance Settings in the top left corner of the Compliance View. The key provided by PowerDB is entered into the same Compliance Settings window of the Master database.



5.2 Compliance Grid

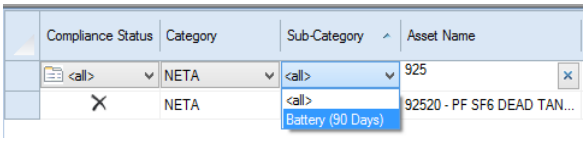
The grid section of the Compliance View displays each asset with assigned Compliance and any relevant information. Categories and Sub-Categories are created within the Compliance Settings on their respective pages and can be assigned to the Asset in the Job Tree or Asset Views. Test Status of the Assets is normally defaulted to <Undefined> and set in the Header section on the test form of the Asset. Due Dates for tests are calculated based on the Most Recent Test Date and the Maintenance Interval setting shown in the Assign Compliance window which can be accessed from the Asset View or the Job Tree.



5.2.1 Filtering Capabilities

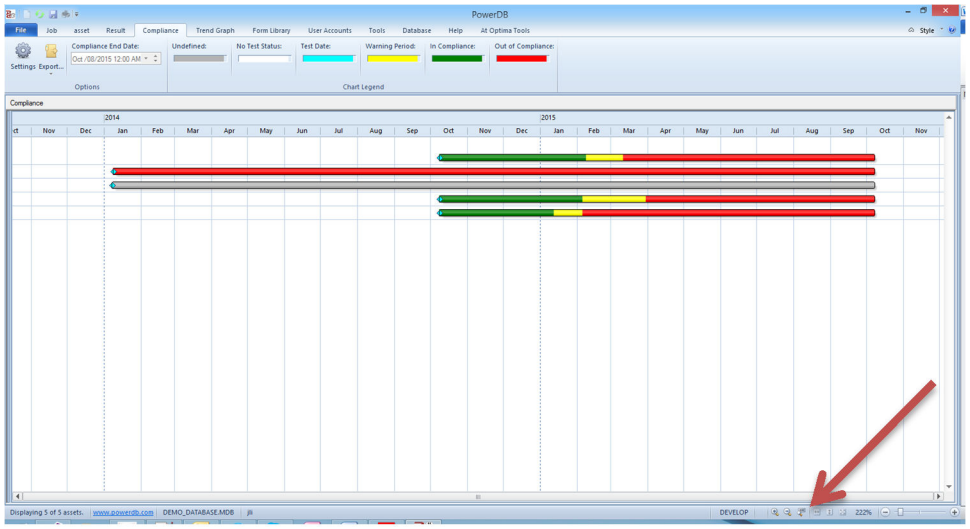
Assets can be sorted by alphanumerically or by latest/oldest in the case of time based columns by clicking the column header. Assets in the Compliance View can be filtered using the drop down menus or search fields embedded in the column headers of the Compliance Grid. The menus for Category and

Test Status are generated based on the current existing options so creating a new Status or Category in the Compliance Settings will be added to the menu as a filtering option. The Sub-Category filtering options are dependent on the currently selected Category either displaying all available Sub-Categories or those associated with the Category currently being filtered. The search fields automatically use a wildcard filter when filtering Assets. Filter parameters can be removed by clicking the X next to the search fields.



5.3 Compliance Chart

The Compliance Chart is a visual display of past testing and future scheduled testing associated with the Assets in the Compliance Grid. The status of the Asset and each test date is color coded by the status of that asset at each date based on the historical data of the Asset. The view of the chart can be adjusted by either the zoom icons or the slider in the bottom right corner of the PowerDB. This allows the chart to display in years, months, weeks, or days.



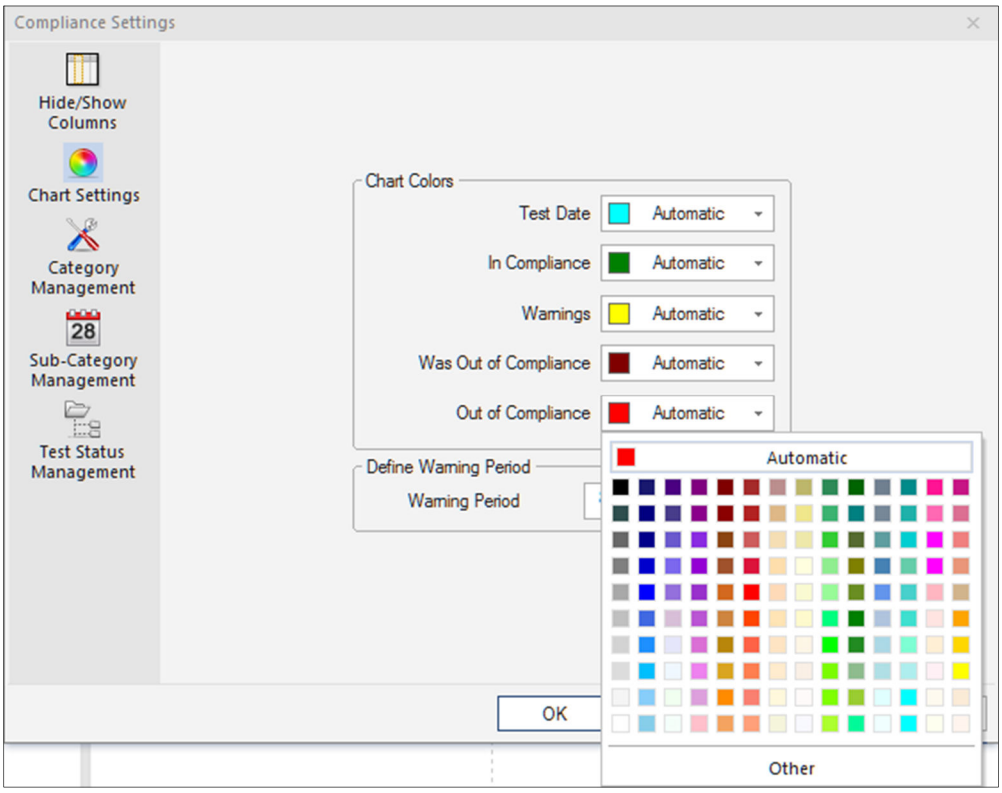
Each color corresponds to the Chart Legend at the top of the Compliance View and can be changed by the user in the Compliance Settings. The color bars in the Compliance chart are defined as:

- **Undefined:** Any period where the Status of the Asset is assigned as Undefined, and is the default status of all Assets until otherwise specified.
- **No Test Status:** Any period for the Asset with an unknown status.
- **Test Date**: Each date a test was performed on the Asset is marked by a diamond in the calendar view.
- **Warnings Period:** The warning period is a defined length of time before an Asset is no longer in Compliance; the Warning Period is a user defined percentage of the Maintenance Period of the Asset. The Warning Period can be changed in the Chart Settings page of the Compliance Settings and defaults to 80%.

- **In Compliance**: The period of the time where the Asset has a passing or in Compliance status minus the warning period. Compliance period is calculated as the length of the Maintenance interval from the most recent passed test subtracted by the Warning Period.
- **Out of Compliance:** Represents a period where the Asset has been assigned a fail test status or when the Asset's future scheduled maintenance has not occurred. Future Out of Compliance status is determined by the Maintenance Period which can be viewed in the Compliance grid and set in the Assign Compliance window.

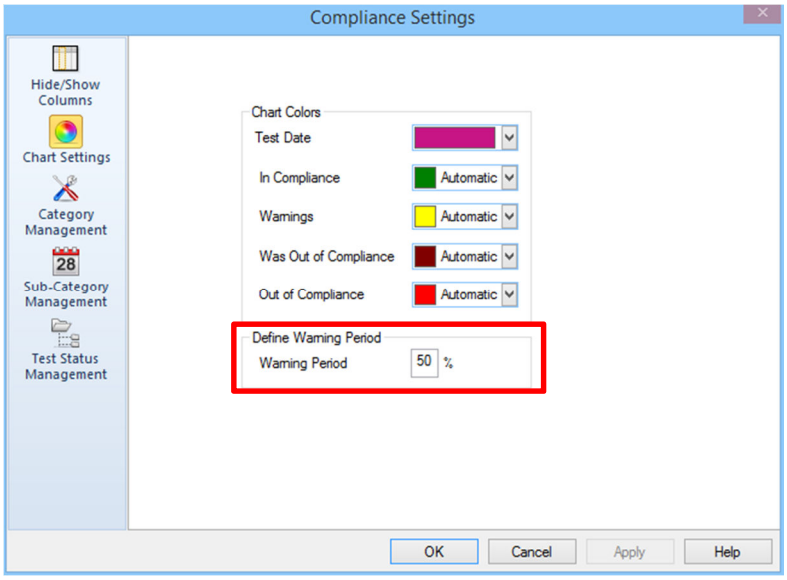
5.3.1 Color Definitions

The colors used in the components of the Compliance Chart can be customized by the user in the Chart Settings tab of the Compliance Settings. Colors can be chosen through the drop down menu from a color picker with pre-defined colors. The Compliance View needs to be refreshed before changes in the color definitions are applied.



5.3.2 Warning Period

The Warning Period is the percentage of time of the Maintenance interval assigned to each Compliance in which the Asset should be considered for maintenance. The Compliance view needs to be refreshed before changes made to the Warning period are visible.

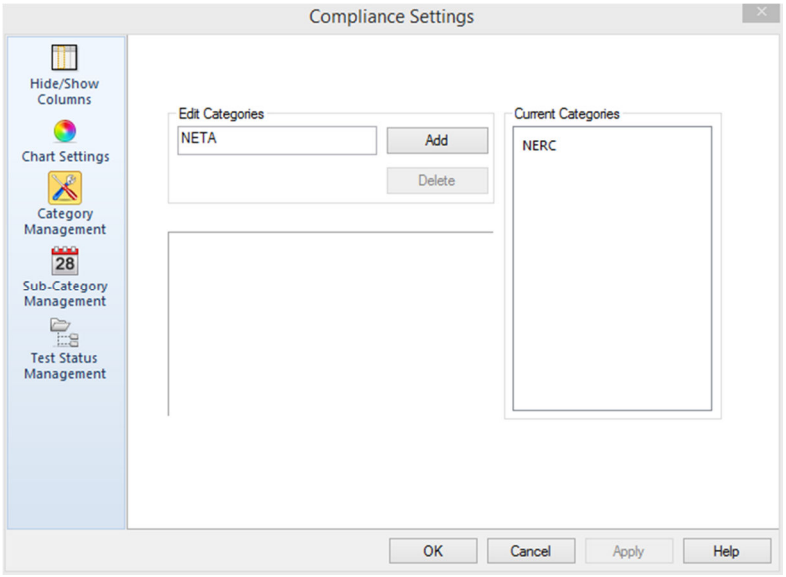


5.4 Setting up Compliance

Setup of Compliance Categories and Sub Categories occurs entirely in the Compliance Settings menu under the Compliance View. The Category and Sub-Category settings are only accessible by Users with an Administrator user level. Categories and Sub Categories can only be added or changed in a master database.

5.4.1 Build Categories

The user can create Categories from the Category Setting window by entering a non-duplicate name in the text box and clicking Add. Categories can be removed by selecting the Category from the list on the page and clicking Delete. Deleting a Category will delete all Sub-Categories tied to the Category.

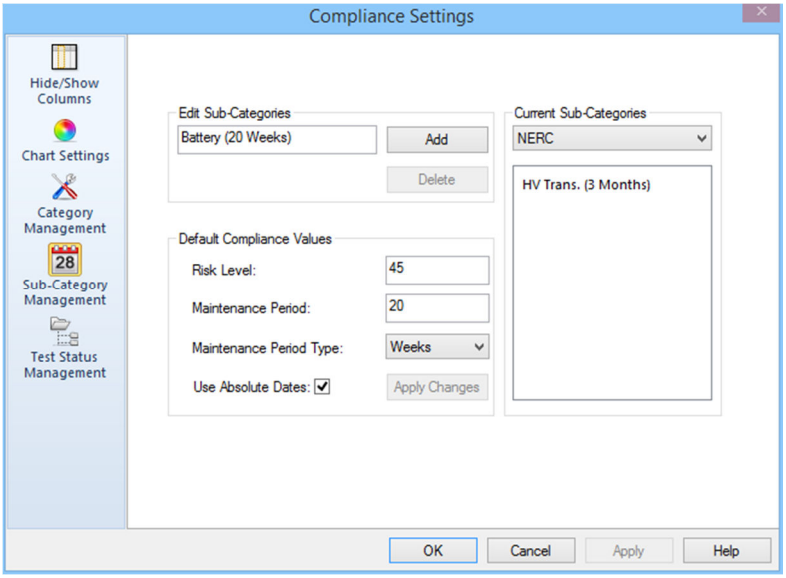


5.4.2 Build Sub-Categories

Sub-Categories are always associated with a Category and in order to add, edit or delete a Sub-Category a Category needs to be selected from the dropdown menu. The Default Sub-Categories are used for

assigning Compliance in the Job Tree and Asset views but can altered by the user in the Assign Compliance window to allow customization of each Asset.

Once a Category is selected from the Category drop down above the Current Sub-Categories list, a new Sub-Category can be created by entering a non-duplicate name for the Sub-Category, a default Maintenance Period and Type. The Risk Level is a value assigned for internal use to prioritize Compliance testing. The Maintenance Period and Maintenance Period Type determine how long between testing of an Asset and the Absolute Dates determines how that period is calculated from the Test Date. If checked Maintenance Period is calculated from the exact day of the test, and if unchecked Maintenance Period is calculated from the end of the current Maintenance Type of the Test Date. (For Ex. A Maintenance Period Type of months with Absolute Dates unchecked is calculated from the end of the month the test was performed).

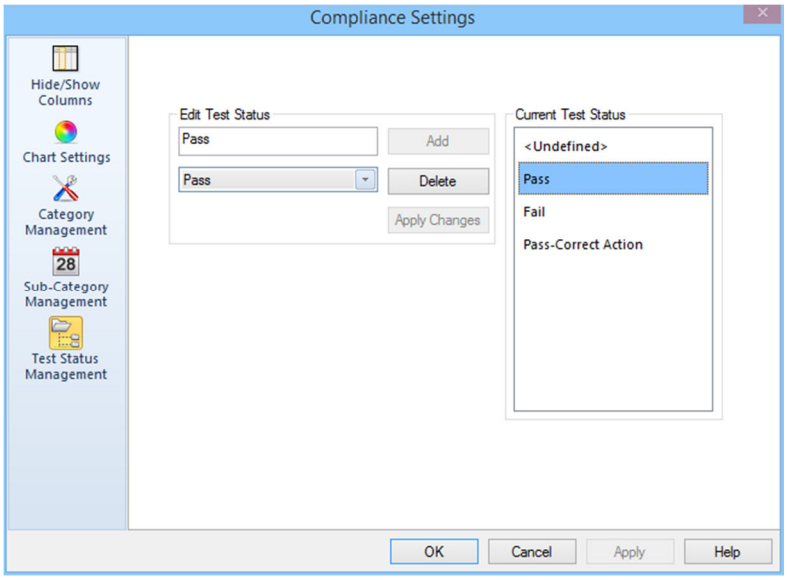


Sub-Categories may be edited by selecting the Sub-Category from the current Sub-Categories list and clicking Apply Changes after altering the Compliance Values.

Deleting a Sub-Category is a simple matter of selecting the Sub-Category and clicking delete.

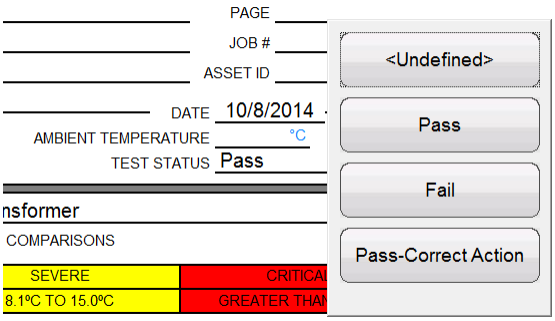
5.4.3 Setup Test Status

Test Status editing is only accessible by Users with Admin User levels and can only be done in a master database. Test Statuses are added by typing a non-duplicate name into the Edit Test Status text box, selecting Pass or Fail from the menu below and clicking Add. Editing a Test Status is done by selecting an existing Status which displays the current name and pass/fail in the Edit Test Status box. Once changes are made to either the Name or Pass/Fail status clicking Apply Changes alters all instances of the Test Status to reflect the changes. To delete a Test Status simply select the Test Status and click Delete.



5.4.4 Assigning Test Status

Test Status is applied to an Asset through the test form Header. The form must be using the Header SubForm and the Result must first be saved before assigning a Test Status. Clicking the field opens a selector of all available Test Statuses that can selected, hitting Esc will leave the selector without assigning a Test Status.



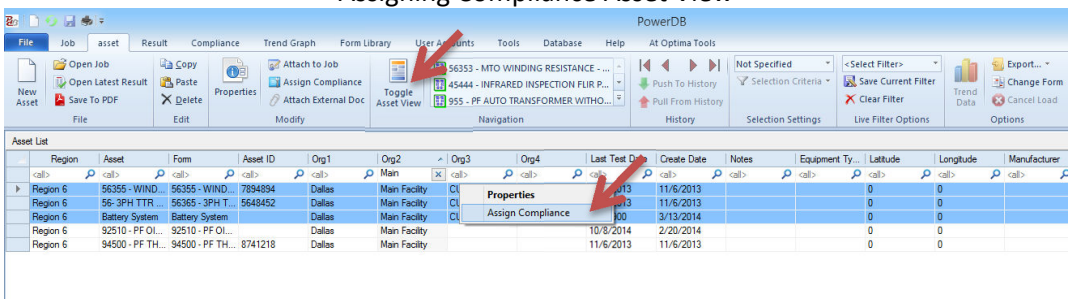
5.5 Assigning Compliance

Assigning Compliance is done through the Job Tree View or the Asset View of PowerDB and requires at least one existing Sub-Category.

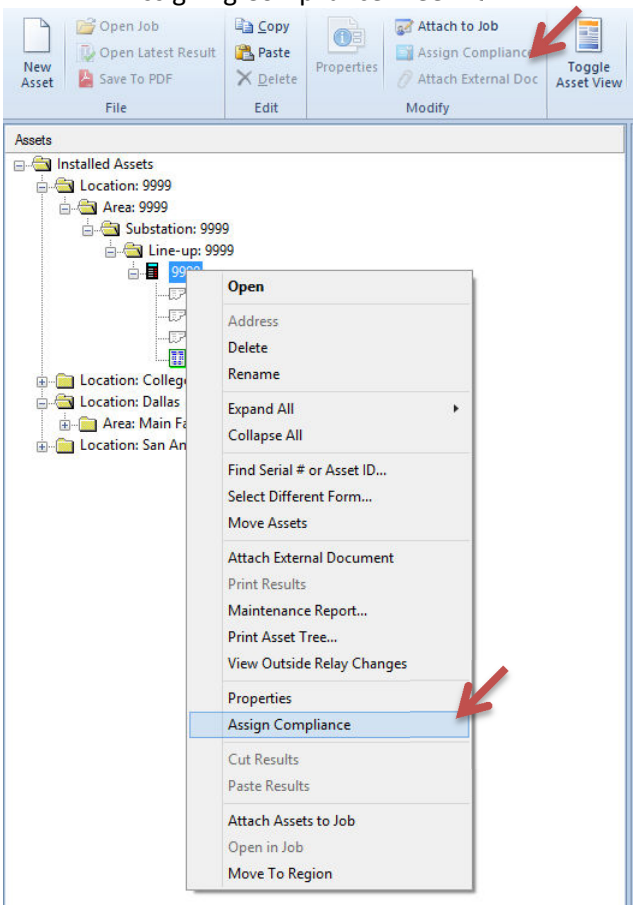
5.5.1 Select Compliance

Single and multiple Assets can be assigned the same Compliance by selecting the Assets in the Asset view and right clicking and selecting the Assign Compliance option or clicking the option at the top of the view. Assets in the tree view can only be assigned one at a time by selecting Assign Compliance from the right click menu or the button at the top of the view.

Assigning Compliance Asset View



Assigning Compliance Tree View

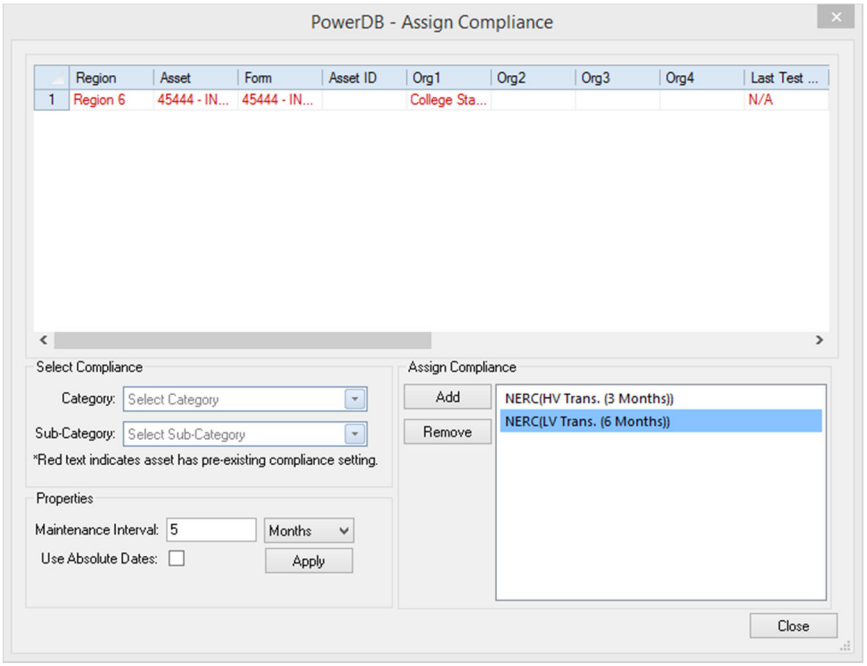


In the Assign Compliance window any Assets with any already assigned Compliance are colored red and all of the currently assigned Sub-Categories are displayed in the Assign Compliance list on the bottom right. If multiple Assets are selected only the Sub-Categories in common among the Assets will be displayed. If the asset(s) have been assigned the current values are displayed in the Properties and if more than one Compliance is assigned selecting one from the Assign Compliance list display its current properties values.

5.5.2 Properties

To assign a new Compliance a Category must be selected from under Select Compliance which fills the Sub-Category with those associated with that Category. Once the Sub-Category is selected the properties values default to those set in the Sub-Category settings. The user can override these default

values with unique ones for that particular Asset. After the properties are finalized clicking the Add or Apply buttons assigns the compliance to all the currently selected Assets. Duplicate assignments to the same Sub-Category are not allowed and adding them will overwrite the existing assignment with the new propeties values.



To delete a Compliance select it from the Assign Compliance list and click the remove button. This removes it from all of the currently selected Assets.

To edit an Assigned Compliance it should be selected from the Assign Compliance list. After changes are made to the properties clicking Apply will overwrite the old values.

6 Trend Data

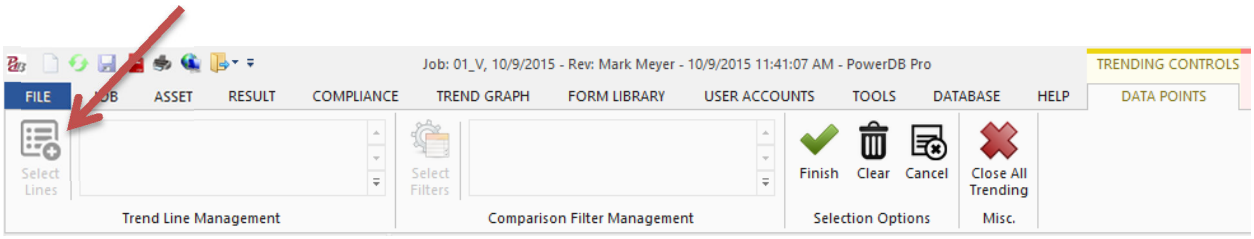
This section provides instructions for the trend data view and how to generate result trend graphs, trend comparison graphs and how to manipulate these graphs for presentation purposes.

To generate historical result trend or comparison trend graphs, begin by opening a set of results through either the job view or asset view.

To display the trend selection window, press the 'Trend Data' button in the 'Job' or 'Asset' ribbons. This view allows for the selection of data values and the selection of comparison filters. The selected data will be graphed as a function of time using the results historical. Any selected comparison filters will be used to search for all other results with the same criteria.

6.1 Result Trending

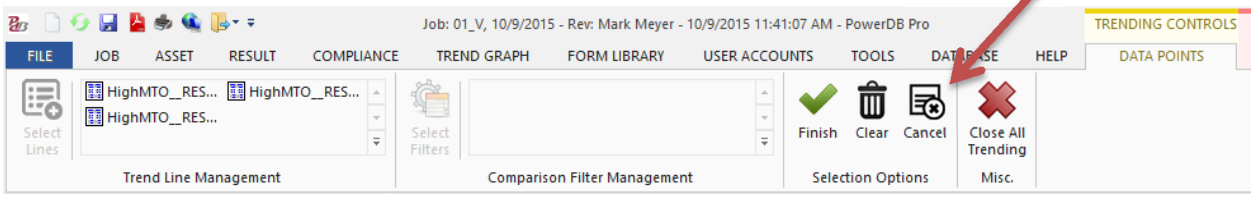
To begin historical results trending, select the 'Define Line' button.



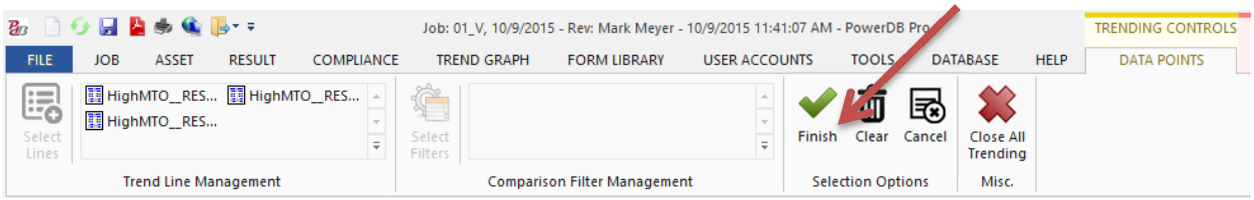
The mouse is now available for use as a selection tool. To select values to trend, simply click on the target value using the mouse. When a value is selected, a purple outline will appear around the values field. Multiple values are able to be selected at once by selecting each one using the mouse. Each selected value will appear as a separate line when the results are graphed.

Capacitance C (pF)	POWER FACTOR %			Equivalent @ 10 kV	
	Measured	@ 20°C	Corr Factor	mA	Watts
100,535.0	0.44	0.18	0.410	37.9010	0.8350
100,458.0	0.45	0.18	0.410	36.5600	0.8296
100,725.0	0.48	0.20	0.410	39.6500	0.8142

It is possible to cancel selection by selecting the 'Cancel' button. Doing so will deselect any currently highlighted fields and return the mouse cursor to normal function.



When finished selecting the desired values, select the 'Finish' button to begin trend line generation.



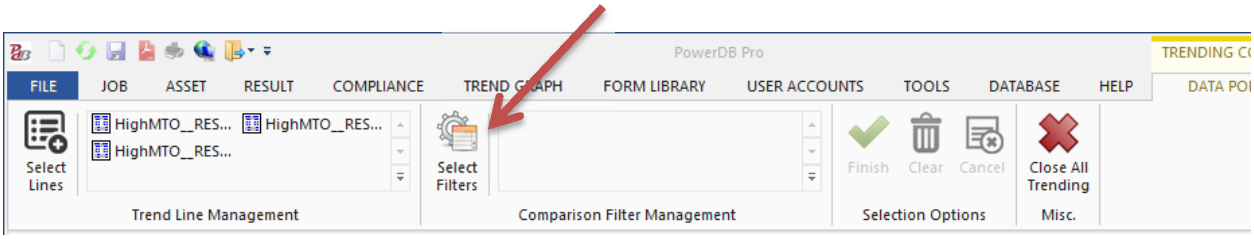
The trend graph is viewable by selecting the 'Trend Graph' view in the ribbon or the 'See Graph' button in the message bar that appears when PowerDB is finished querying the trend data.

NOTE: It is possible to have many trend lines defined from different assets and plotted at once. To do so, simply open a different asset and repeat the process. The new trend lines will be displayed with the previous lines. To clear the trend chart to start over, press the Clear All button in the ribbon.

6.2 Comparison Trending

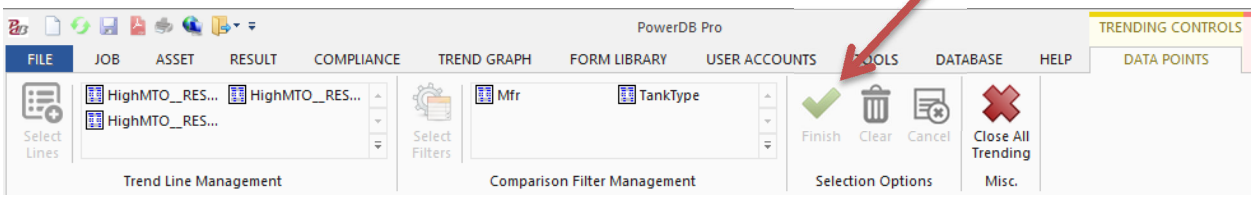
Comparison trending allows seeing how a value compares historically against all assets with identical, specified information. Comparison trending will query all results based on this criteria and display a range on the chart to indicate similarity of values.

To begin a Comparison Trend, first define comparison filters by selecting 'Select Filters.' These filters will be used to search all test results with the same form/value to generate trendlines.

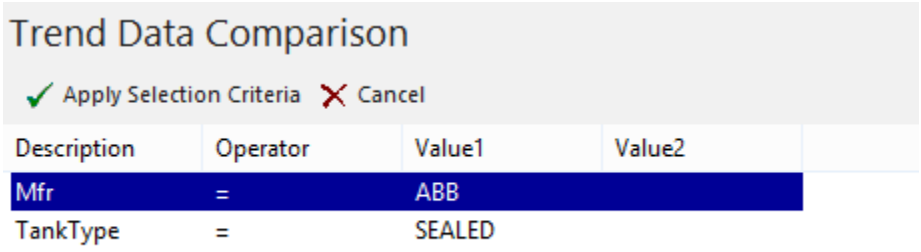


Pressing this button will automatically populate the 'Comparison Filter Management' view with Nameplate Data. It is possible to add further values, or clear these values by identical methods to the value selection outlined in section 6.1.

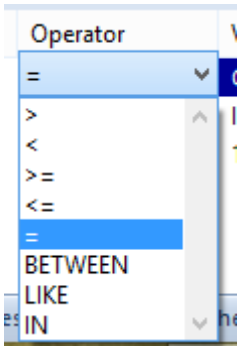
When finished defining filters, press 'Finish'.



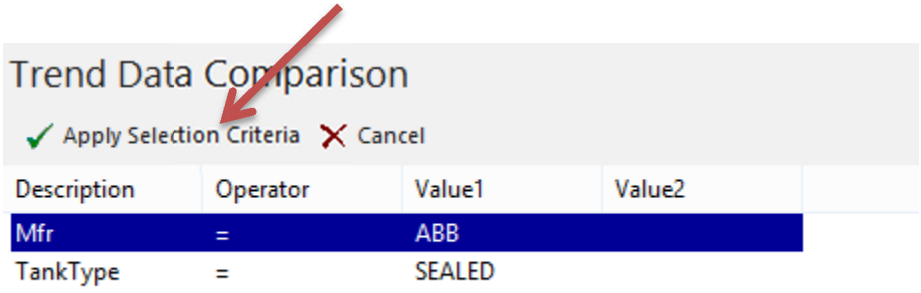
This will open a pane at the bottom displaying all selected comparison filters.



This pane also allows for the comparison operator to be changed.



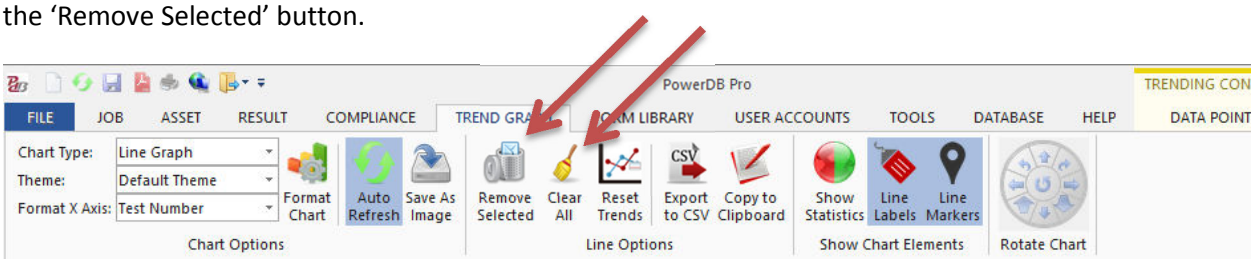
When satisfied with all selections, begin defining values to trend as outlined in 6.1. However, instead of selecting 'Finish' in the toolbar, select 'Apply Selection Criteria' in the filters pane to begin generating the trendlines.



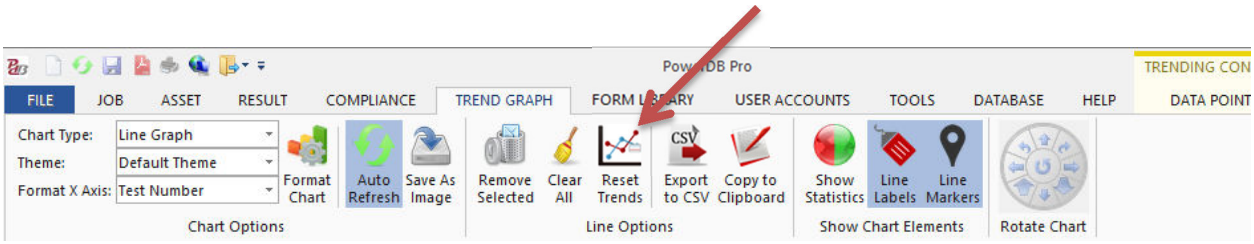
After selecting 'Go,' PowerDB will display a status bar that says 'Trending Data with filters. WARNING, this may take up to half an hour'. When PowerDB is done querying all data, the chart will be available for viewing.

6.3 Chart Properties

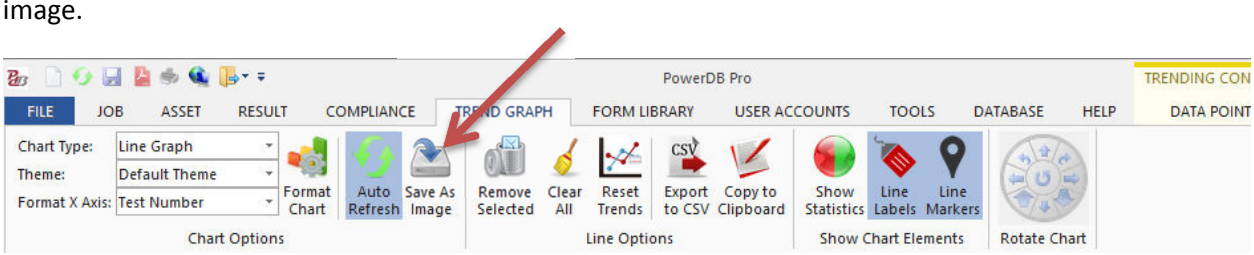
The Trend Graph view contains many tools to manipulate the formatting of the trend chart. Once trend ranges have been defined, it is possible to clear the trend chart of all lines, using the 'Clear All' button. To remove individual trend lines, first highlight the corresponding row in the Trend View grid and select the 'Remove Selected' button.



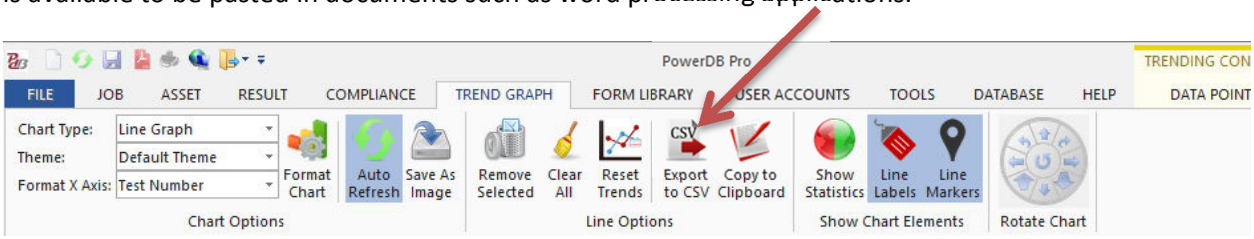
Changes can be made to the trend lines through the use of the Trend View Grid, to revert these changes back to the default settings select the 'Reset Trends' button.



The chart may be saved as a bitmap (.bmp) or PNG file (.png) by pressing the 'Save As Image' button. Doing so will cause a file selection dialog box to display; using this dialog, choose the destination for the image.

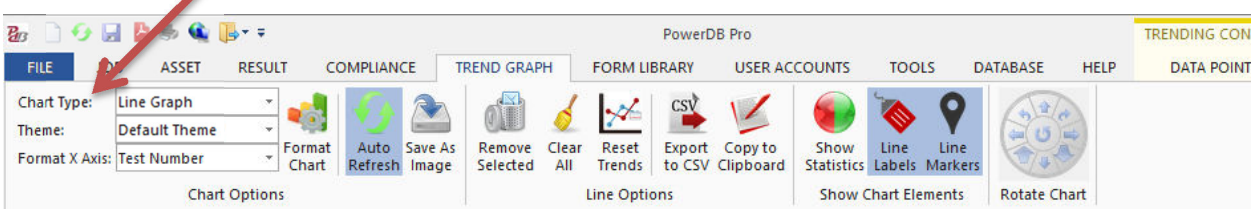


The raw trend data may also be saved as a comma separated value file (CSV), and to do so select the 'Export to CSV' button in the ribbon. This will cause a file selection dialog box to display; using this dialog, choose the destination for the file. The trend data may also be copied to the clipboard, where it is available to be pasted in documents such as word processing applications.



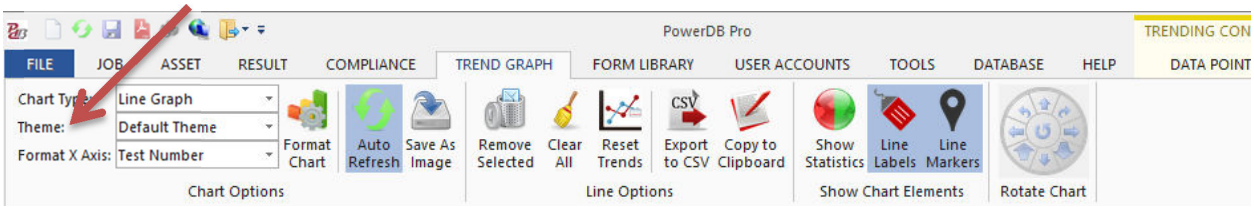
6.3.1 Chart Type

Using the 'Chart Type' dropdown, the method of representing the data may be changed. The default type is 'Line Graph' and represents the chart in a two-dimensional chart with both x and y axes. When a new type is selected, the chart will automatically update to the new chart type.



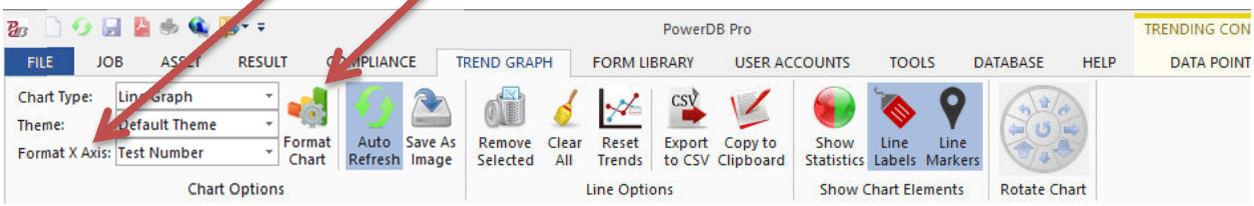
6.3.2 Chart Theme

The 'Theme' dropdown will affect the color scheme of the chart. This dropdown may be used in order to better format the chart for presentation. When a new theme is selected, the chart will automatically update to the new chart theme.

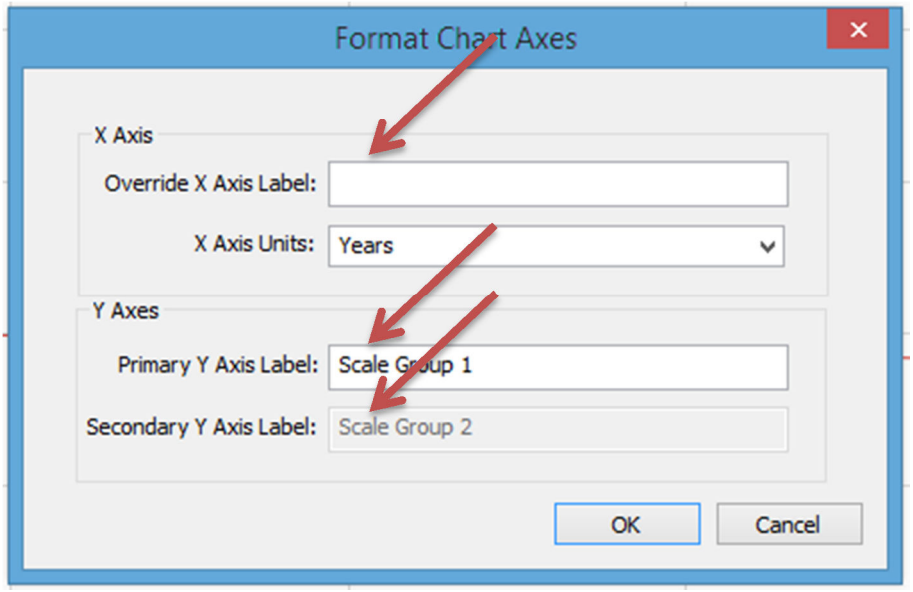


6.3.3 Axis Formatting

To change the units for the X-axis, use the Format X Axis dropdown in the ribbon. This allows the chart to be displayed by different measurements of time or number of tests.

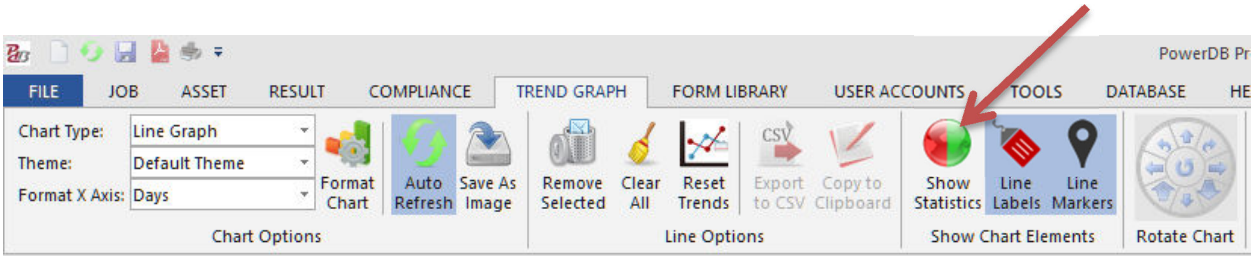


To format the X and Y axis titles select the 'Format Chart' button and use the corresponding fields within the 'Format Chart Axes' dialog box. Note: The 'Secondary Y Axis Label' is only available for input when a trend line has been set to the second scale group (Refer to Section ## for an explanation on Scale Groups)

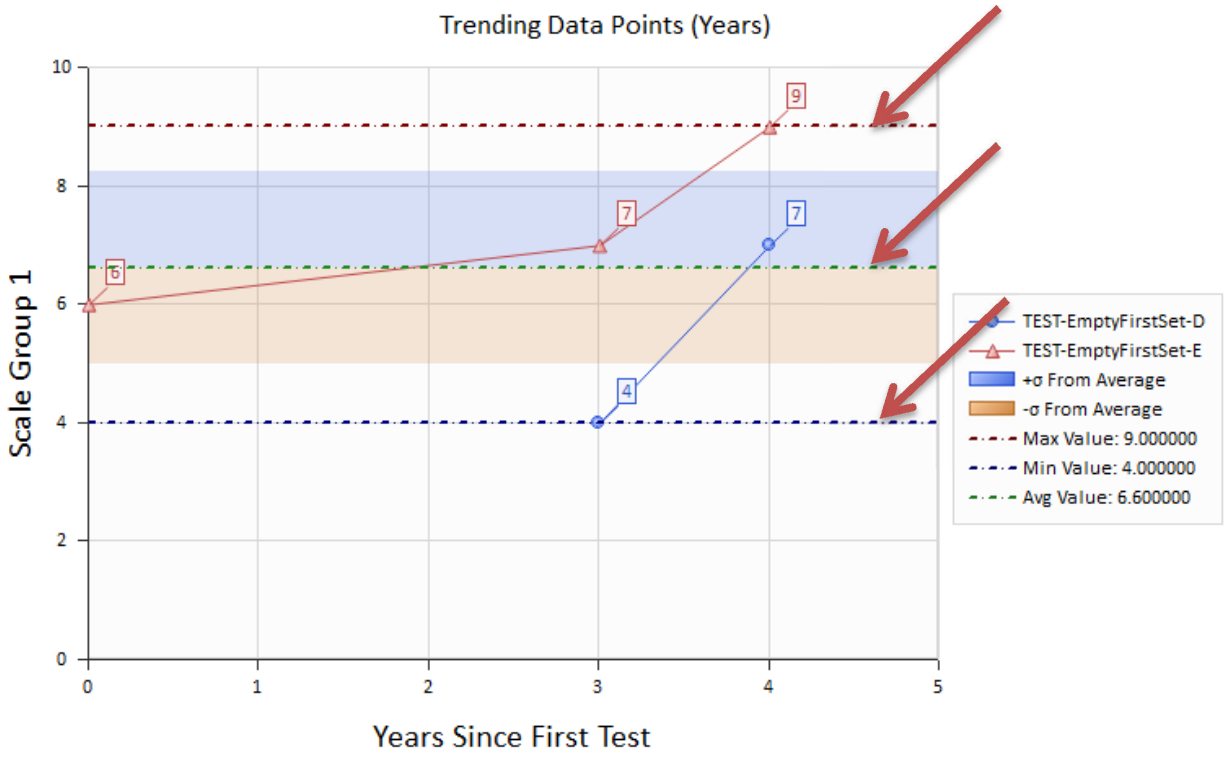


6.3.4 Show Statistics

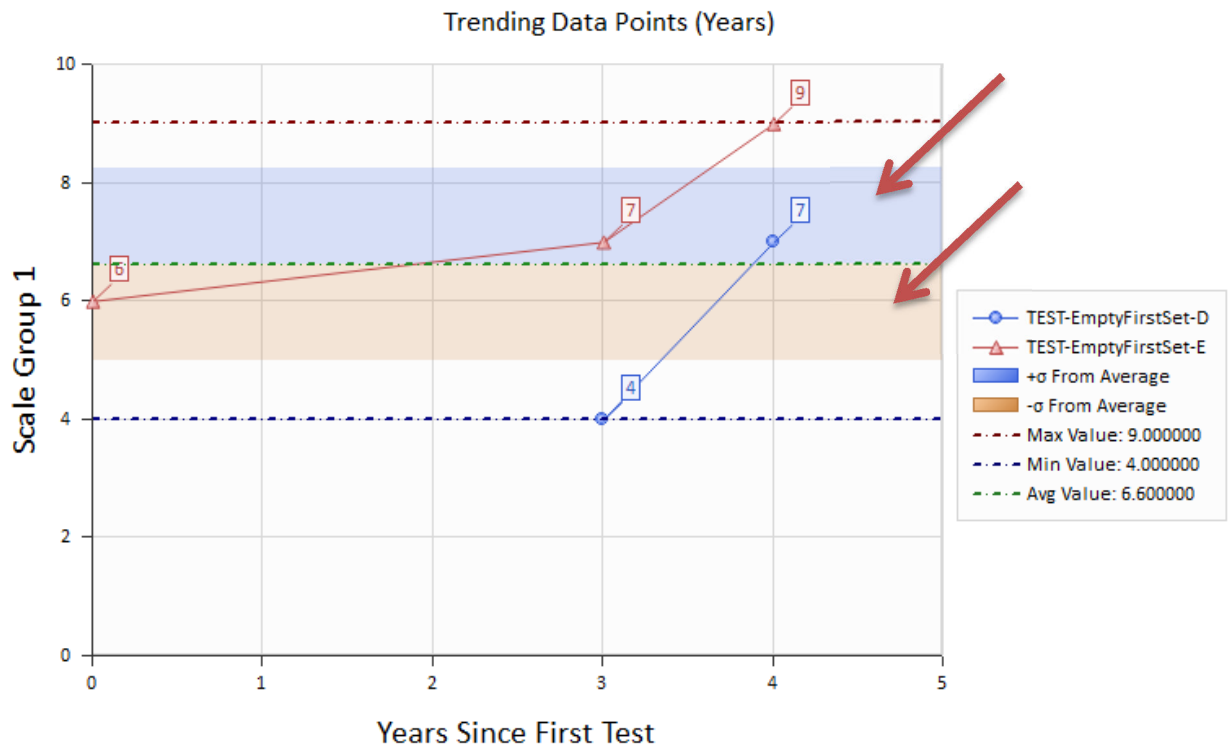
Selecting the 'Show Statistics' button will display the overall statistical information for the charted lines in both the chart and the chart legend.



This will include overall maximum, minimum and average values for the chart. These values will be displayed as dash-dot lines.

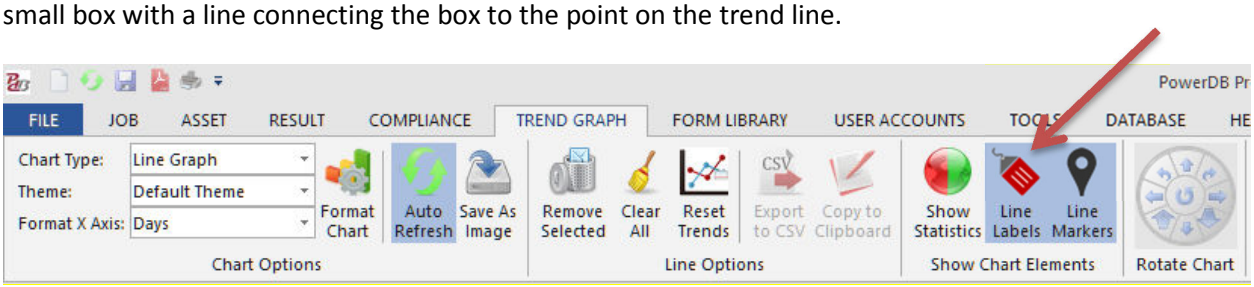


Along with these values, a pair of colored ranges will display. The orange half of the display ranges from the average minus the standard deviation to the average. The blue range spans from the average to the average plus the standard deviation.



6.3.5 Line Labels

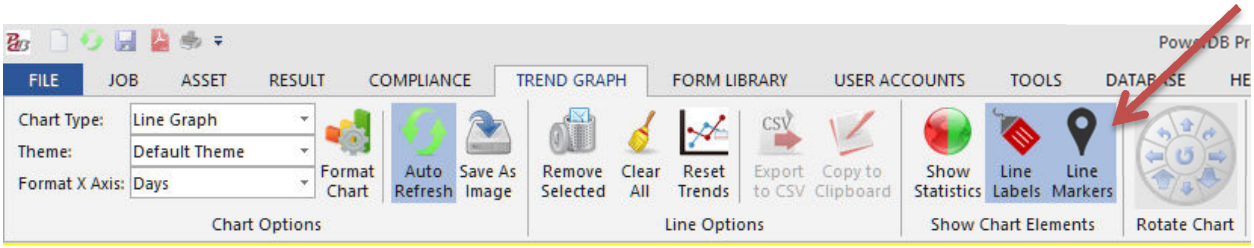
The 'Line Labels' option will display the y value of each data point in the chart. The value displays in a small box with a line connecting the box to the point on the trend line.





6.3.6 Line Markers

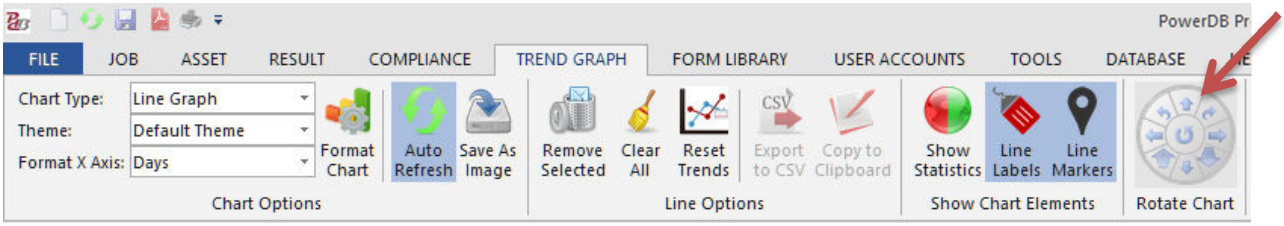
Line markers will be displayed when the 'Line Markers' button is selected. These markers are displayed at each data point of the trend line.



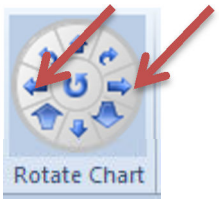


6.3.7 Rotate Chart

When the trend chart is being displayed in a 3D mode, it is possible to change the view of the chart. This is done by rotation. NOTE: These buttons are only available when the chart is in 3D mode.



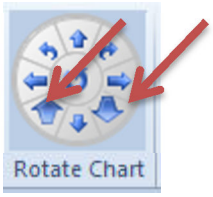
The chart may be rotated left and right using these buttons.



With these buttons, the chart will rotate up and down.

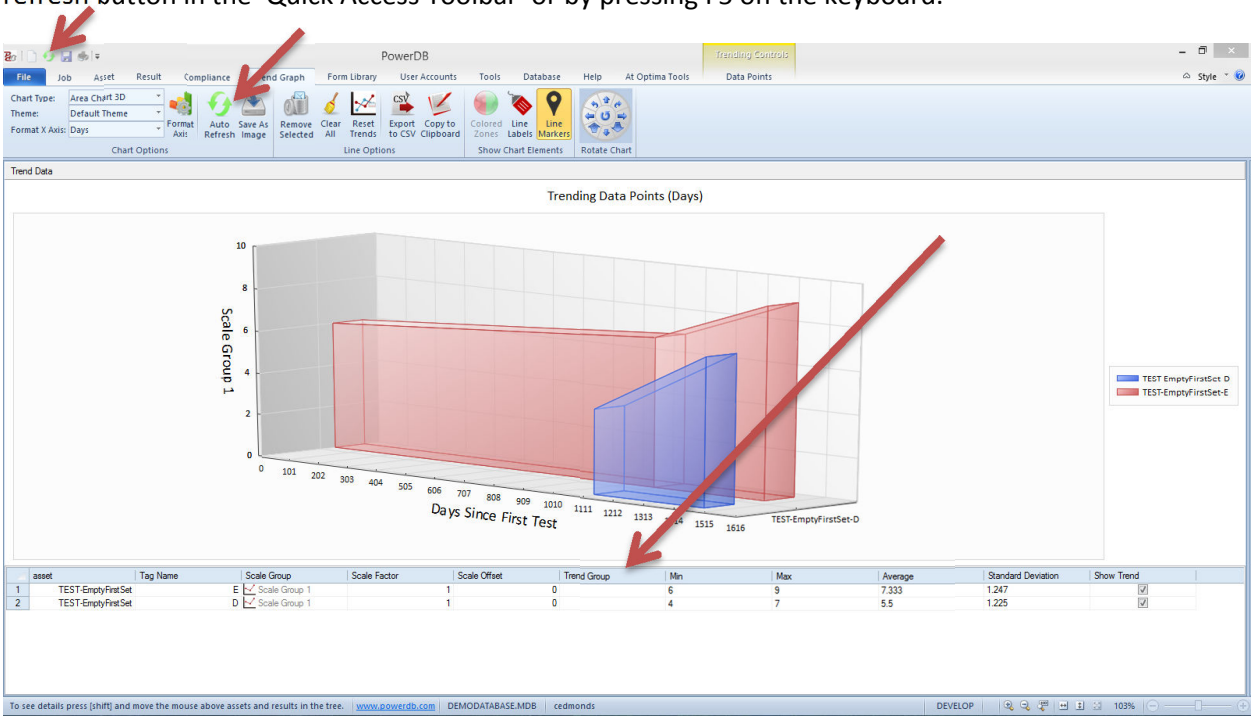


And the view perspective may be changed by using the following buttons.



6.4 Grid Information

For changes in the Trend View grid to appear in the trend chart, a refresh must be forced. To force a refresh, the 'Auto-Refresh' button may be selected; if this button is selected, any changes made to the grid will automatically appear in the chart. Other methods of forcing refresh include pressing the green refresh button in the 'Quick Access Toolbar' or by pressing F5 on the keyboard.

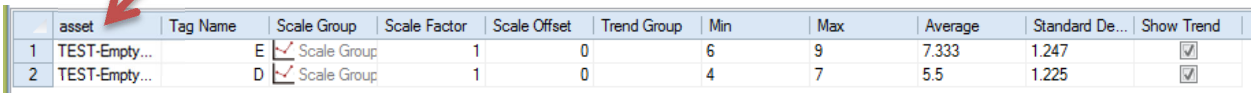


6.4.1 Trend line Identification

PowerDB uses two identifiers, the Asset Name and Tag Names, to generate trend line labels in the chart legend.

6.4.1.1 *Asset Name*

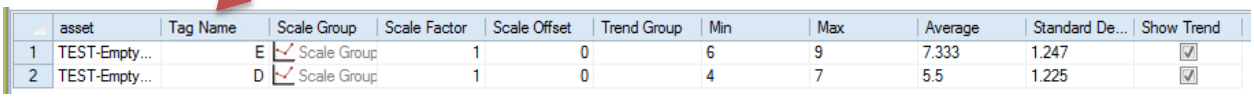
The Asset Name is the first value displayed in the Trend View grid. This value is dependent on the name of the asset that is used to generate the trend chart. Multiple asset names will be displayed if multiple assets are used during trending.



	asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard De...	Show Trend
1	TEST-Empty...	E	Scale Group	1	0		6	9	7.333	1.247	☑
2	TEST-Empty...	D	Scale Group	1	0		4	7	5.5	1.225	☑

6.4.1.2 *Tag Name*

The second grid value displayed is the name of the tag that was selected when generating trend data. These values may only be changed in form editing and typically provide a means to understand what value is being displayed.



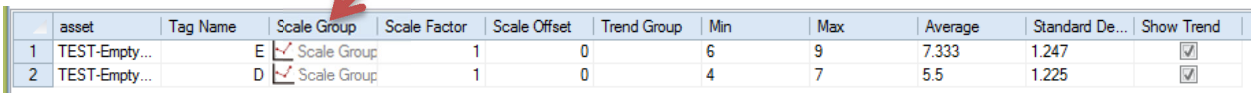
	asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard De...	Show Trend
1	TEST-Empty...	E	Scale Group	1	0		6	9	7.333	1.247	☑
2	TEST-Empty...	D	Scale Group	1	0		4	7	5.5	1.225	☑

6.4.2 Trend line Modification

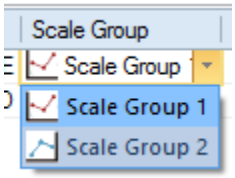
PowerDB provides many options to modify trend lines for presentation purposes. To do so, the following values are able to be changed. Once a change has been made, the chart must be refreshed before the change is made visible on the chart.

6.4.2.1 *Scale Group*

The 'Scale Group' grid item is a dropdown list that controls which scale the selected trend line shall belong to. The first option, the default, will set the trend line to the first scale group which corresponds to the left Y Axis.

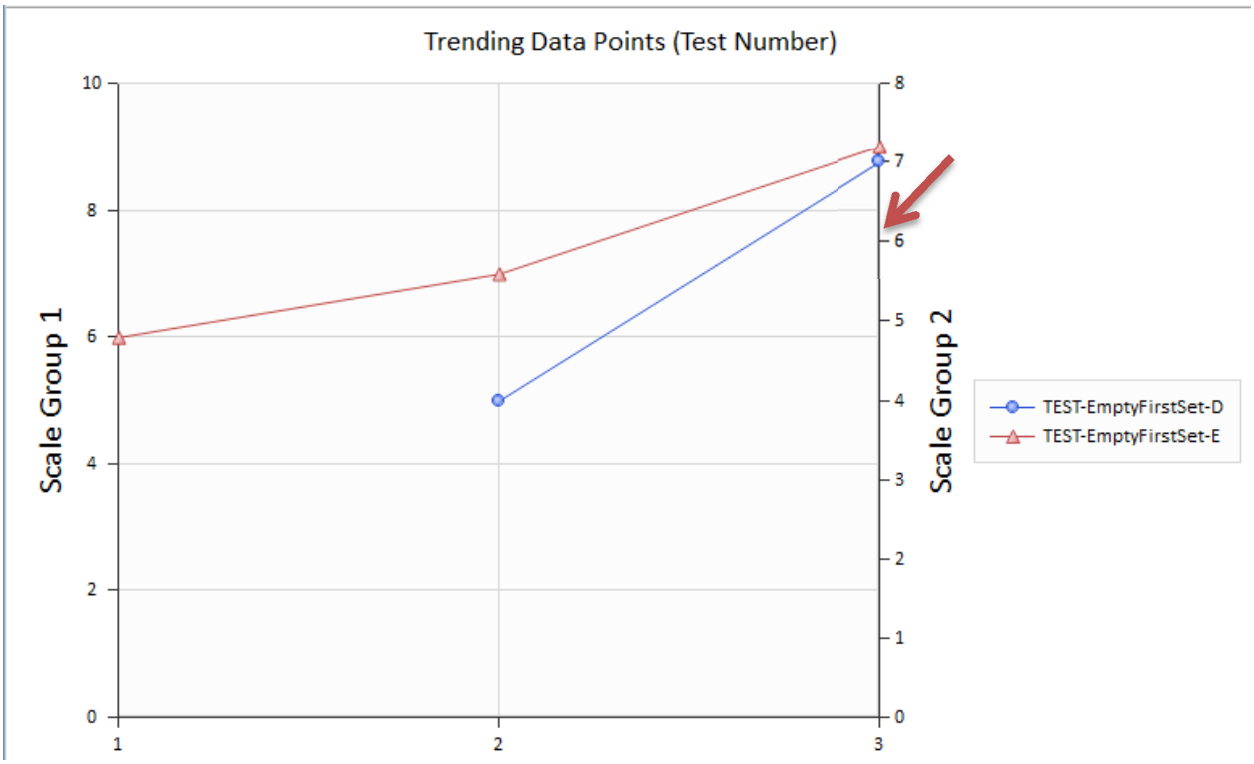


	asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard De...	Show Trend
1	TEST-Empty...	E	Scale Group	1	0		6	9	7.333	1.247	☑
2	TEST-Empty...	D	Scale Group	1	0		4	7	5.5	1.225	☑



Trend lines that are set to Scale Group 2 will correspond to a secondary Y Axis that appears to the right. This secondary axis is only visible when a trend line has been set to Scale Group 2.

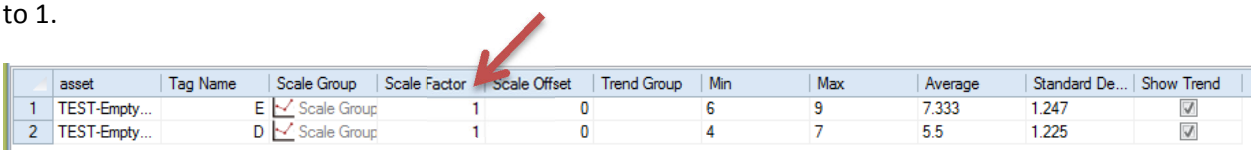
NOTE: The Scale Group Labels can be changed by using the Format Axis dialog.



This feature is useful to manage trend lines that may have different orders of magnitude and units.

6.4.2.2 Scale Factor

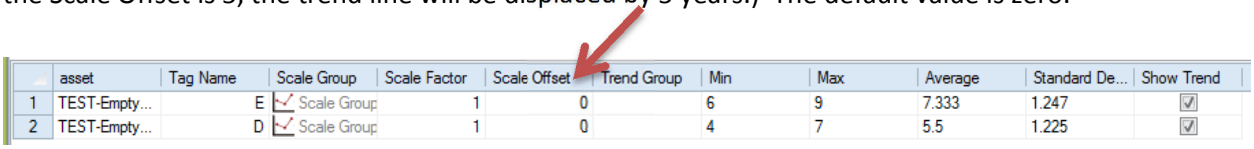
The 'Scale Factor' field will apply a multiple to the selected trend lines Y values. The value is defaulted to 1.



	asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard De...	Show Trend
1	TEST-Empty...	E	Scale Group	1	0		6	9	7.333	1.247	☑
2	TEST-Empty...	D	Scale Group	1	0		4	7	5.5	1.225	☑

6.4.2.3 Scale Offset

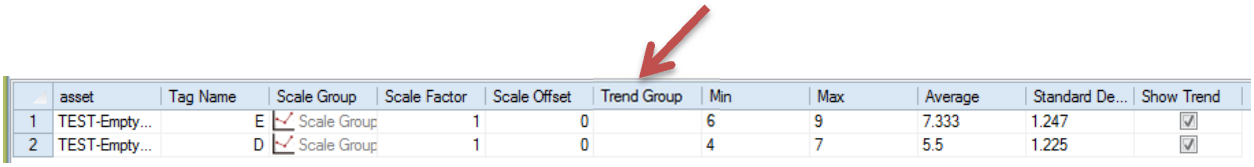
The 'Scale Offset' field will shift the trend line along the X axis by the specified amount. The time displaced will be dependent on the X axis's units (e.g. if the chart is displayed in years and the value in the Scale Offset is 5, the trend line will be displaced by 5 years.) The default value is zero.



	asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard De...	Show Trend
1	TEST-Empty...	E	Scale Group	1	0		6	9	7.333	1.247	☑
2	TEST-Empty...	D	Scale Group	1	0		4	7	5.5	1.225	☑

6.4.2.4 Trend Group

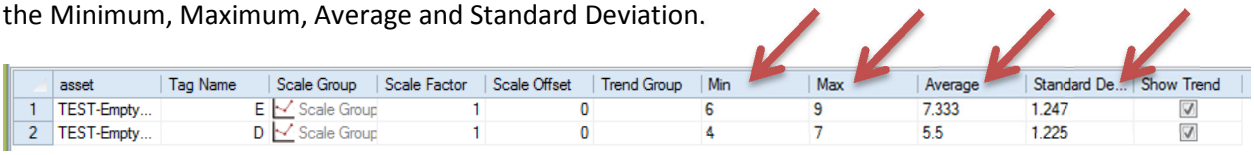
It is possible to combine trend lines into a single data set by using the trend group columns. To add any two lines together to a single group, type any desired number in to the Trend Group field of each line. This value must remain the same for both lines in order to be a part of the same trend group. When this is completed, the chart will automatically default to 'Scattered Graph.'



	asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard De...	Show Trend
1	TEST-Empty...	E	Scale Group	1	0		6	9	7.333	1.247	☑
2	TEST-Empty...	D	Scale Group	1	0		4	7	5.5	1.225	☑

6.4.3 Statistical Information

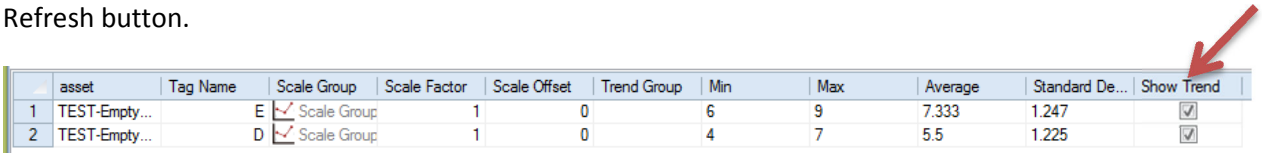
The statistical information of each trend line is displayed in the Trend View Gird. These values include the Minimum, Maximum, Average and Standard Deviation.



	asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard De...	Show Trend
1	TEST-Empty...	E	Scale Group	1	0		6	9	7.333	1.247	☑
2	TEST-Empty...	D	Scale Group	1	0		4	7	5.5	1.225	☑

6.4.4 Show Trend

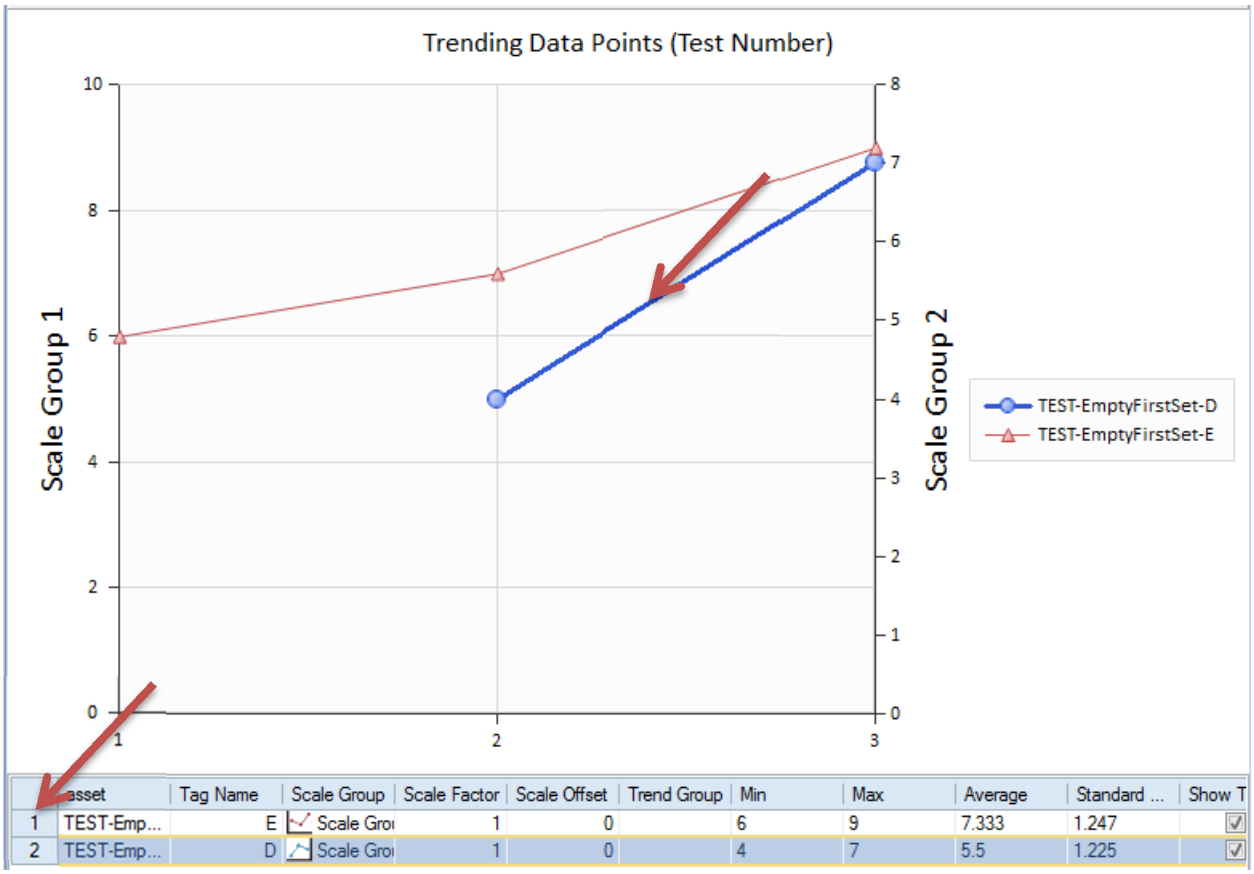
The 'Show Trend' column presents a checkbox. This checkbox, when selected, will display the corresponding trend line in the chart. If it is unchecked, the trend line will not be displayed. For any changes to be displayed on the chart, the chart must be refreshed using either 'Auto-Refresh' or the Refresh button.



	asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard De...	Show Trend
1	TEST-Empty...	E	Scale Group	1	0		6	9	7.333	1.247	☑
2	TEST-Empty...	D	Scale Group	1	0		4	7	5.5	1.225	☑

6.4.5 Trend Highlighting

PowerDB allows for the trend lines to be highlighted in the chart. To do this, left click the number column to the left of the Trend View Grid. This will highlight the entire row in the grid as well as increase the line thickness for the corresponding trend line. When another trend line is highlighted, the previous line will return to the default line thickness.



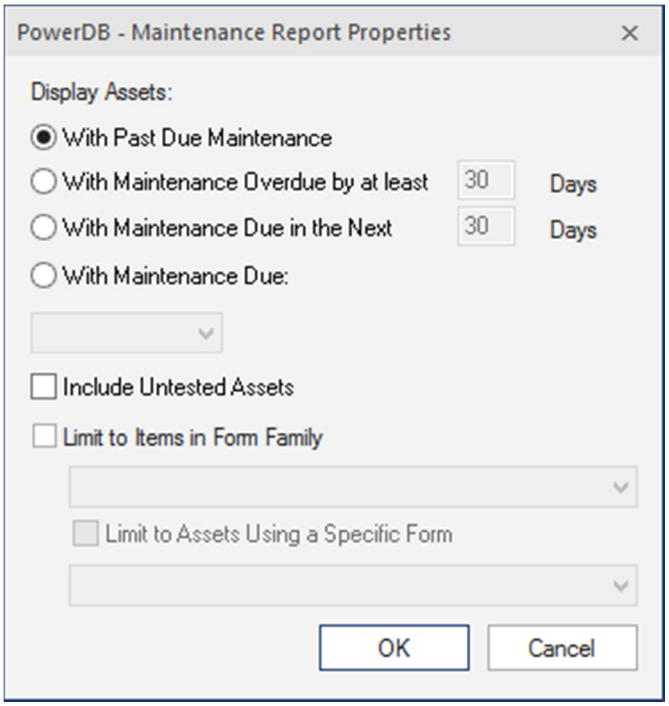
	Asset	Tag Name	Scale Group	Scale Factor	Scale Offset	Trend Group	Min	Max	Average	Standard ...	Show T
1	TEST-Emp...	E	Scale Gro	1	0		6	9	7.333	1.247	☑
2	TEST-Emp...	D	Scale Gro	1	0		4	7	5.5	1.225	☑

7 Reporting

7.1 Maintenance Reporting

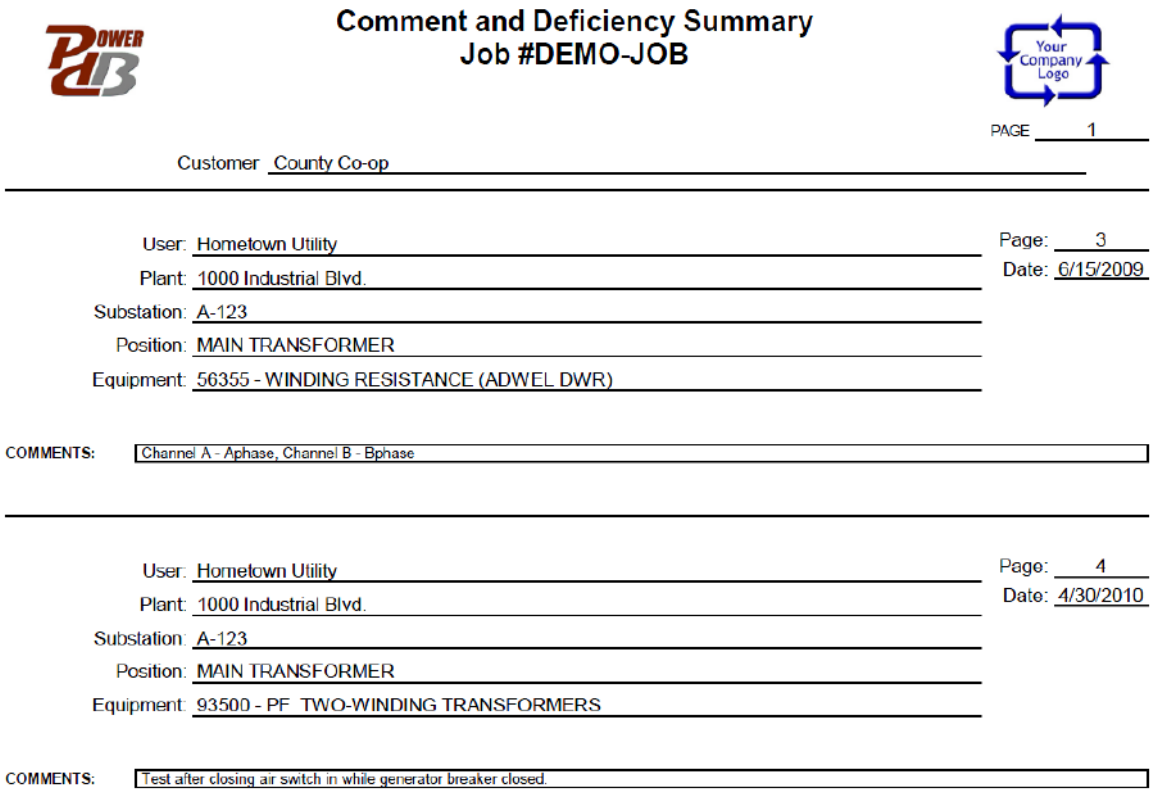
Maintenance intervals may be defined for assets and print related reports. To define a default maintenance interval for forms select a form in the Form Tree and then select Properties from the right click menu. Enter a maintenance period interval in the edit field; a value of zero will not generate any maintenance report results for this form.

To print Maintenance Reports for assets select Maintenance Report from the Job or Asset Tree right click menu. Select the assets to print based on maintenance report due dates and then click OK.



7.2 Comments and Deficiencies

Most data forms provided with PowerDB include a Comments & Deficiencies sub-form. These fields allow users to enter notations regarding test results. Entries made in these fields can be used to generate Job Summary Reports available at printing. Default text entries may be added to either Comments or Deficiencies using a right click option. These default entries may be found under the Data tab within the 'User Data' Subform.



Comment and Deficiency Summary
Job #DEMO-JOB

Your Company Logo

PAGE 1

Customer County Co-op

User: Hometown Utility
Plant: 1000 Industrial Blvd.
Substation: A-123
Position: MAIN TRANSFORMER
Equipment: 56355 - WINDING RESISTANCE (ADWEL DWR)

Page: 3
Date: 6/15/2009

COMMENTS: Channel A - Aphase, Channel B - Bphase

User: Hometown Utility
Plant: 1000 Industrial Blvd.
Substation: A-123
Position: MAIN TRANSFORMER
Equipment: 93500 - PF TWO-WINDING TRANSFORMERS

Page: 4
Date: 4/30/2010

COMMENTS: Test after closing air switch in while generator breaker closed.

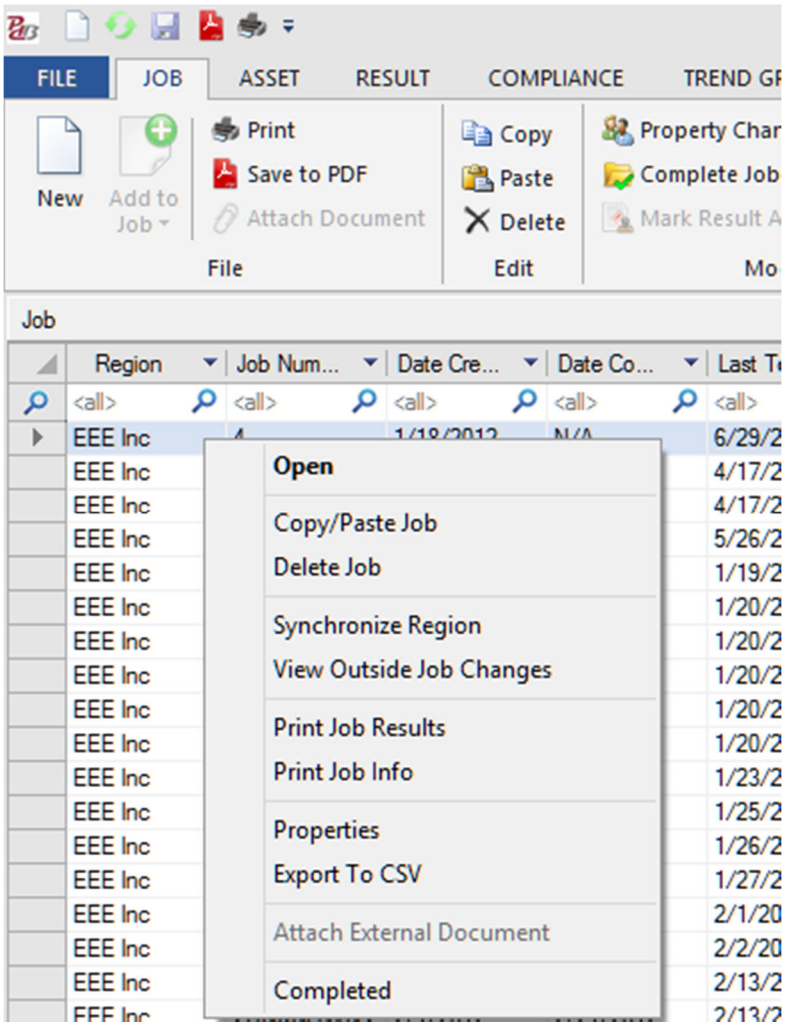
8 Save as PDF / Print Reports

8.1 Print a Job

This section explains the steps to print an entire job report, inclusive of Table of Contents, and Comment and Deficiency summaries.

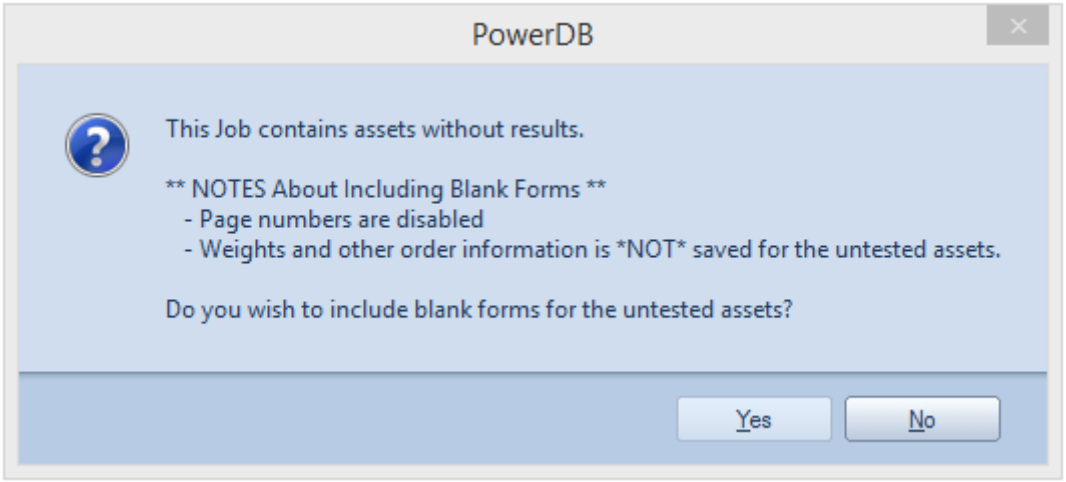
1) From the PowerDB Jobs List screen, right click on the Job number to print and select Print Job Results.

PowerDB Jobs Screen, right-click menu of Job Demo1 selected



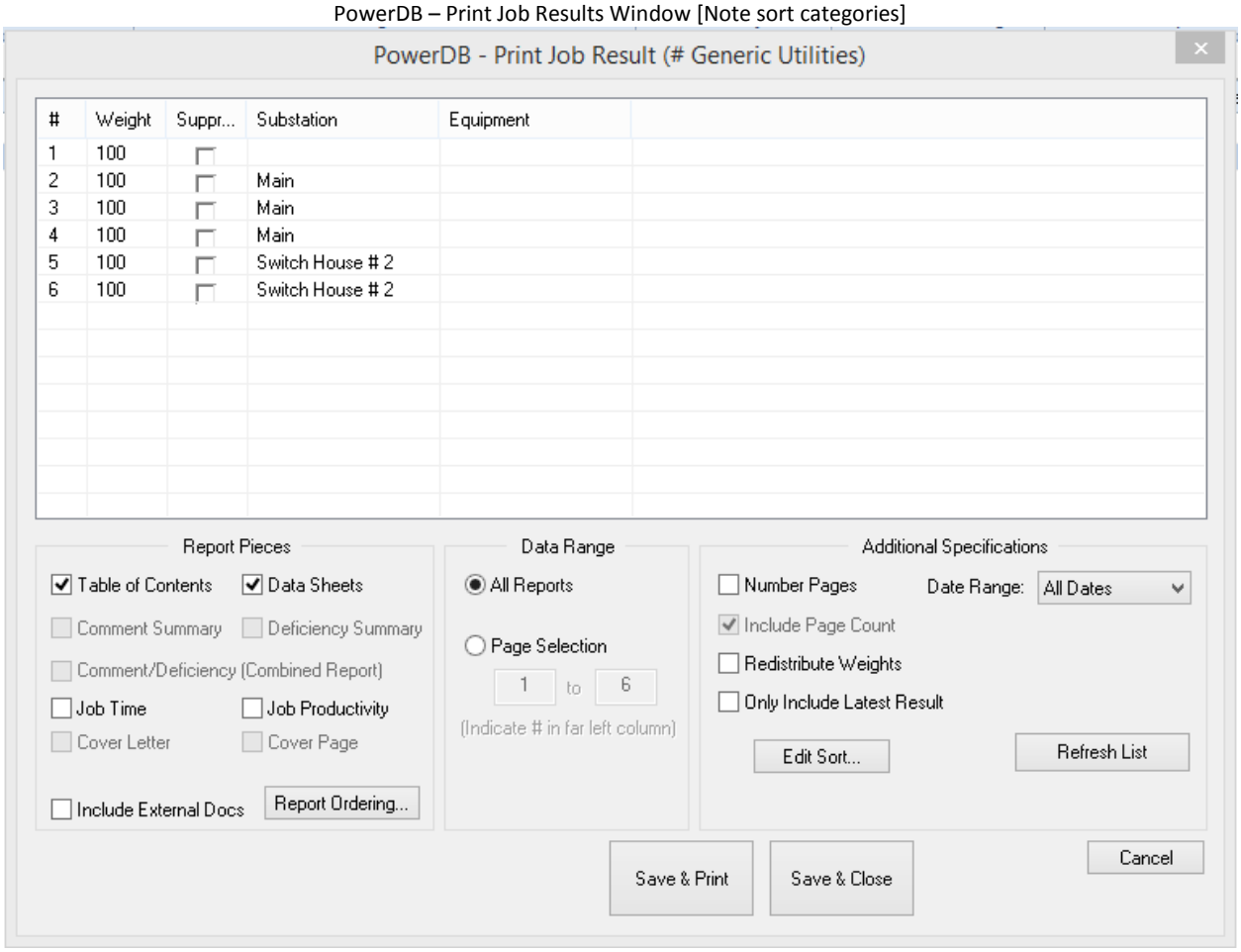
2) At this point the following PowerDB window may appear [if not skip to step 3]. Select the desired option, for this example 'No' was selected.

PowerDB Untested Assets Window



3) A Print Job Results window will appear [sorting columns/categories may be different]. Click Edit Sort.

PowerDB – Print Job Results Window [Note sort categories]

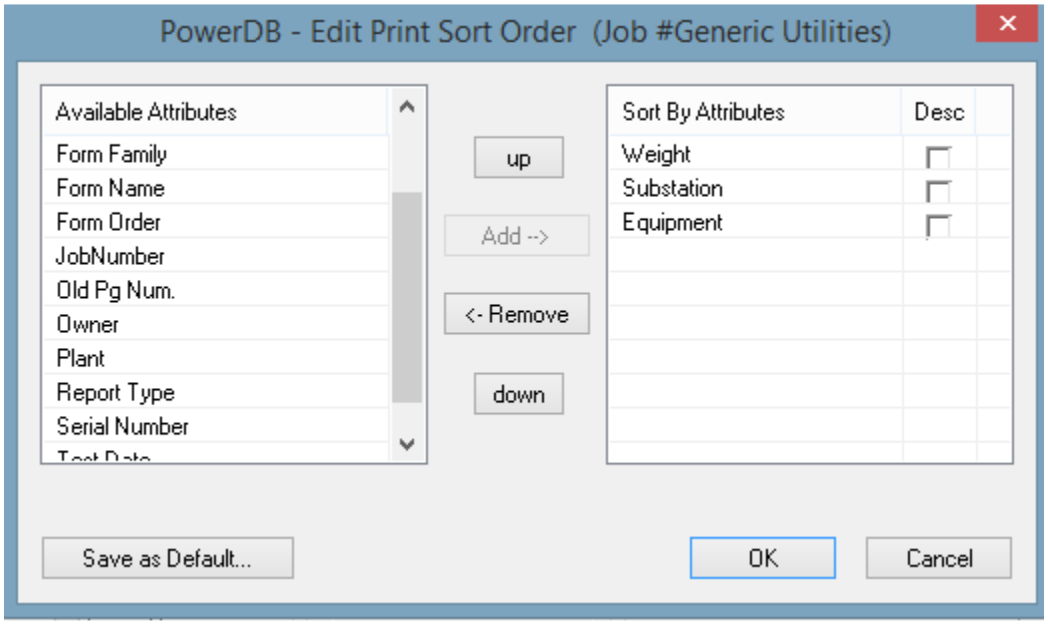


4) The Edit Print Sort Order window will appear. On the left side [Available Attributes] of the window is a list of available sort attributes that ARE NOT being used in this sort. On the right side [Sort By Attributes] of the window are the sort attributes that ARE currently being used.

There is also a check box next to each of the Sort By Attributes. The check boxes are all in a column labeled “Desc.”[Descending] If the Sort By Attribute has a checked Desc. box next to it, the attribute is sorted in reverse alpha-numeric order [zyx…ba, 98…210]. If the Sort By Attribute has an unchecked Desc. box next to it, the attribute is sorted in forward alpha-numeric order [012…98, ab…xyz].

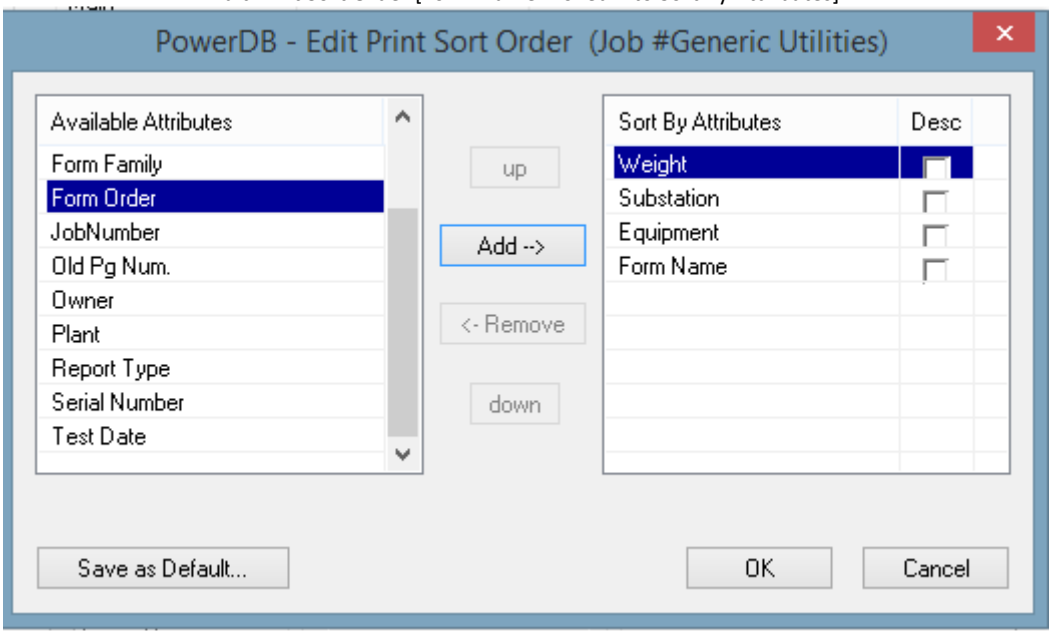
The Sort By Attributes are considered from the top to bottom of the list. In the figure below, the print results list would first be organized by Weight. The list would then by sorted within each Weight by Substation. Test forms with the same Weight, in the same Substation would then be sorted in ascending order by Equipment.

Edit Print Sort Order Window



5) To add an attribute to the Sort By Attributes, highlight it in the left window and click on the Add →button. The attribute will now be listed on the bottom of the Sort By Attributes list. In the Figure below, Form Name has been moved into the Sort By Attributes list. Now test forms with the same Weight, Substation, and Position, will be sorted by Form Name.

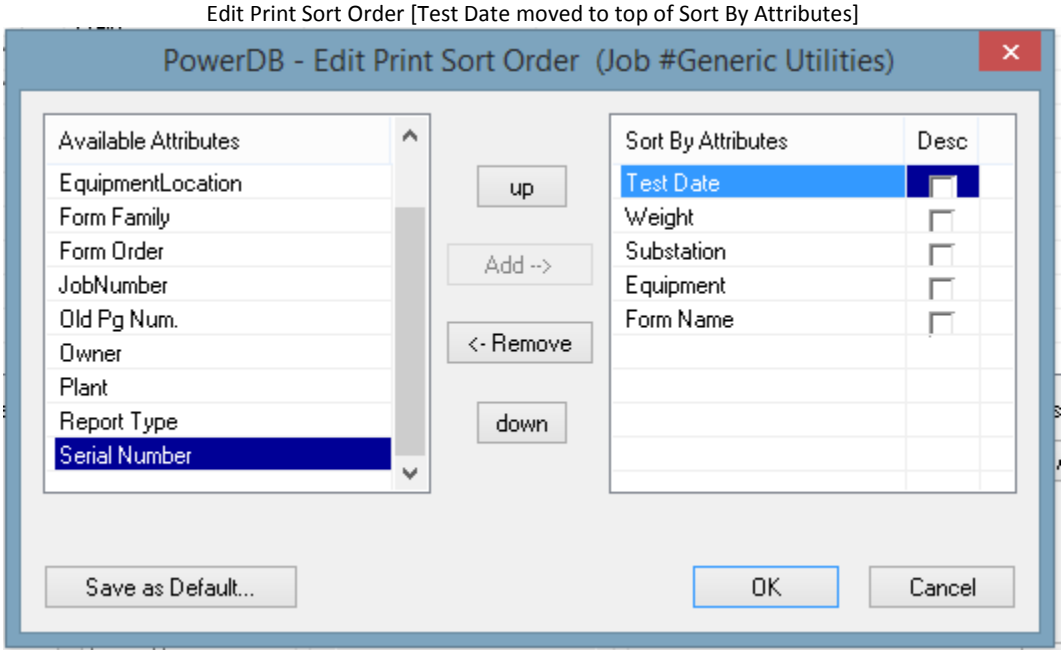
Edit Print Sort Order [Form Name moved into Sort By Attributes]



6) To change the priority of a Sort By Attribute, highlight it and then click on either the up or down buttons. The attribute will move higher or lower in the list. In the figure below, the Test Date is set to be the first thing considered when sorting the list. To accomplish this, single-click on Test Date. With Test Date highlighted, click on the up button four times. Now the list will be sorted using Test Date first. Test

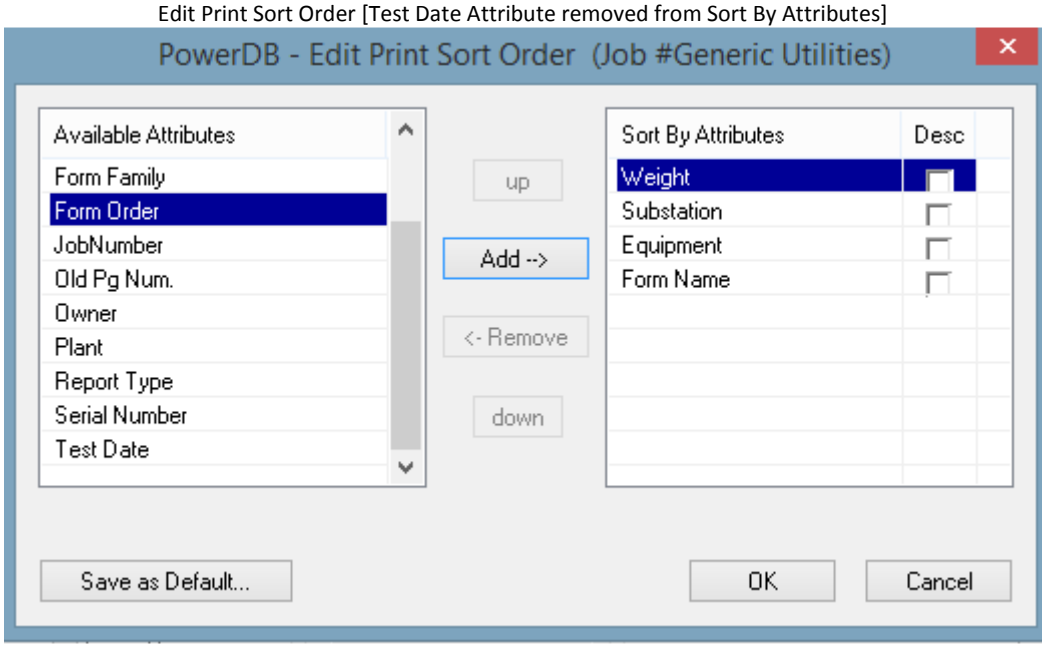
sheets from the same Test Date will then be sorted by Weight. Test sheets with the same Test Date and Weight will then be sorted by Substation, etc.

Edit Print Sort Order [Test Date moved to top of Sort By Attributes]



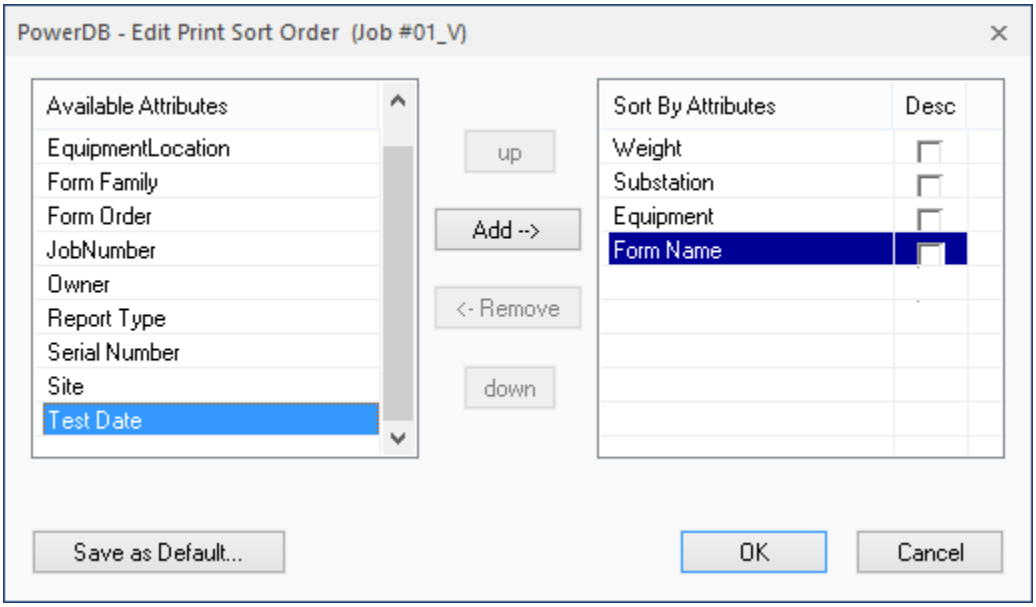
7) To not consider an attribute while sorting the job results, remove it from the Sort By Attributes group. First highlight the unwanted attribute in the list, and then click on ←Remove. In the figure below, the Test Date Attribute is removed. It no longer appears in Sort By Attributes, but is listed in Available Attributes. If anything is accidentally removed, it can easily be put back into the Sort By Attributes list (refer to Step 5)

Edit Print Sort Order [Test Date Attribute removed from Sort By Attributes]



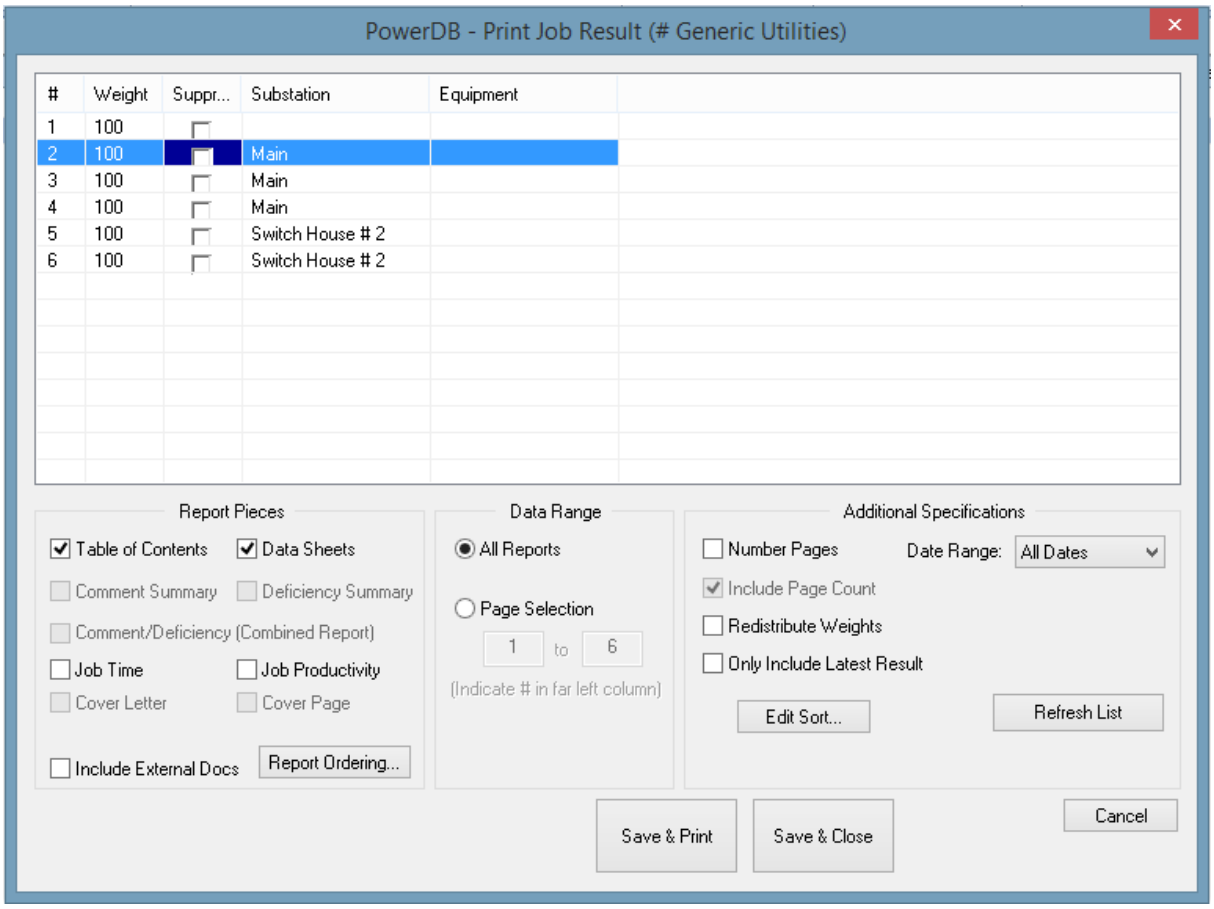
8) After organizing the Sort By Attributes as needed click on OK. In the figure below, the Sort By Attributes are organized by Weight, then Substation, then Equipment, then Form Name [Weight will be explained in later steps].

Edit Print Sort Order



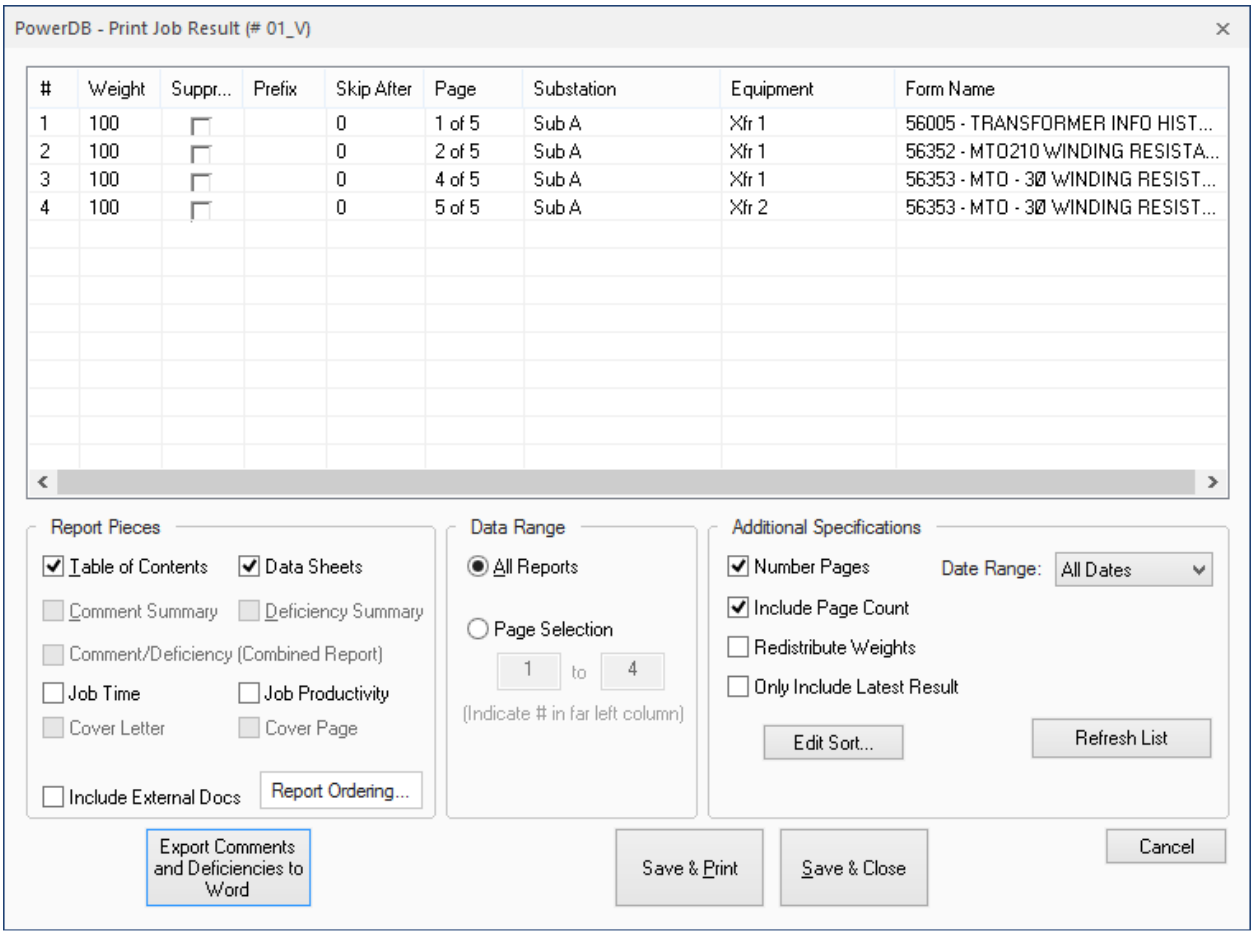
9) The Print Job Results Screen reappears. All of the Sort By Attributes are listed in the columns. Notice in the figure below that the forms have the same weight so they are sorted according to Substation. First click on Number Pages and Include Page Count. Then click on Refresh List.

Print Job Results Window



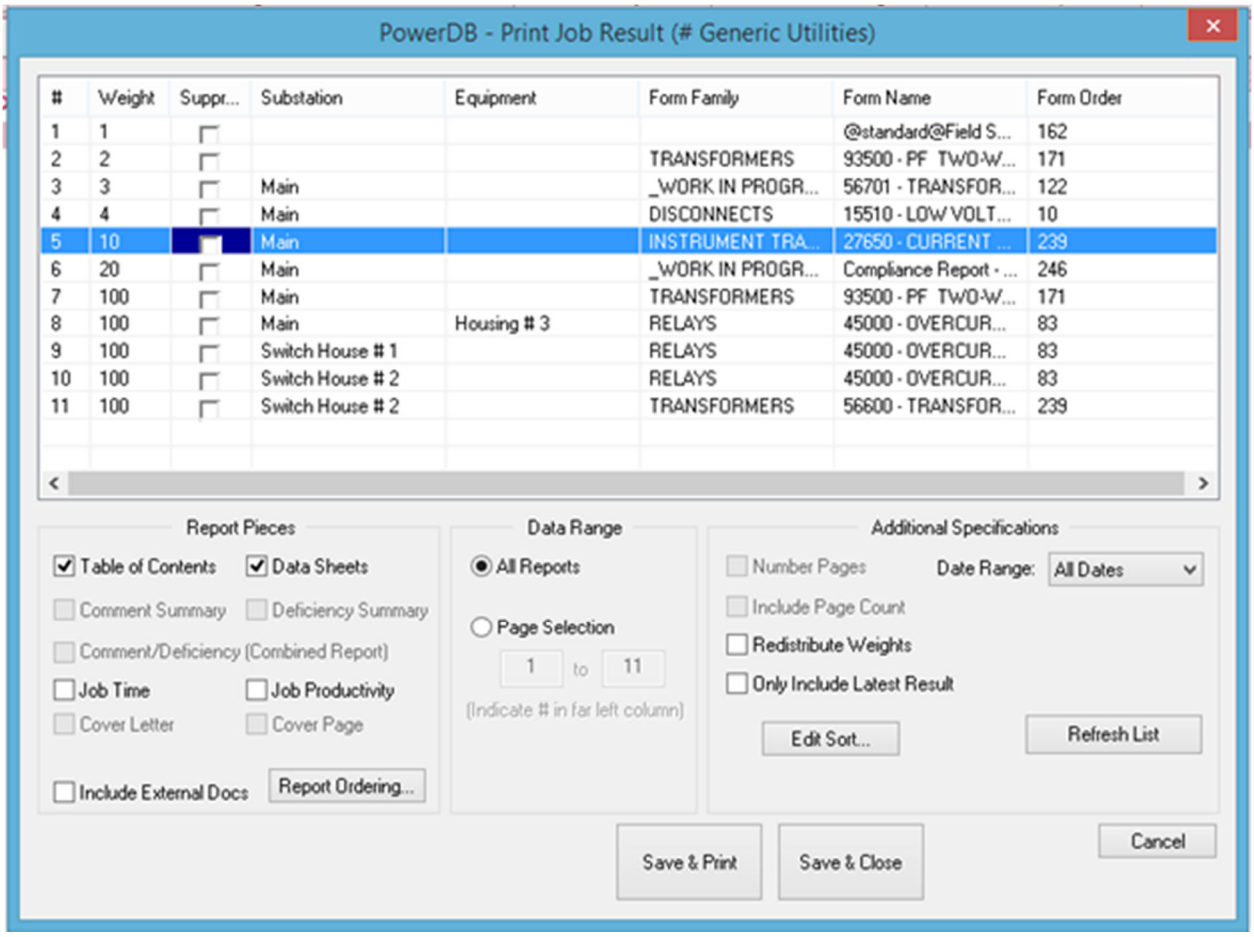
10) After selecting to include page numbers there are now three more columns in the Print Job Results window: Prefix, Skip After, and Page. A few of the columns are too small to see the entire descriptions. To expand the columns, move the mouse pointer so it is directly on the line between the column headings [on the right side of the desired column to expand]. The mouse pointer arrow will change to ←|→. Hold down the left mouse button and drag the line to the right to expand the column until all desired information is visible. The figure below shows the columns expanded.

Print Job Results Window [Columns expanded]



11) The most basic method to sort the test sheets is through the Weight values. The Weight column values default to 100. The sort order can be changed by setting the weight value for each test form. Based on how sort order is defined, the weights are considered in regular numeric order and considered first. Weights may be assigned in a way so that the desired first page is given a weight of 1, the desired second page a weight of 2, etc. After weights are assigned, pressing Refresh List will rearrange as ordered [note: the columns must be resized each time the list is refreshed]. In the figure below, the first seven test forms have been arranged using Weight.

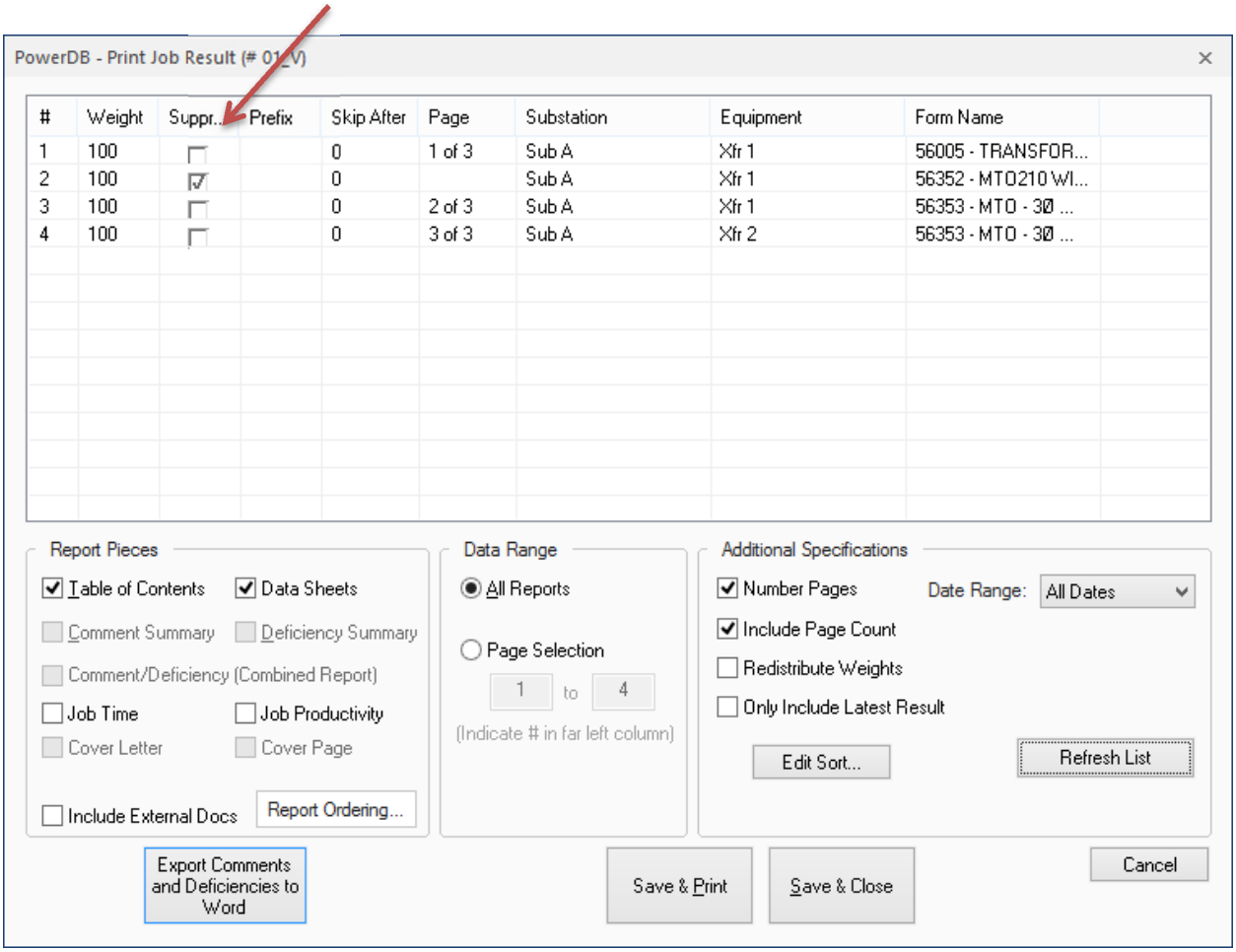
First four test sheets arranged by Weight



12) This method is fine for smaller jobs, but obviously would be tedious for a large job. A faster method would be to make 'weight' the second sorting attribute and move Substation to the first sorting attribute. Doing this will make the required range of weights much smaller. For example, if there are 5 items each in 10 substations instead of assigning weights of 1 to 50, assign the items 1 through 5 in each substation. However, it is ideal to utilize another attribute to sort the test forms and use as little weights as possible.

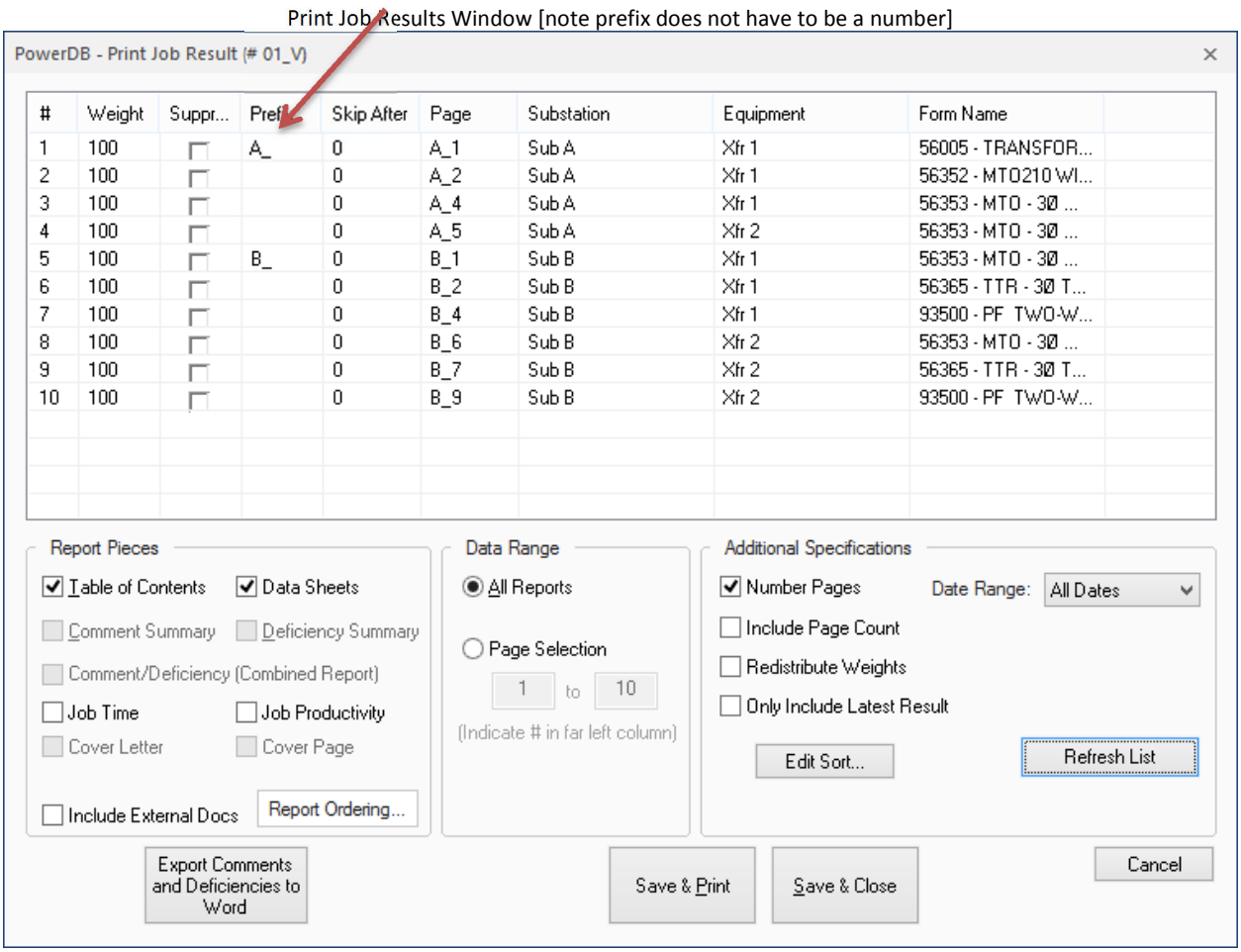
Another feature available is the Suppress check box. If this box is checked, the test form in that row will not print with the rest of the Job [the result is not deleted, just ignored for printing]. The figure below shows a few test forms suppressed [by clicking on Suppress, then hitting Refresh List]. Notice that test forms with the Suppress column checked do not have a page number in the Page column.

Print Job Results with some forms suppressed



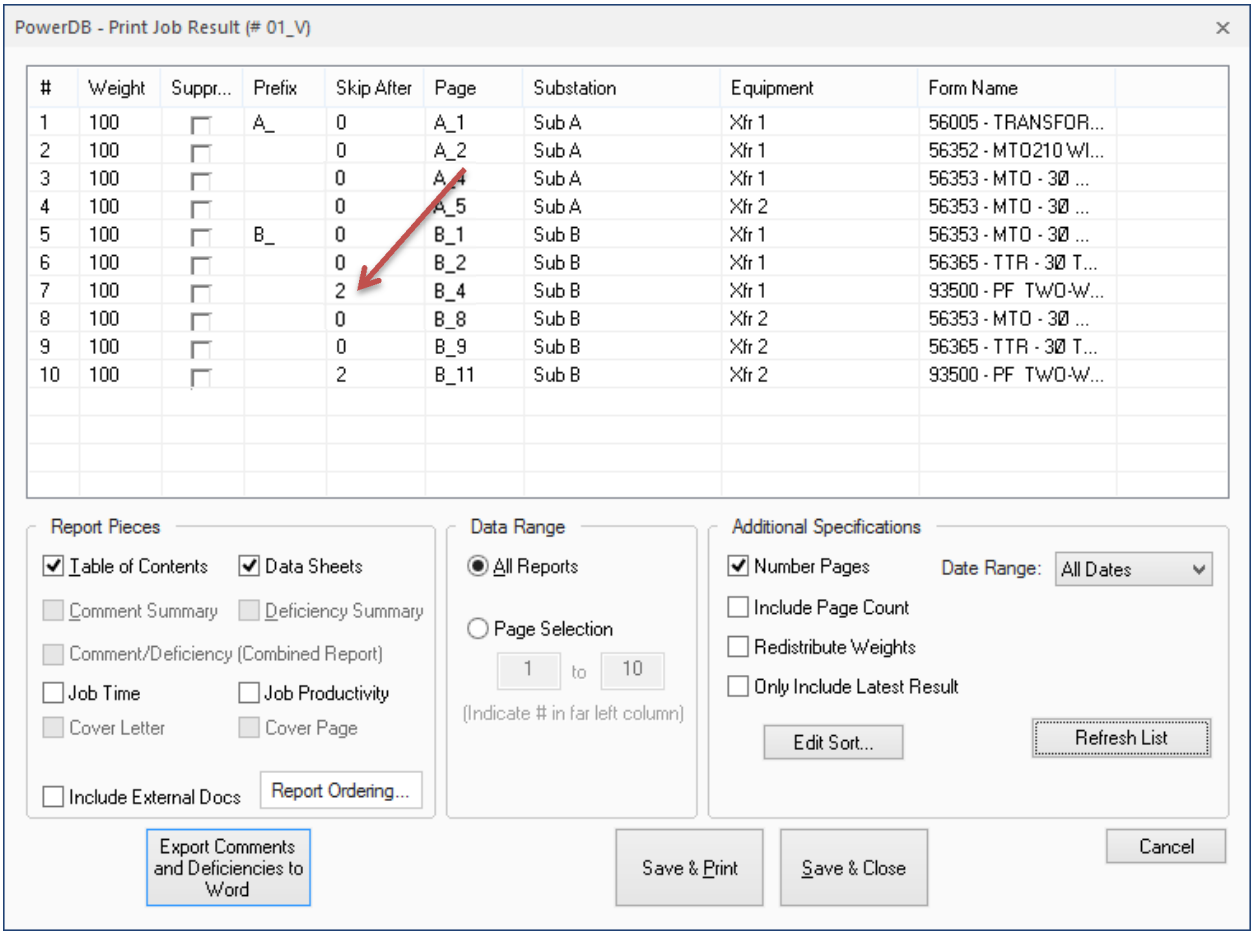
13) Another useful feature is the Prefix. This may be used to break up the report into groups. For example the third page in the first substation would be 1-3, the third page in the third substation would be 3-3. To assign prefixes, enter the desired prefix text in front of the page number in the prefix section of the first test sheet in the group. In the first form of the next group enter the next prefix. The figure below shows a few prefixes entered [note most of the suppression has been removed]. After the prefixes are entered, uncheck Include Page Count, and then hit Refresh List. Notice the page numbers are now assigned with prefixes.

Print Job Results Window [note prefix does not have to be a number]



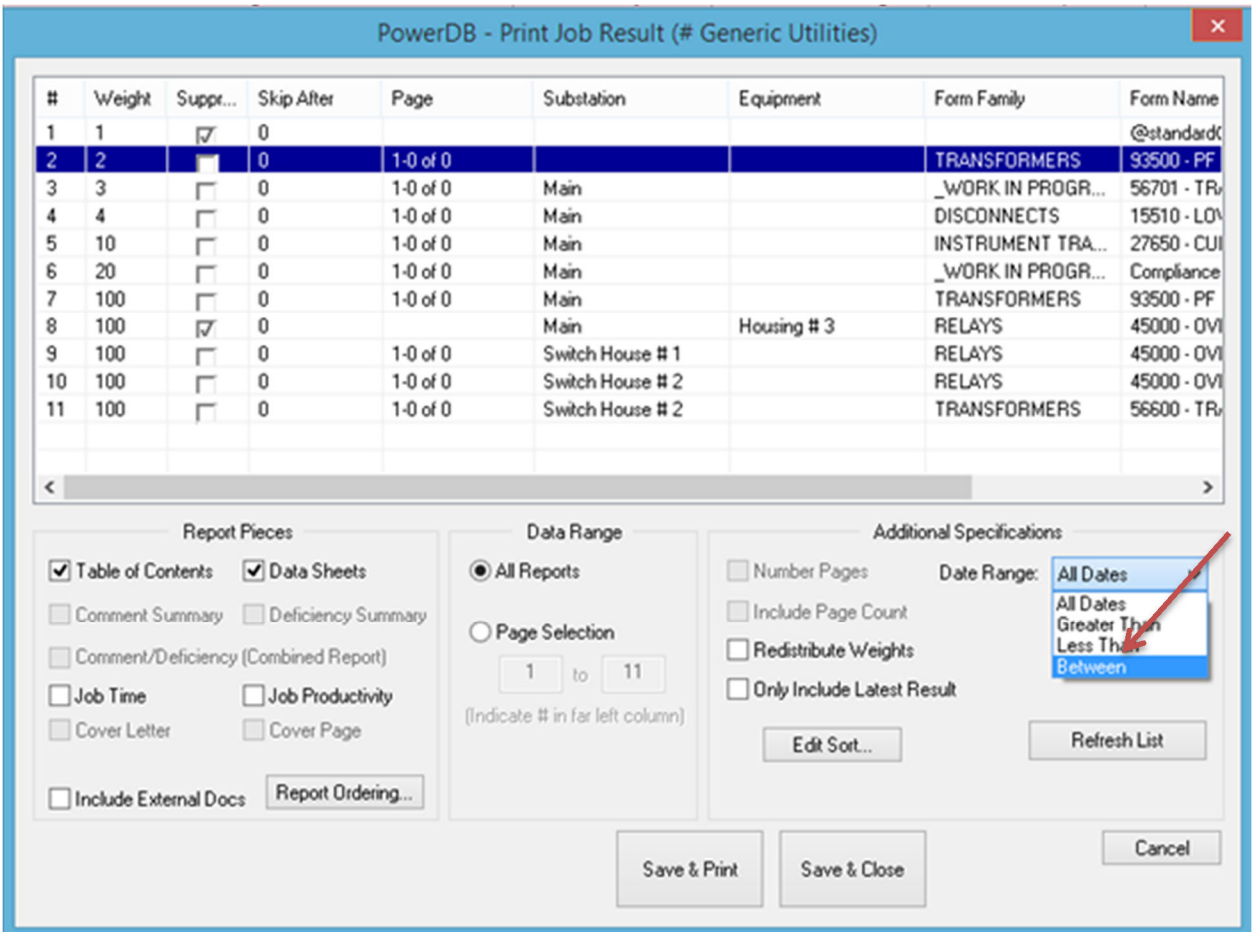
14) Next use the ‘Skip After’ Column. The page numbering will be reflective of these indicated values. This feature helps when inserting pages into the report that are not part of the PowerDB Job Results [drawings, test procedures, etc.] These pages can be numbered to be consistent with the rest of the report.

Print Job Results with Skip After used.



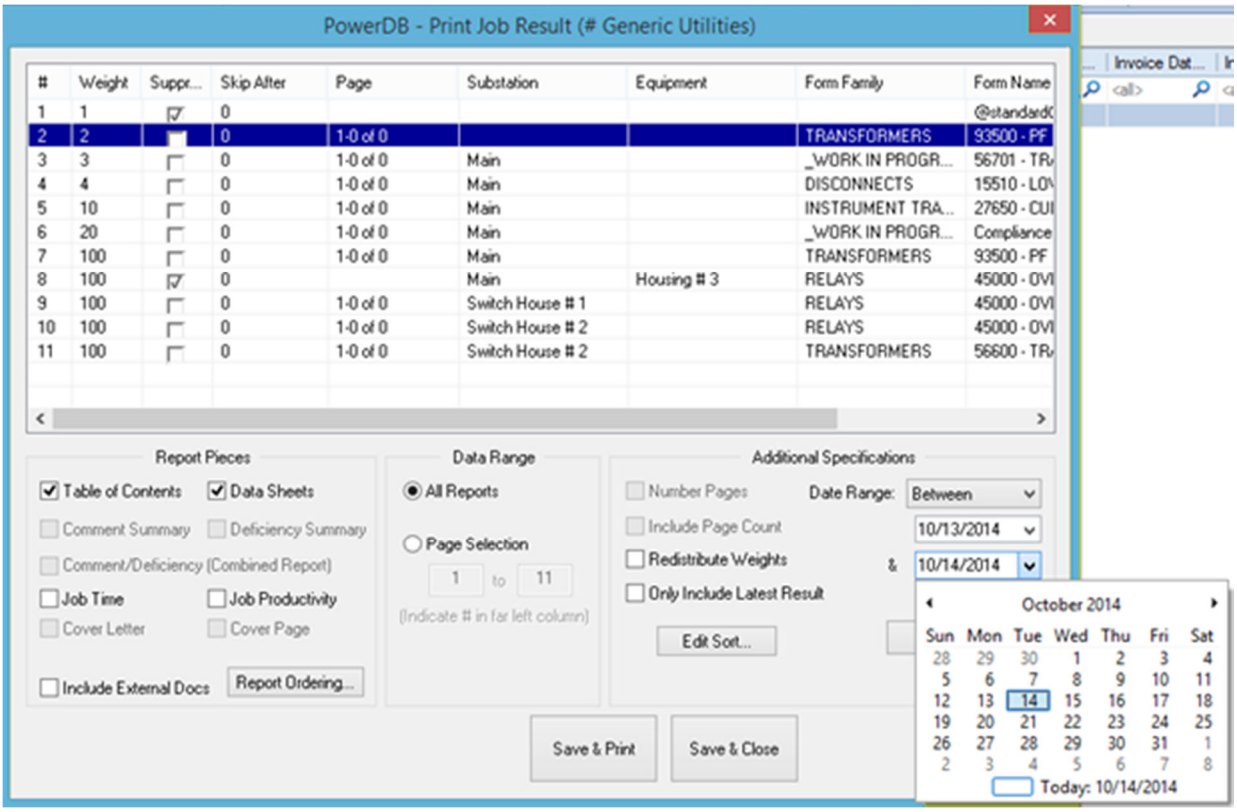
15) The Date Range Feature will filter out results by test date. This may also be accomplished by using 'Test Date' as a sorting attribute. However, doing so will require suppressing forms or setting a print range in order to not print any unwanted forms or set the print. The Date Range feature greatly simplifies the process. From the dropdown box, select 'Between' [the other options work basically the same].

Print Job Results, "Between" Date Range Selected



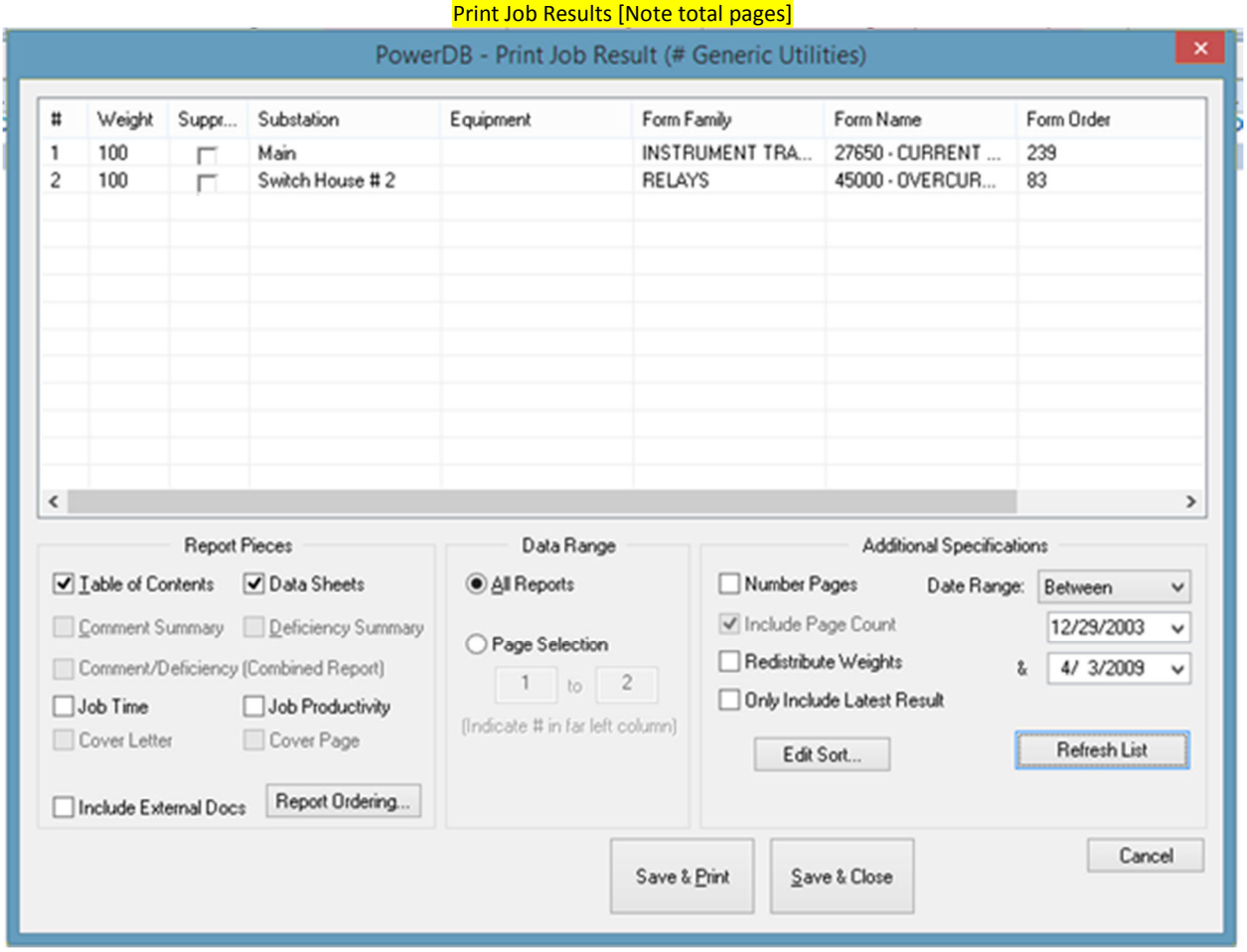
16) There will now be two dates to enter. When either date is clicked, a calendar will appear. Select the dates directly before and after the desired dates. Keep in mind, the Between, Greater Than, and Less Than comparisons are exactly as they are written. They do NOT include the selected date. Click Refresh List.

Print Job Results with “Between” date calendar open



17) After the list is refreshed notice the difference in total pages. The list now has fewer sheets with one simple command [compare figure below and from previous step].

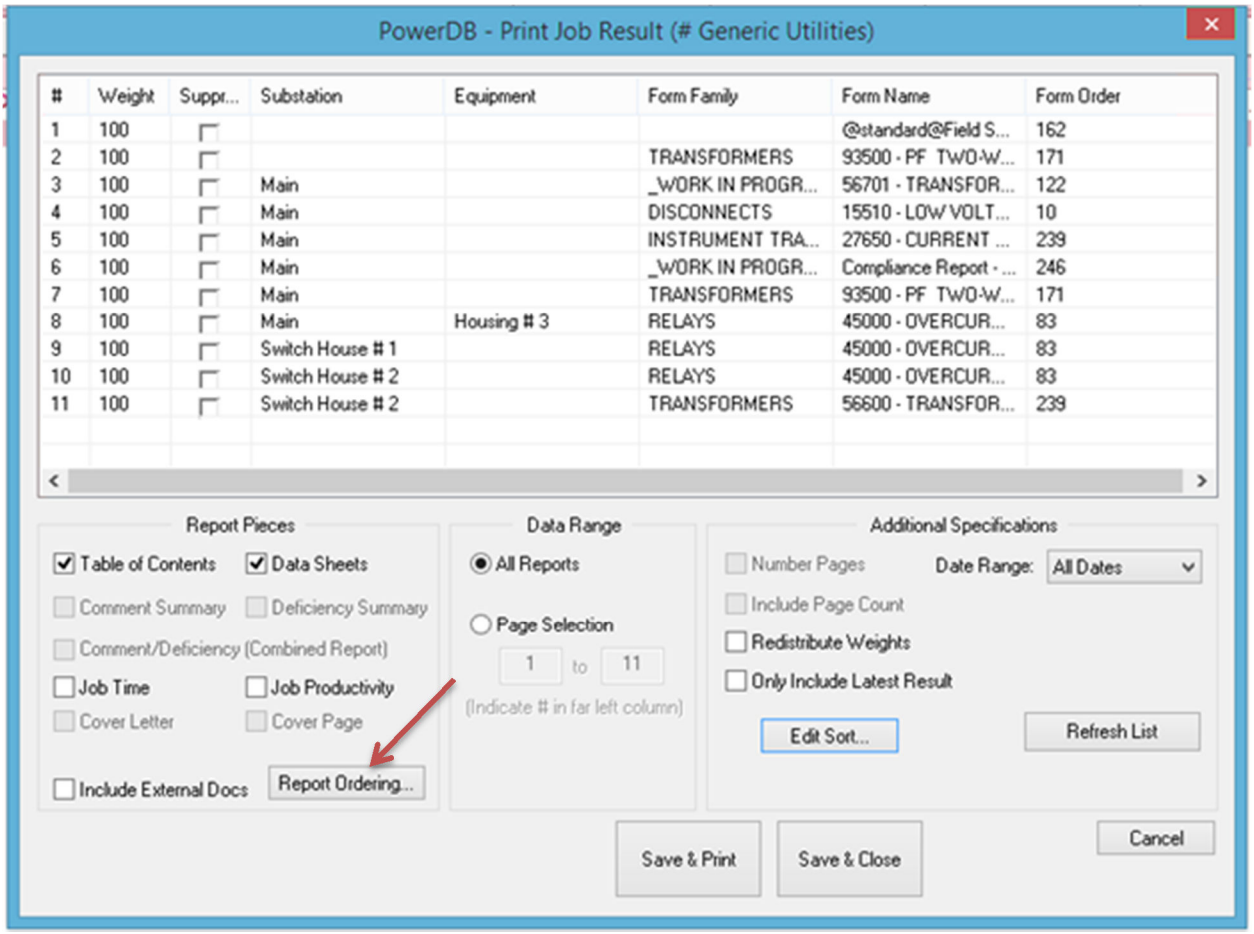
Print Job Results [Note total pages]

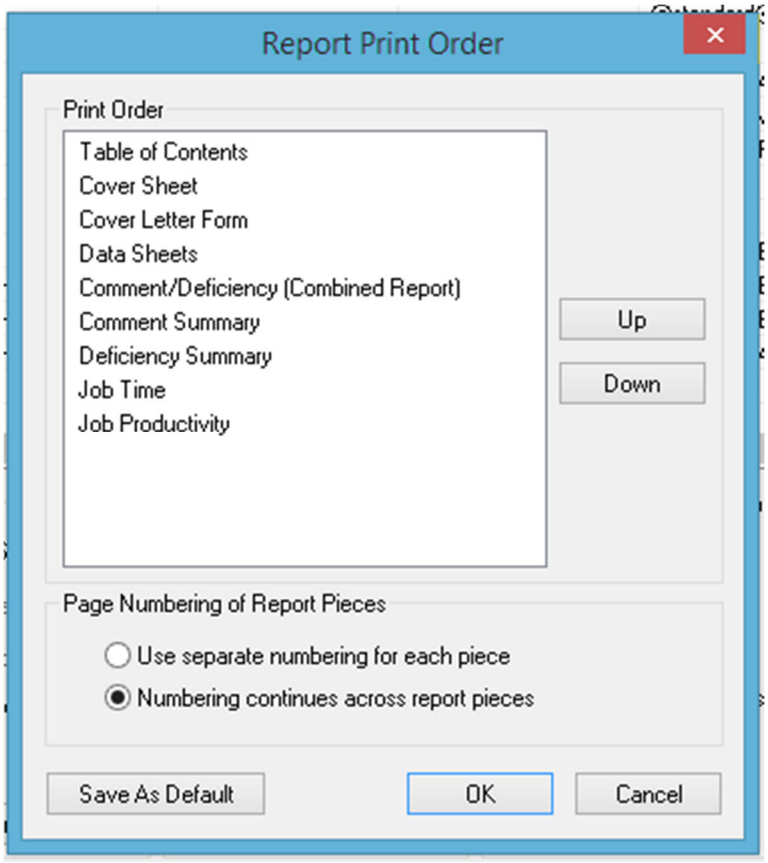


18) Additional Report Pieces can be selected in the Print Job Results window. These include Table of Contents, Comment Summary, Deficiency Summary, Comment/Deficiency (Combined Report), Job Time, and Job Productivity. If the Table of Contents is checked, a table of contents will print with the report. If the Comment Summary is checked, the report will include a summary report listing the Substation, Position, Asset, Test Date and Comment text of any asset that had comments entered. Similarly, if the Deficiency Summary is checked, the report will include a summary report listing the Substation, Position, Asset, Test Date and Deficiency text of any asset that had deficiencies entered.

19) Another option available is the Data Range. The data range may be defined using the Page Selection option. Selecting Page Selection 5 to 16 will print the 5th through 16th test results [note that some test sheets are greater than one page therefore the # and Page Number may differ].

20) The Report Ordering option allows setting the order of Report Pieces, and setting page numbering to be continuous or restarted across Report Pieces.

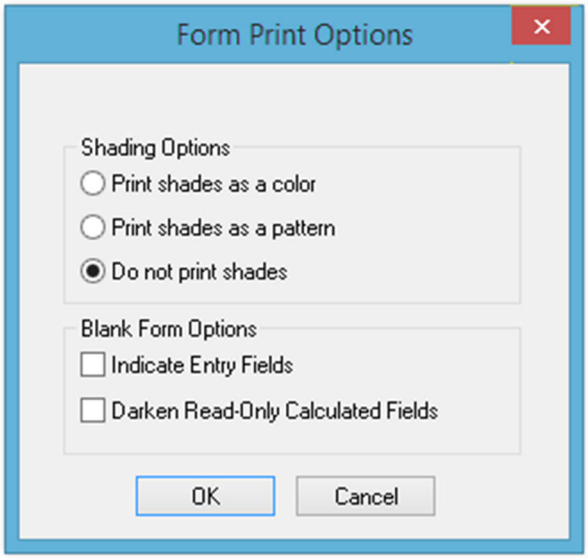

PowerDB - Print Job Result (# Generic Utilities)
| Weight | Suppr... | Substation | Equipment | Form Family | Form Name | Form Order
1 | 100 | | | | | @standard@Field S... | 162
2 | 100 | | | | TRANSFORMERS | 93500 - PF TWO-W... | 171
3 | 100 | | Main | | _WORK IN PROGR... | 56701 - TRANSFOR... | 122
4 | 100 | | Main | | DISCONNECTS | 15510 - LOW VOLT... | 10
5 | 100 | | Main | | INSTRUMENT TRA... | 27650 - CURRENT ... | 239
6 | 100 | | Main | | _WORK IN PROGR... | Compliance Report - ... | 246
7 | 100 | | Main | | TRANSFORMERS | 93500 - PF TWO-W... | 171
8 | 100 | | Main | Housing # 3 | RELAYS | 45000 - OVERCUR... | 83
9 | 100 | | Switch House # 1 | | RELAYS | 45000 - OVERCUR... | 83
10 | 100 | | Switch House # 2 | | RELAYS | 45000 - OVERCUR... | 83
11 | 100 | | Switch House # 2 | | TRANSFORMERS | 56600 - TRANSFOR... | 239
Report Pieces
Table of Contents
Data Sheets
Comment Summary
Deficiency Summary
Comment/Deficiency (Combined Report)
Job Time
Job Productivity
Cover Letter
Cover Page
Include External Docs
Report Ordering...
Data Range
All Reports
Page Selection
1
to
11
(Indicate # in far left column)
Additional Specifications
Number Pages
Date Range:
All Dates
Include Page Count
Redistribute Weights
Only Include Latest Result
Edit Sort...
Refresh List
Save & Print
Save & Close
Cancel



22) After setting the sorting, pagination, print order, additional reports and range, the job is ready to be printed. Three options are available: click Save & Print, Save & Close, or Cancel. Hitting cancel will exit the Print Job Results window [a warning message will appear first] and no changes to the sort order will be saved. If satisfied with the sort order, but not yet ready to print it, hit Save & Close. Doing so will exit the Print Job Results window, but the sort order will be saved. The print order will already be defined the next time this job is printed. The third option is to click Save & Print. This will accomplish everything that clicking Save accomplishes, but it will also print the Job.

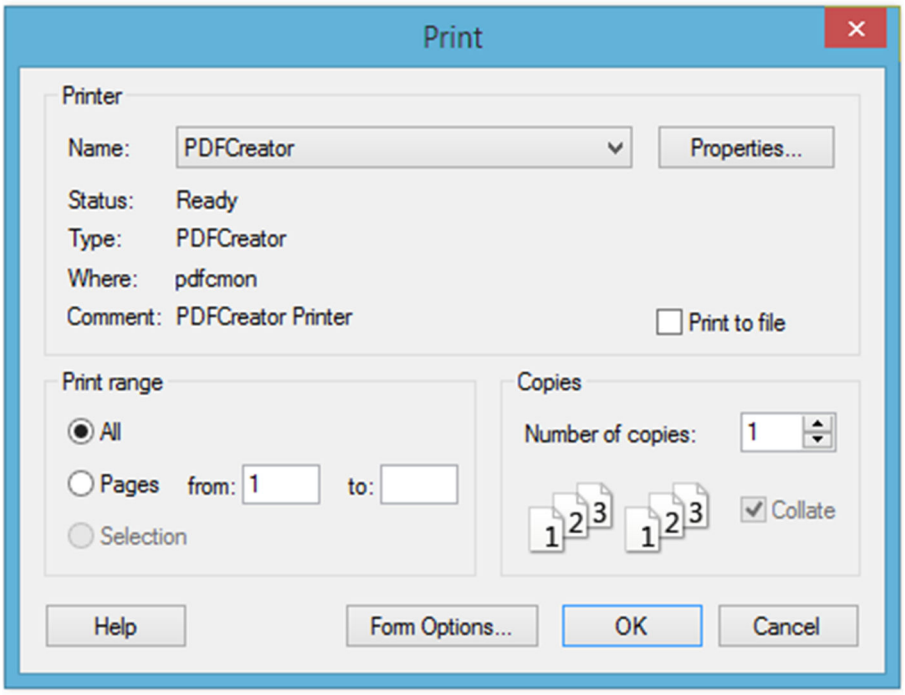
23) The Form Print Options window will appear. Select options as appropriate and click OK.

Form Print Options window



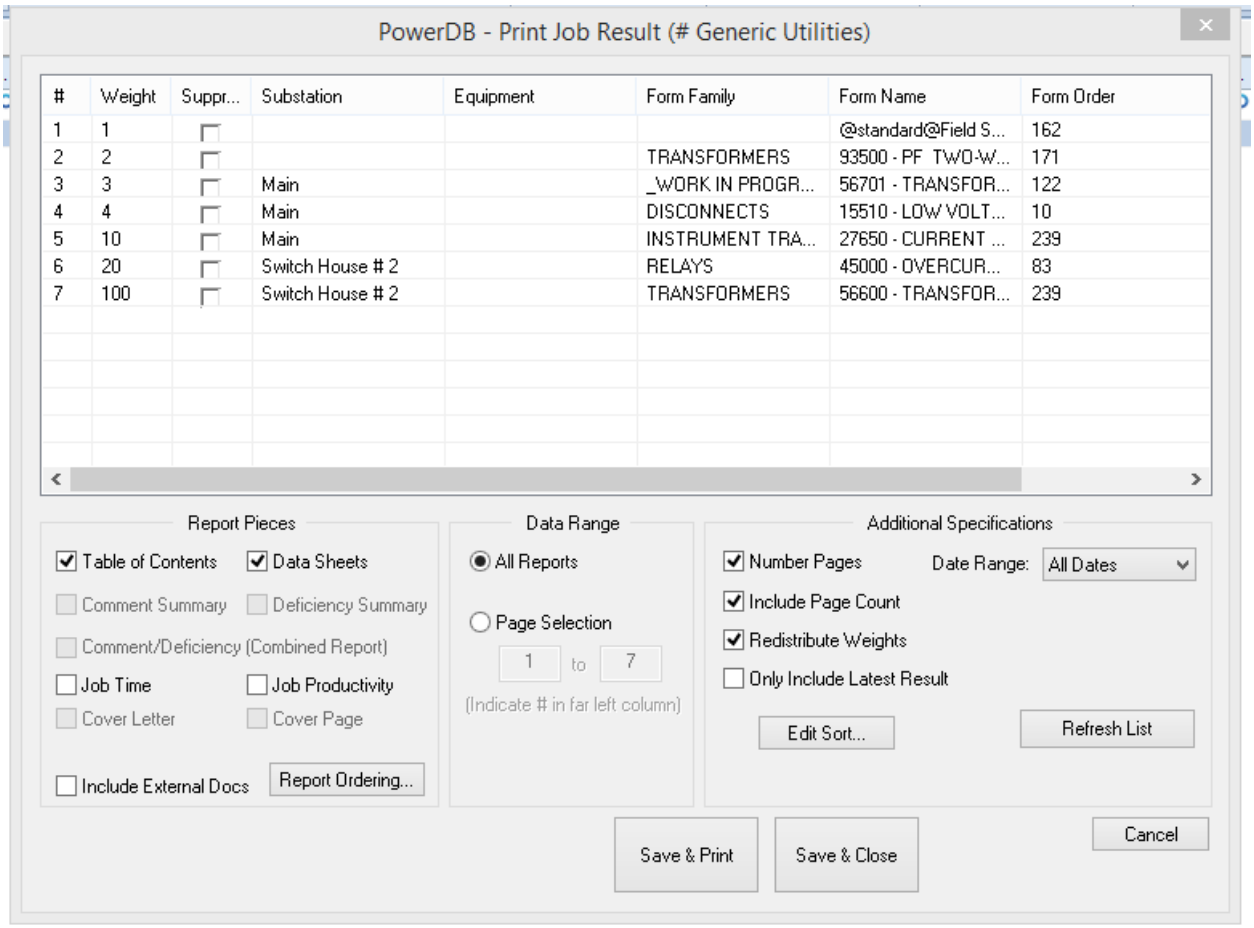
24) After the 'Print' Window appears, select a desired printer or PDF writer and click OK to begin printing.

Print Window

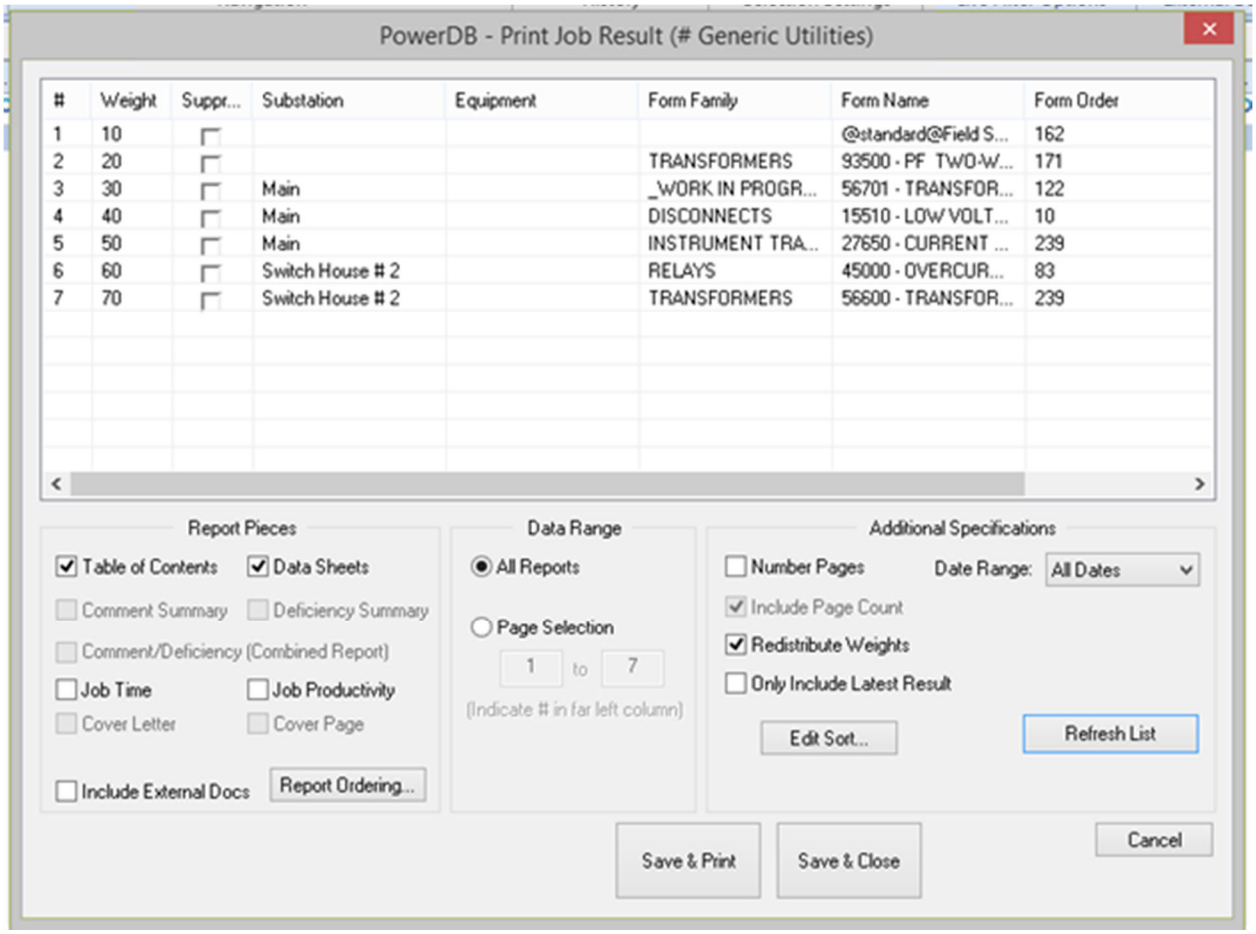


8.1.1 Redistribute Weights

This checkbox was not covered in the step-by-step instructions, but can be quite useful. What this does is evenly separate between the assigned weights. For example, ordering each test sheet by assigning the weights to page numbers would look like:



To add a form in the middle of the print order, instead of renumbering all of the weights it is possible to click ‘Redistribute Weights’ and ‘Refresh List’ to get:



Giving this form a weight of 21 and leaving the other forms alone [uncheck Redistribute Weights before refreshing] will only change the one weight instead of all weights.

8.1.2 Custom Print Functionality

PowerDB allows the user to create custom fields to further define results print ordering. A Sub-Form titled Custom Field Entry gets added to all forms by default and will be included on all new forms added to the Forms Editor. The user can delete this sub-form in their form design. Controls added to this sub-form will be visible and editable during data entry but can be made to not print in the Job Results. This will allow the user to enter additional fields to be used for print ordering. To utilize this functionality two steps are required, first to create the custom fields in the sub-form and next to define these fields in the system.

 Create Custom Sort Fields

To add the new custom sort fields to be available on all forms click on the Sub- Form button and double click on the Custom Field Entry sub-form in the tree. Add text and numeric controls to the sub-form and tag name the input controls with a unique Tag Name not used elsewhere in any forms for example, Custom_Field1, Custom_Field2. Controls may be underlined or outlined to make them more easily visible during data entry. Check Hide on Print for these controls. Define tab order and save changes.

 Define Custom Fields

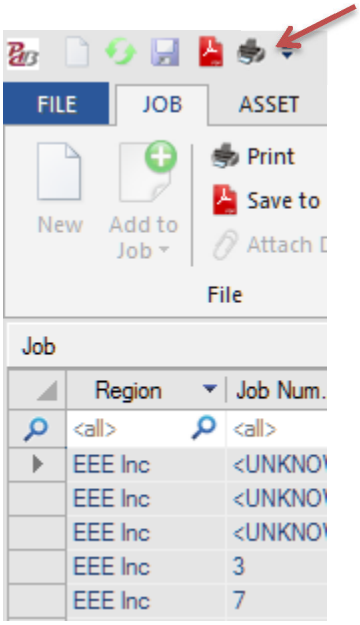
Go to Tools > Database Admin > Database Options > User Defined Fields; Edit Fields to define the fields for sorting. In the Form Tag column, enter the tag names exactly as created in the step above as a date, numeric or string (text) and set a default value if desired. Click OK to enable changes.

To add these fields into the Print Job Results dialog, click the Edit Sort button. The new fields will appear in the Available Attributes list. Click on these attributes and then click the Add button. Sort the selected attributes by clicking on each attribute and then move each attribute up or down in the listing. Checking the descending column (DESC) will order that attribute in descending order (Z-A for example). Click OK to view the Print Job Results. The custom fields will appear in the dialog box and results sorting will be as defined.

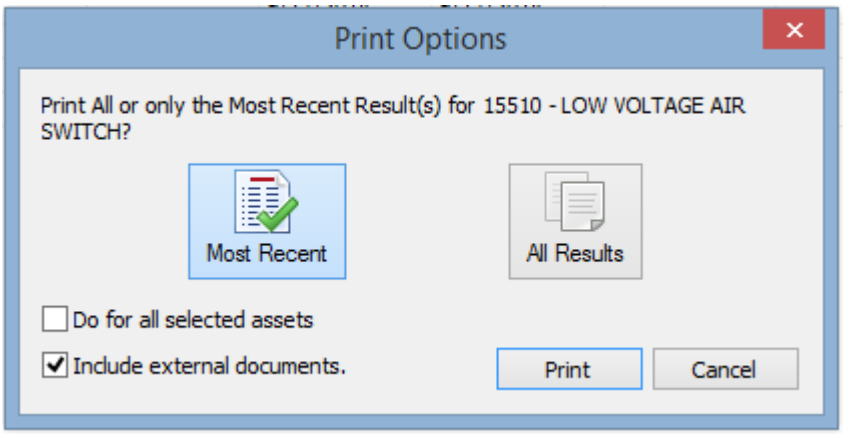
8.2 Print an Asset

Printing assets is a simpler process than printing jobs. To do so, click on the Asset tab and ensure that the Asset list is visible by selecting 'Toggle Asset View' if necessary.

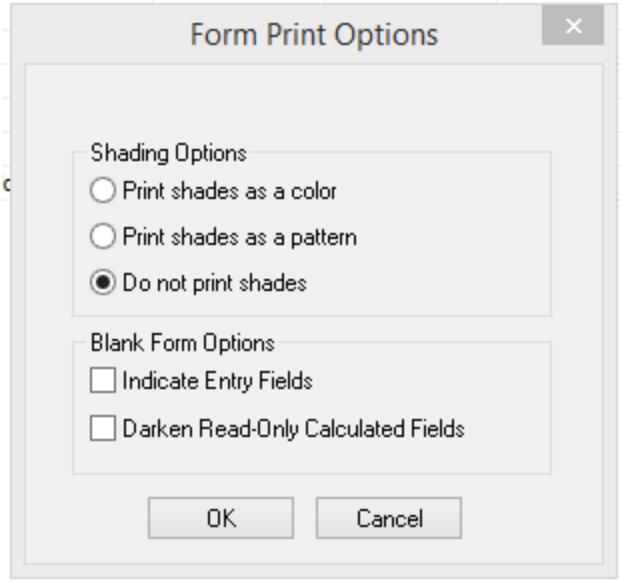
Highlight an asset by selecting it and then select the print button in the Quick Access Toolbar.



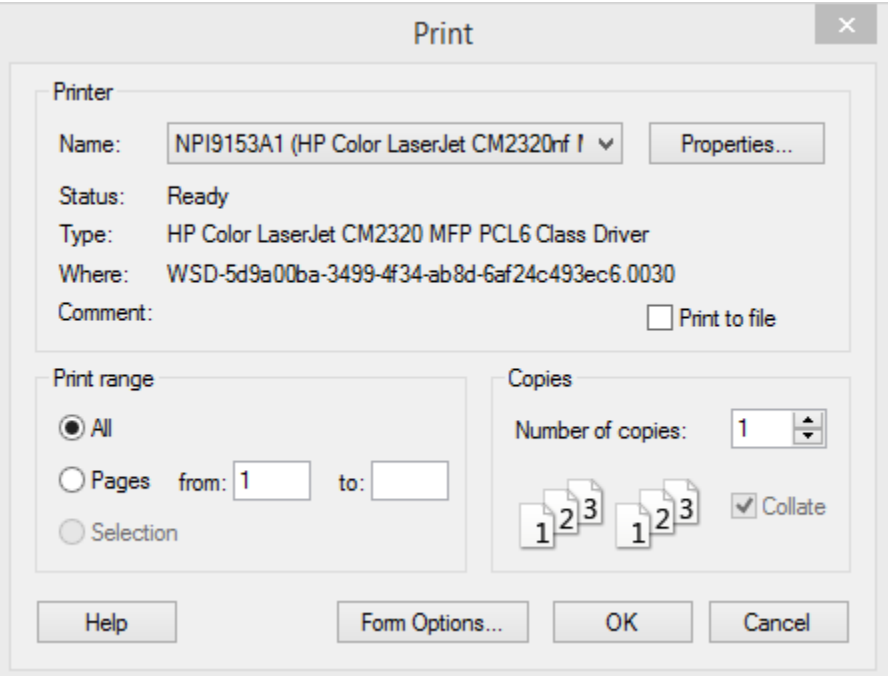
This will then present the options to print the most recent results or all results for that asset.



Select one and press print, this will display the options available for how to handle shades and colors for the forms and how to handle blank forms.



Select all desired options and press ok. This will present the Print dialog which asks for printer destination.



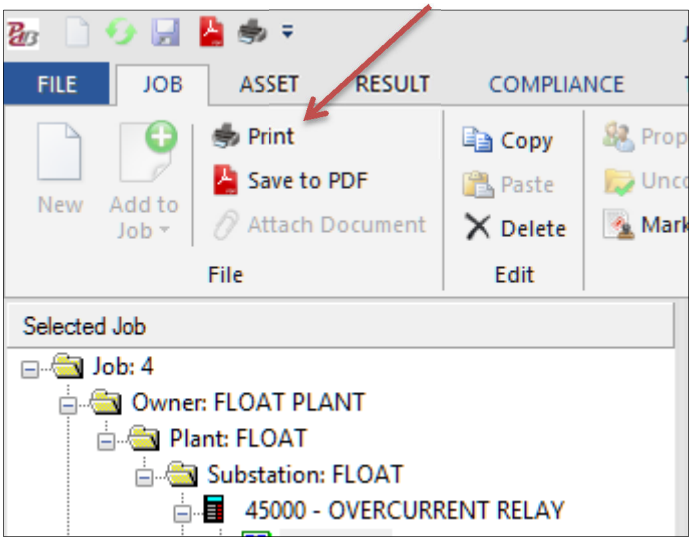
Set all desire options and press 'OK' to begin printing.

8.3 Print a Result

There are three separate methods to print a result: through the Job View, Asset View or Result View.

8.3.1 Results in Job View

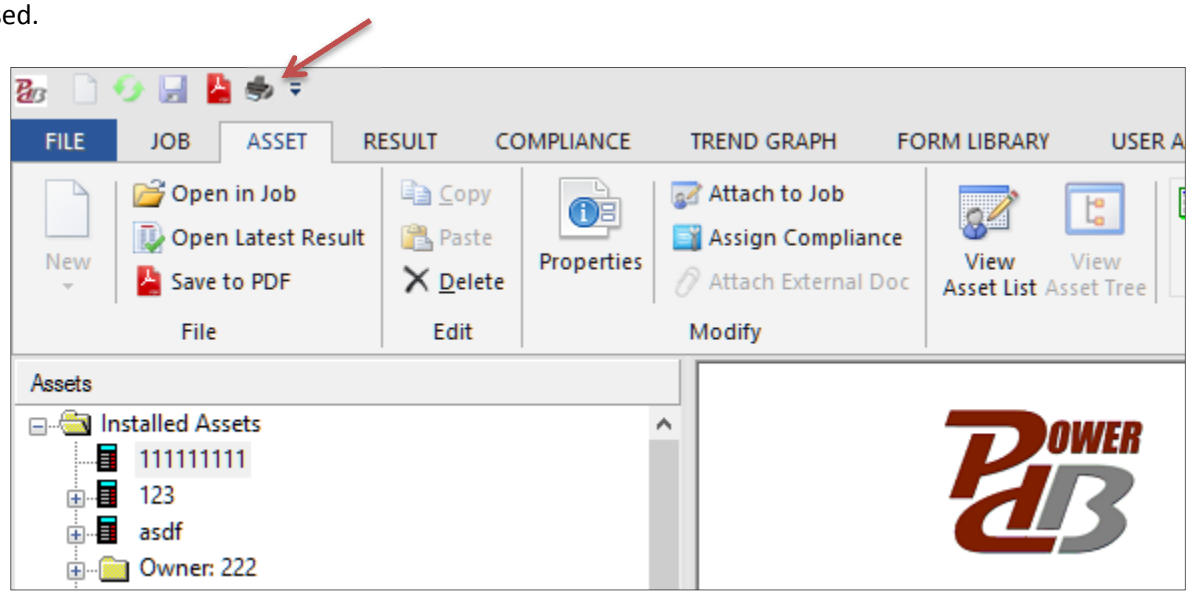
The first is in the job view, open a job and open a result. Once the result has opened in the view, select the 'Print' button in the toolbar.



This will present the same options on how to handle shades as mentioned in section 8.2. Select the desired printing options and hit 'OK.' This displays the printer options dialog. Change these options as needed and select 'OK' to begin printing.

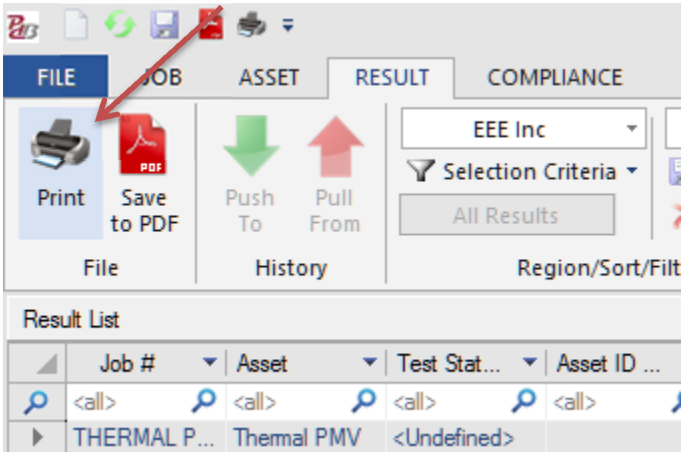
8.3.2 Results in Asset View

This process is identical to section 8.3.1, however the print button in the Quick Access Toolbar must be used.



8.3.3 Result View

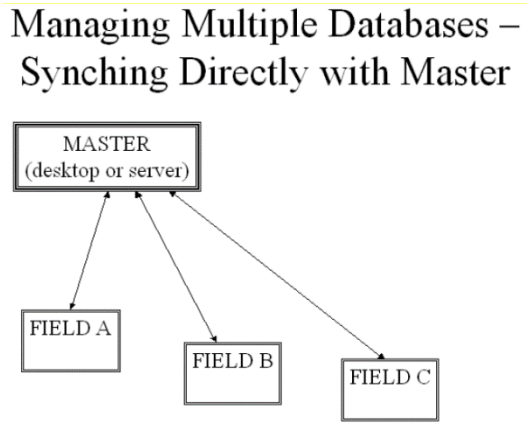
Finally, it is possible to print a result using the Result View. To do so, first click on the Result Tab and highlight a result by selecting it in the list. Once a result is selected, select the 'Print' button in the tool bar.



This will present a message box asking to include external documents. Select the desired option and the remaining printing process will be identical to section 8.3.1.

9 Database Synchronization

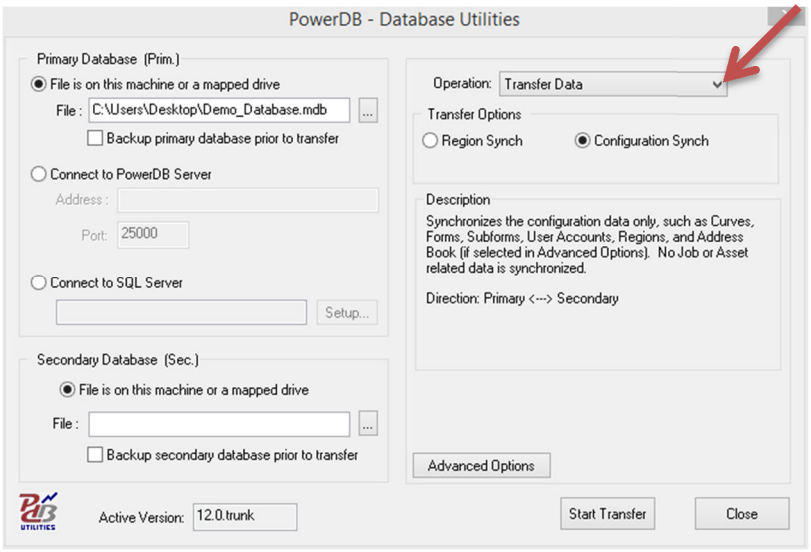
It is important to understand the concept of a database and the interrelationship between databases. A database is not document based; it is a tool to allow data to reside in one file location. If there are multiple PowerDB users, one database should be defined to be the single 'master' database and all other databases should be 'field' databases. When PowerDB is installed the default database is a master database and all field databases are created from the master database. Field databases should be used on technician laptops and office desktops not directly connected to the master. In multiple license situations the master database should be located on a file server. Synchronization propagates changes between databases so that they are mirror images of each other.



Synchronization uses unique identifiers and date stamps to determine what data needs to be moved. PowerDB allows users to create new databases and synchronize the data among these different databases using the PowerDB Database Utilities tool. PowerDB utilizes a client/server architecture to synchronize databases.

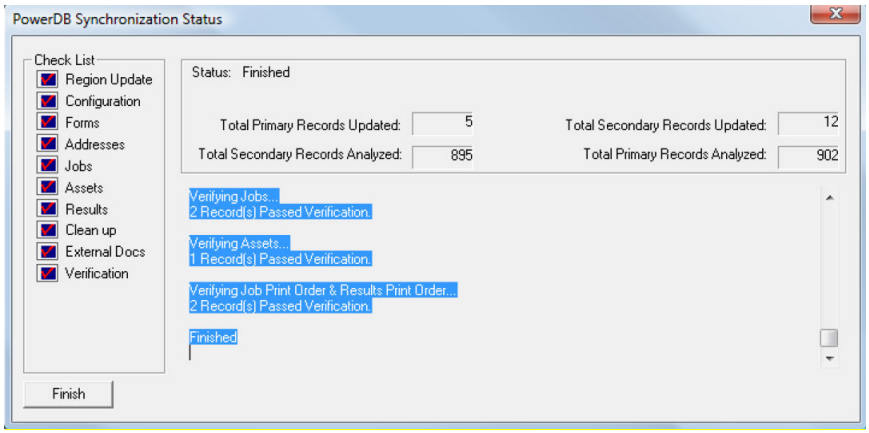
9.1 PowerDB Database Utilities (PDB Utilities)

The PowerDB Database Utilities tool is utilized in a variety of ways. Operations include: create new Master, Field, Development, and SQL Server databases, run latest database update, and compact database. The Job Transfer operation moves data between databases.



9.2 Field Database Creation

Creation of new field databases may be launched from two areas of the application while the master database is active. Go to the **Database > New Database > New Field DB** menu item, or while viewing the Job List go to **Database > Synchronize Region**. The PDB Utilities dialog will appear. Make sure the operation is set to Create New Field DB. In the Open dialog, set the name and storage location of the new database. When completed, the field database will be loaded with the current user accounts, forms, sub-forms, and address book information. PDB Utilities will complete several synchronization steps while creating the new field database including: updates of configuration, forms, addresses, and user accounts. It also executes clean up and verification processes. The job and related information, including assets and results, will be transferred on command as described in Section 9.3.



9.3 Synchronizing Data

The synchronization logic of PowerDB – Database Utilities has been written to streamline data transfer and eliminate conflicts. The DeltaSynch approach handles each results session individually thus virtually eliminating a conflict situation. If a set of results has been modified in both databases since the last synchronization the conflict is automatically resolved by the system picking the most recently modified value. However results fields, jobs, addresses, and external documents have archives or 'Deltas' which allow the user to rollback a change if the automatic date-driven conflict resolution does not select what the user intended, or if the user needs to undo a change.

Below is a table defining different operation types. Note: Master can be the Secondary DB only if the Primary is also a Master.

OPERATION TYPE	DIRECTION PERMISSIONS	PRIMARY DB TYPE	SECONDARY DB TYPE
Synchronization:			
Region (includes address book)	Primary <--> Secondary	M,F	M,F
Config (optionally may include address book)	Primary <--> Secondary	M,F	M,F,D
Download:			
Publish Region	Primary --> Secondary	M,F	M,F,D
Point in Tree	Primary --> Secondary	M,F	M,F,D
Upload:			
User Account	Primary <-- Secondary	M	M,F,D
Form	Primary <-- Secondary	M	D
Subform	Primary <-- Secondary	M	D
Curves	Primary <-- Secondary	M	D

Database Types:

M-Master
F-Field
D-Development

Either the master database or a field database may initiate a synchronization using the '**Database > Synchronize Region**' menu option or by choosing '**Synchronize Region**' from the right click menu of a selected job from the Job List. This will open the PDB Utilities dialog where the specifications of the synchronization are selected.

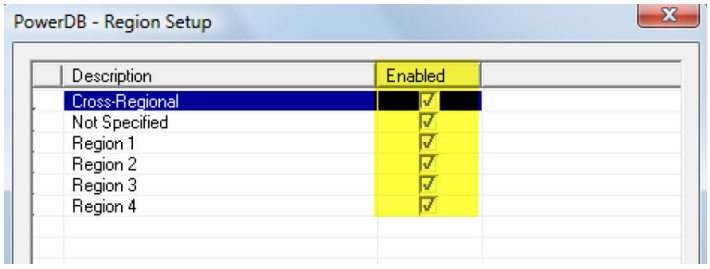
9.3.1 Region Synch

A region can be defined by geography, facility, division, department, office, district or any grouping that exists in an organization. If not previously enabled the Version 9 update will automatically enable regions and place all Jobs, Addresses, and User Accounts into a default system region named Not Specified.

If a business requires only a single region all jobs, user accounts and addresses may be left in the default Not Specified region. Be aware that all jobs and data will be synchronized between master and field databases.

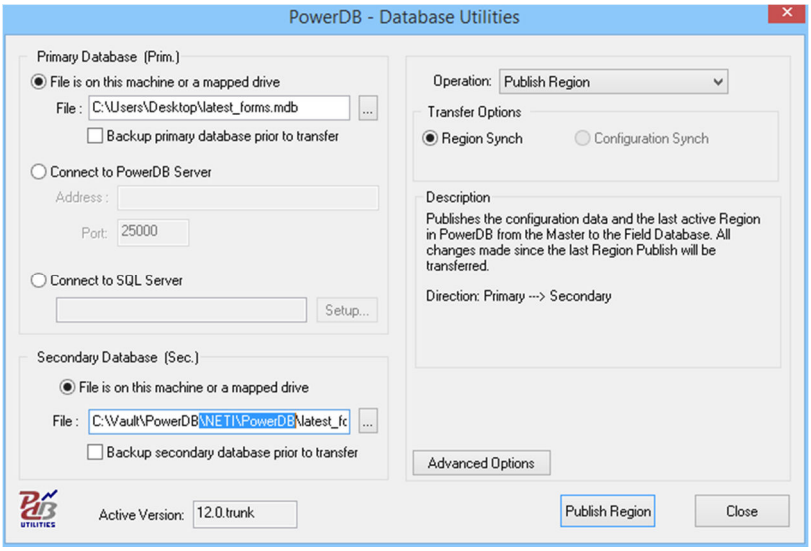
If any other region is enabled other than Not Specified and Cross-Regional, then assigning regions to all jobs, addresses and user accounts will be required before region synchronization is allowed. Jobs and data remaining in the default Not Specified region will not synchronize.

Note: Not Specified and Cross-Regional are system regions and are enabled by default in the application. Cross-Regional cannot be changed or disabled. The Not Specified region can be renamed. Any other regions can be added or renamed.



DeltaSynch relies on Regions to synchronize databases. Users will be able to synchronize their data based on what region is currently active. Region Synchronization is unmanned meaning after the synchronization process starts, it is automated with no user intervention required. Changes, updates and results are synchronized with 'keep most recent date' logic prevailing.

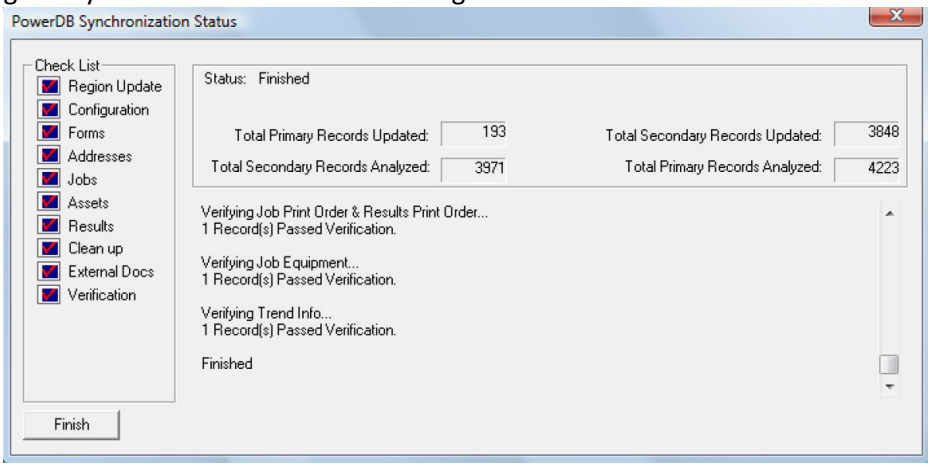
When synchronization is launched, the selected region is updated in both databases for all jobs, assets, results, addresses and user accounts. Region assignment is based on the most recent region change to an item. Only data that has been modified or added since the last Region Synchronization is processed based on the last Region Synchronization Date. This date can be ignored through a setting if it is necessary to resynchronize all data (this is described below).



1. Select a primary and secondary database. If one database is the master, it should be the primary. Under the "Operation" drop down box in the top right, select "Transfer Data".
2. In the "Options" area, select "Region Synch"
3. To synchronize all data in the databases ignore the last synchronization date then check the "Full Synchronization" under the Advanced Options button. **WARNING:** Checking this option will cause all data in the region to be resynchronized and an extended time will be necessary to complete the process.

4. In order to only synchronize addresses in the active region, select the "Addresses in Region" option under the Advanced Options button. To synchronize all of the addresses in the databases, select the "Full Address Book" option. **WARNING:** Checking this option will cause all addresses in the database to be resynchronized and the process will be slowed. NOTE: This only applies to addresses. All company names transfer regardless of region.

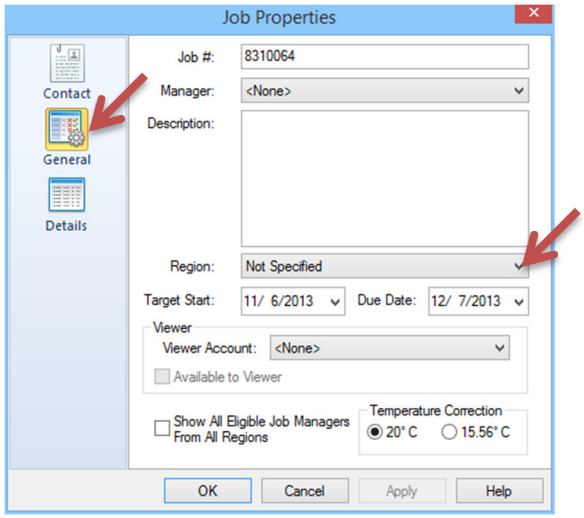
- During the Synchronization the status dialog will be visible:



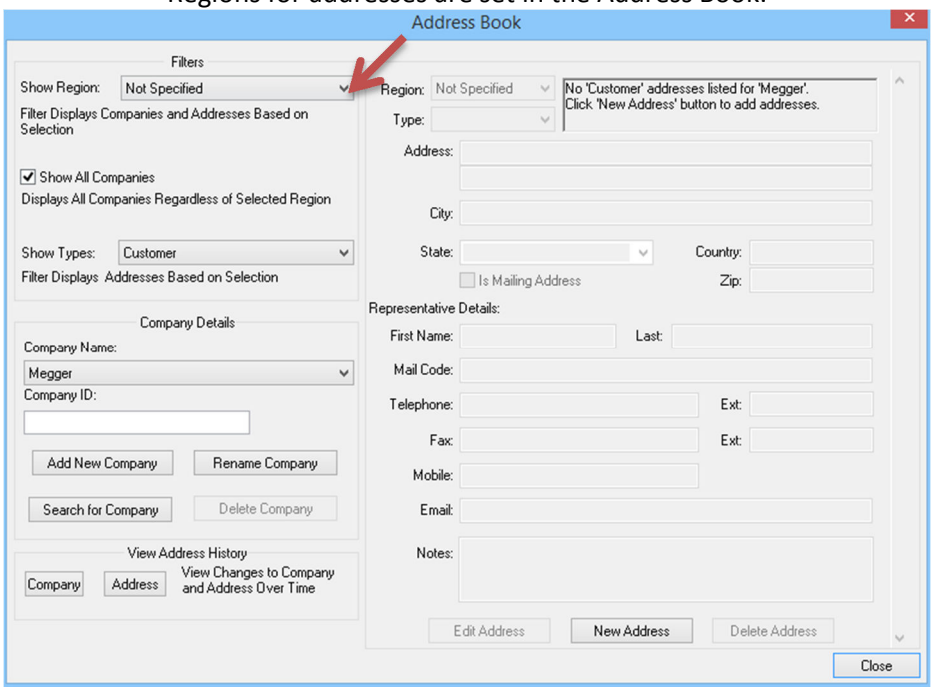
- In the top right are counts displaying how many records have been analyzed on the primary and secondary databases, and how many records have actually been updated in both databases.
- In the bottom right, important status and update messages are displayed. Please use the scroll bar to review any messages this entire section.
- On the left side is the Check List. After the synch and verification are finished, there are three states the check boxes can be in.

1. If Check List fields are blue with a check, the process completed without exception.
2. If Check List fields are yellow with an exclamation mark, then there was a warning. A warning lets the user know that there is a record in one database that did not have a match in the other database. However, the record was not supposed to move due to the synchronization rules. This may occur in a Point in Tree Download because records are only allowed to move one direction, Pri->Sec. This may also occur during a form upload from a development database to a master database because many configuration settings are not required to move during this special synchronization.
3. If Check List fields are red with a Question mark, then there was a verification error and the synchronization dates are not updated. If this situation occurs please immediately go to **Help>Submit Files** and submit the synchronization log files.

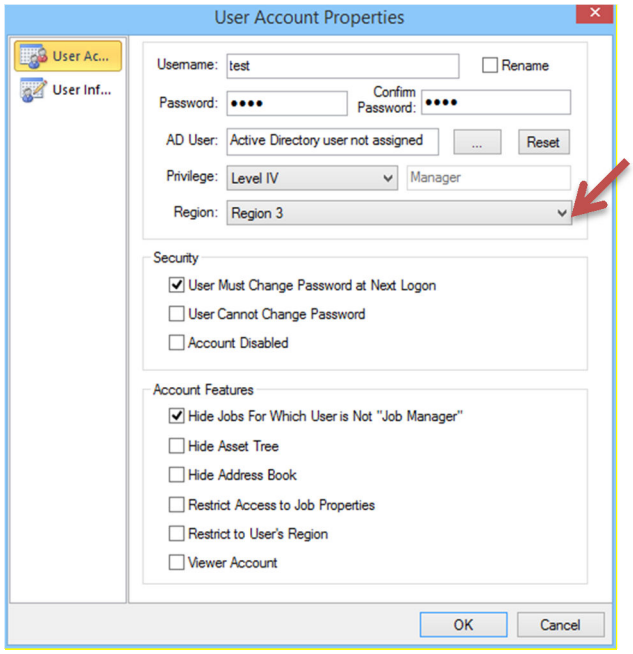
Regions for jobs are set in the General tab of Job Properties.



Regions for addresses are set in the Address Book.



Regions for user accounts are set in Properties for each user account.



Other types of synchronizations and configuration transfers are described below.

9.3.2 Configuration Synch

This can be run by launching Database Utilities and selecting the Configuration Synch check box.

- This synchronizes the configuration settings (found at Tools>Administration), forms, subforms, addresses, user accounts, regions.
- This is a true synchronization going both directions Primary< -- >Secondary
- Like the Region Synch this synchronization uses a Config Synch Date to keep track of when the last synchronization was done and only moves new changes. This Config Synch Date can be ignored if the user needs to resynchronize all configuration data (selected at the Advanced Options button).
- The user has the option of synchronizing the full address book, or no addresses (selected at the Advanced Options button).

9.3.3 Point In Tree Download

This takes a point in the primary database asset tree or job tree and pushes all assets, results, and their associated data to the secondary database.

- This is one-direction only, pushing from the primary to the secondary (primary --> secondary)
- This does not remove anything from secondary database; it just pushes items from the primary to the secondary.
- No Jobs are sent to the secondary and jobs will not be added to the secondary Job List.
- This is launched by right-clicking at a folder level in the primary database Asset Tree and selecting Point in Tree Download.

9.3.4 User Accounts Upload

User must have Administrator rights to run a User Account upload.

- Uploads user account changes from a Secondary database to the master database.

- Any User Account changes made in a field or development database do not go into effect immediately. To activate changes, upload User Accounts to the master. User Account changes in the master must be passed back down to activate in the secondary database.
- This operation is launched in the User Account list. Right-click in the list. If there are User Account changes there will be a menu item to upload user accounts. After the User Account upload is finished, a Config synch is run automatically to synchronize the changes back down to the secondary.

9.3.5 Form Upload

This is a Development Database only operation which will upload a single form, its subforms, external documents, help and form update descriptions to the Master Database.

- One direction from secondary to primary
- This upload is launched by right-clicking a form in the Form Editor tree and selecting Upload Form to Master.
- NOTE: Must be in a Development Database to have this upload option available.

9.3.6 Subform Upload

This is a Development Database only option which will send a single subform, its external documents, help, and update descriptions to the Master Database.

- One direction from secondary to primary
- This can be launched by right-clicking a subform in the Subform Editor tree and selecting Upload Subform to Master.
- NOTE: Must be in a Development Database to have this upload option available.

9.3.7 Curves Upload

This is launched in a Development Database by opening the Curve Library dialog found in the View menu. Select the curve(s) to be uploaded to the master and click the "Upload Curves" button.

- Uploads the selected Curve(s) to the Master Database.
- One direction from Development Database to Master Database.

9.4 Deltas and Delta Sessions

Stepping forward and back between Delta Sessions as described below is intended to be used only as a recovery tool means to recapture previously saved and over-written values.

CON-FLICT - defined as a data value that has changed in both databases since the last synchronization.

DELTA SESSION - started by opening a result (new or old); all changes made to the results and saved are applied to the Delta; if more changes are made to the results and saved again all new changes are applied to the same Delta because the user is in the same (open) Delta Session; all changes and saves will continue to apply to the open Delta Session until a new Session is started – NOTE: only the last ‘save’ in a Session is retrievable. A Delta Session is ended by closing the results, reopening the same result, opening another result or creating a new result.

PowerDB Version 8 and prior treated a set of data results in its entirety as a single record. If any data value(s) in a results record had been changed in both synchronizing databases since the last synchronization a conflict situation was created requiring user intervention to resolve. Data values not selected by the user were discarded. The DeltaSynch approach (Version 9 forward) handles each results field individually thus virtually eliminating a conflict situation. If there is a conflict in a data field between

the two databases, it is automatically resolved by the system picking the most recently modified value. However results fields, jobs, addresses, and external documents have archives or 'Deltas' which allow the user to selectively rollback a change if the automatic 'last date saved wins logic' does not select what the user intended, or if the user needs to undo a change.

To view the Deltas for a result the user needs to open the result. In the toolbar History pane are four arrows to allow the user to step forward and back through Delta Sessions.



1- Steps back to the very first saved Delta Session
2- Steps back one Delta Session from the session currently displayed
3- Steps forward one Delta Session from the session currently displayed
4- Steps forward to the most recent Delta Session saved

While stepping back and forward between Delta Sessions, all affected data fields will show green if the saved value has been changed between Delta Sessions. To recover one or more values from a previous Delta Session, right-click in a data field and select Pull Fields From History. Then shift-click on one or more fields intended to be changed. To complete the action, right-click in the form again and select Pull Fields From History. The user will be returned to the current Delta Session and the pulled values will be set into the fields. To keep these changes, the results must be saved as modified; otherwise the changes will be discarded if not saved.
Note: Due to scripting logic some header and calculated fields may appear green indicating a change when in fact there has not been a change. Please focus on data entry fields while stepping back and forth through delta sessions.

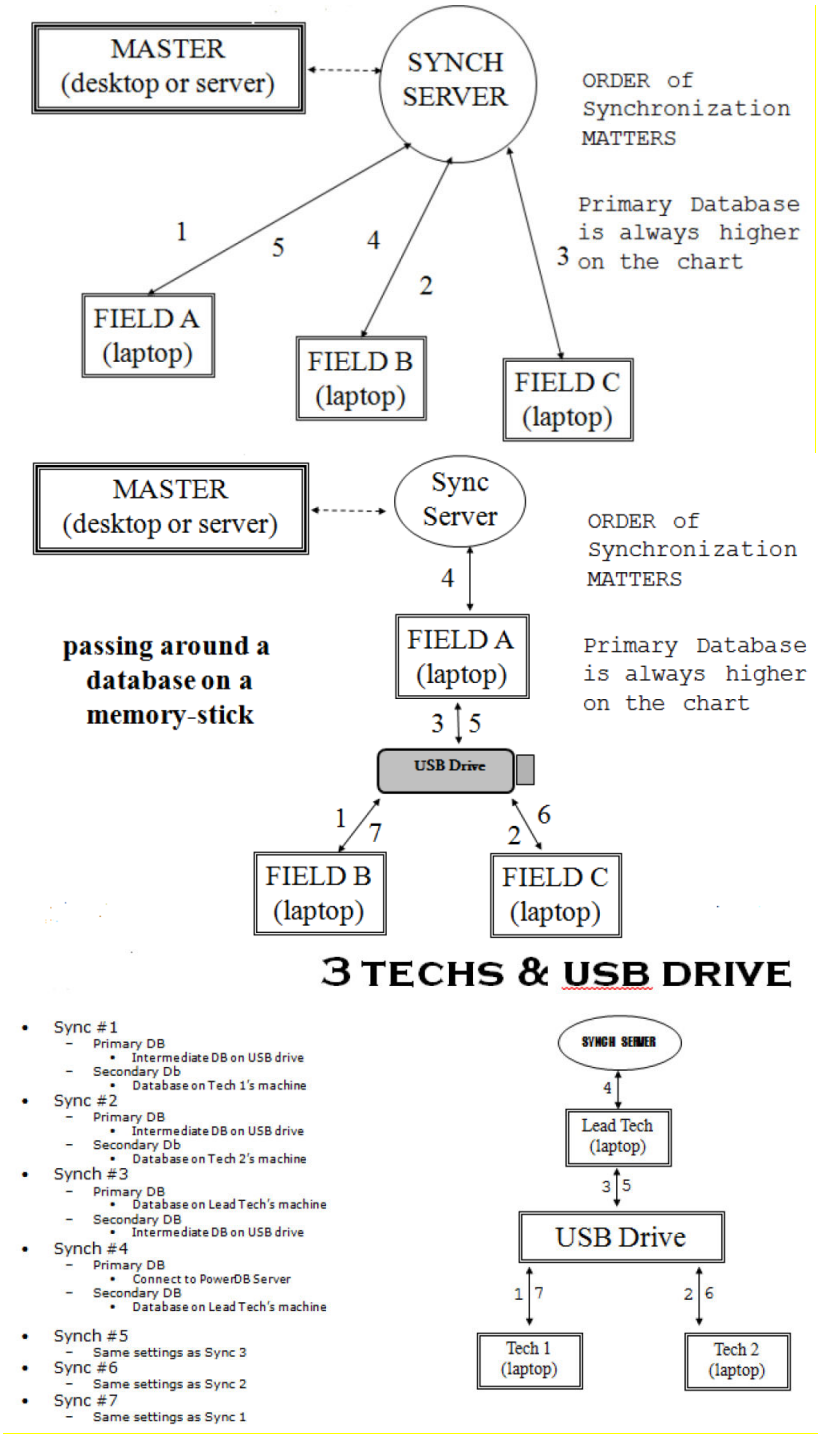
Changes made to an asset such as its name and tree location can be viewed and restored from the Asset or Job Tree right click menu item View Outside Relay Changes. These changes are not related to Delta Sessions.

9.5 Mastering Synchronization

Key points to remember:

- NEVER copy a previously opened database to be used on another machine
- By definition, synchronization is moving configurations and data so that selected regions between two databases appear as mirror images
- Synchronization uses the unique IDs and modification dates to determine what records need to be moved
- When synchronizing with the Master database, the MASTER must always be PRIMARY
- When synchronizing between other databases pairs, the database that falls CLOSER TO THE MASTER on the synchronization pyramid is the PRIMARY

The following diagrams demonstrate the various pyramid relationship options between databases during the synchronization process. The Synchronization Server is described in Section 11.



10 Development Database

Certain processes MUST be done in a 'Development Database'. These are limited to:

- Form Editor Maintenance
- Subform Editor Maintenance
- Curve Library maintenance

Development Databases can only be created from a master database. To create a Development Database go to **Database > New Database > New Development DB** or go to Database Utilities and select 'Create New Development Database'. To connect to a development database go to **File > Change Database** or log in again and change database. A user account other than the Administrator account is required to apply changes made in the Development Database to the Master Database.

Forms, subform and curve library changes can be tested in the development database. For example, users can create jobs and add results but these job records can never be moved outside of the Development Database.

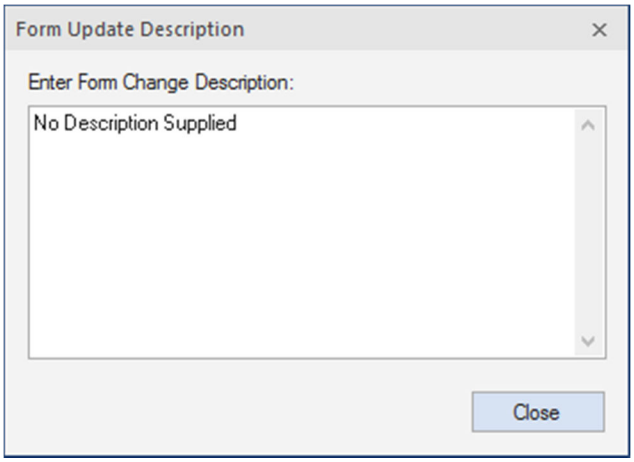
10.1 Changes in Form Editor

Changes made in the Form Editor must be uploaded to the master database using Database Utilities or by exporting the .pxd file of the modified form. Migrating form changes via either method is accomplished one form file at a time. Uploaded or exported files will also include and affect all subforms that are used in the form; exception to subforms automatically being updated follow existing Intelligent Import rules skipping logos, headers, footers, comments, and dividers. To move form modifications via the upload method, right-click on the form name in the Form Editor tree and select Upload Form to Master. Changes will propagate from the master to field databases at the next synchronization. Form deletions made in the Development Database must also be pushed to the master database. (Select the Filter to view Deleted Only). To inactivate a form in the master database (remove from available forms to be added to a Job), right-click on the form in either the development or master database form editor tree and select Retire Form. If a form is retired in the Development Database and a change needs to be pushed to the master database, retired forms can be viewed by selecting the **Form Library > Filter > View Retired Only**, then right-clicking on the retired form and selecting Upload Form to Master.

10.2 Changes in Subform Editor

Changes made in the Development Database Subform Editor must be uploaded to the master database using Database Utilities or by exporting the .pxd file of the modified subform. This is accomplished one subform file at a time unless the subform is included in a form that is uploaded. To upload a subform to a master database right-click on the subform name in the Subform Editor Tree and select Upload Subform to Master. Changes will propagate from the master to field databases at the next synchronization. Subforms cannot be viewed or tested outside of the Development Database. Form and Subform deletions can be made directly in the master database. If a form or subform is deleted in the Development database, deleted forms/subforms must be viewed and uploaded to the master.

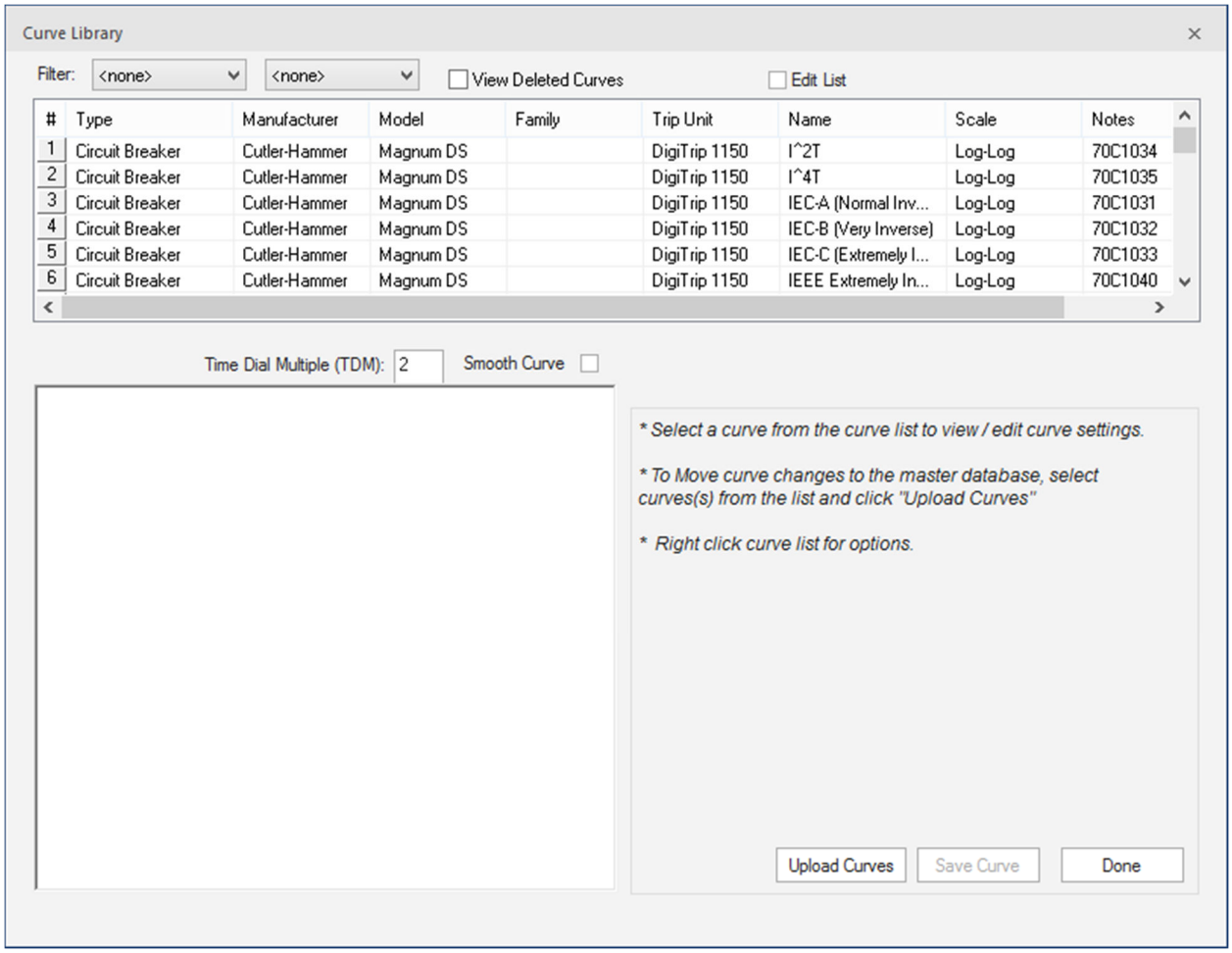
When saving a change to a form or subform the dialog below will display. This provides a means to track who, what, when and why forms and subform changes are made. Completing this window is optional and changes will be saved regardless if a description is entered.



To view information tracked in the dialog above open and run Form UpdateReport in the Reports and Administration/Report form family in the form editor tree.

10.3 Changes in Curve Library

Changes made to the Curve Library must be uploaded to the primary database. Single, multiple or all curves may be deleted or added. Changes will propagate from the master to field databases at the next synchronization. To delete curves in the Development Database and affect this change in the master database go to **Database > Curve Library**, check the box for View deleted Curves, select all of the curves and click the Upload Curves button.



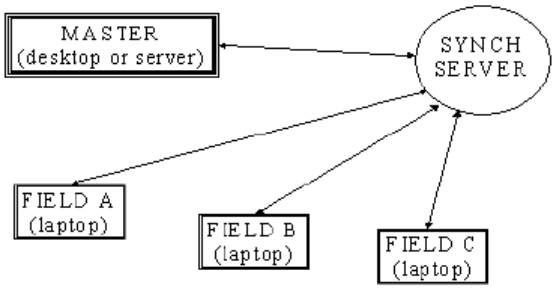
10.4 Changes in User Accounts

Changes can be made to User Accounts in a development, field or master database. If changes are made in a development or field database right-click in the User Account list and select Upload User Accounts. All edited User Accounts will move in their entirety as a single file. After the User Account upload is finished, a Configuration Synchronization is run automatically to synchronize the changes back down to the secondary database.

11 Synchronization Server

The PowerDB Synchronization Server allows users to synchronize data between a master database and field databases. The Synchronization Server is beneficial for transferring data between computers with PowerDB whether in the office, between offices, in the field, or from the field to the office. Transferring data without using the Synchronization Server (i.e., specifying a path to the primary database) means that all database access will take place across the network; thus database queries to determine what information to transfer are slowed by the network speed. The Synchronization Server is a client/server solution to this problem. When a PowerDB Synchronization Server handles the primary database, then database queries are divided between the two computers and only data requests and data are sent along the network.

Managing Multiple Databases – Synching with "Synch Server"



1. **Install PowerDB on a machine accessible to all who will need to access** the primary database. This machine will continuously run the PowerDB Synchronization Server. In order to transfer data outside a local area network, then the machine must have Internet access, a fixed IP address, and the firewall must have the following ports open: 25000 for UDP, and 25001-25015 for TCP.
2. **Determine where the master database is located.** If setup has begun with PowerDB then the *powerdb.mdb* file in the installation directory will be the master database. If there is already data in a master database, then move the database to this machine. The master database can reside in any directory, but it should be located on the *Server* machine. If the master database is placed on another machine then many of the speed benefits of the PowerDB Synchronization Server are negated.
3. **Run and license PowerDB on the *Server* machine.** Use the '**File > Change Database**' menu item to select the master database.
4. **Create a field database** using the '**Database > New Database > New Field DB**' menu item. All field databases must be created from the master database.
5. **Install and license PowerDB** on laptops or other office machines.
6. **Copy the field database** that was created in step 4 to each of the laptops or other office machines. Run PowerDB on each of these machines and use the '**File> Change Database**' menu item to select the local field database. It is important that the field database reside on the machine running PowerDB in order to gain all speed benefits of using the PowerDB Synchronization Server.
7. **Start the Synchronization Server on the *Server* machine**; i.e., the machine that has the master database. This is done by running pdbsynch.exe /server in the installation directory (by default the installation directory is C:\ProgramFiles\PowerDB, Inc.\PowerDB\). It is recommended that the shortcut is put in the Startup group.
8. **Select the master database for the Synchronization Server** by using the browse button next to the 'Database:' edit box.
9. **Check the 'Quick Start' checkbox.** This causes the synchronization server to start automatically when launched. A Quick Start can be canceled by clicking on any control in the Synchronization Server dialog during the first couple of seconds after it is launched.
10. **Press the 'Start Server' button.** The server start time is indicated, and the Synchronization Server is now listening for requests.

12 Administration

The Administration portion of PowerDB controls the software configuration. Accessibility to various actions throughout the application is restricted in Administration via User Account privileges.

12.1 User Accounts

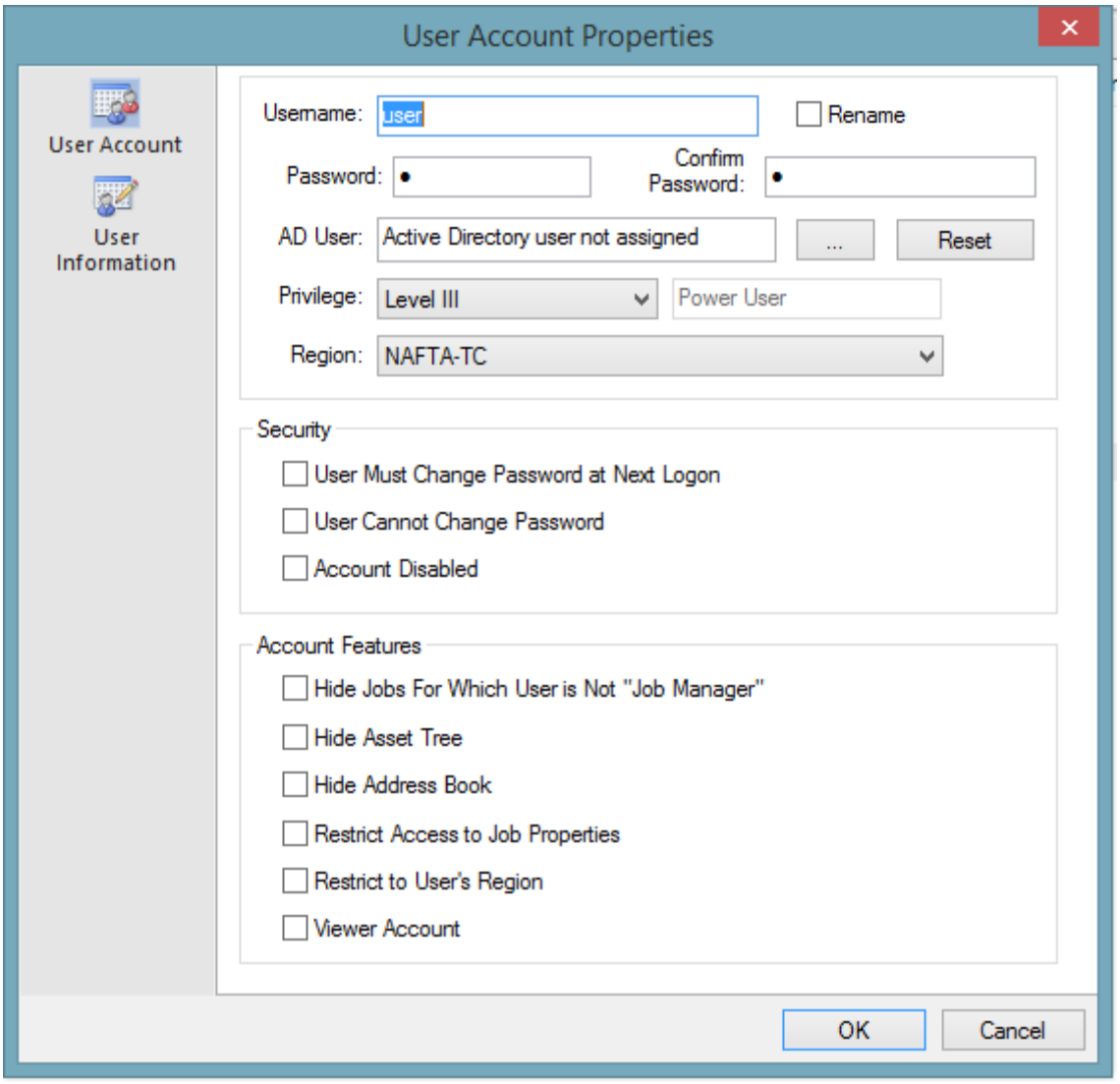
User Accounts allow users to have access to PowerDB and prohibit non-uses from gaining access. Access to different system functionality can be set for each user by the privilege level assigned.

12.1.1 Account List

The Account List can be accessed by choosing the 'User Accounts' tab on the ribbon. The Account List displays Active user accounts in the currently selected Region. The list can also be filtered to show Edited, Active, Disabled or Deleted user accounts. Use the Selection Criteria option on the ribbon to filter the list as desired. Deleted users are color coded in red and display the User that deleted them. The administrator account is a built-in account and may not be removed.

12.1.2 Account Properties

The User Account Properties dialog can be accessed by right clicking on an account and choosing 'Properties' or by selecting the Properties button at the top of the View. This allows users with Administrator and Manager privilege level to edit account details, features and user information, including password, disabling/enabling and user privilege level for other users (only Administrators can assign Administrator privilege).



The restrictions for the different user levels are as follows:

Form Tree	Administrator	Manager	Power User	User	Technician	Form Designer
Create New	YES	NO	NO	NO	NO	YES
Edit	YES	NO	NO	NO	NO	YES
Delete	If not assoc. with asset	NO	NO	NO	NO	If not assoc. with asset
Retire / Reinstate	YES	NO	NO	NO	NO	NO
Move	YES	NO	NO	NO	NO	YES
Merge	YES	NO	NO	NO	NO	YES
Preview Mode	N/A	YES	YES	YES	YES	N/A

SubForm Tree						
Create New	YES	NO	NO	NO	NO	YES
Edit	YES	NO	NO	NO	NO	YES
Delete	YES	NO	NO	NO	NO	YES

Job List						
Create New Job	YES	YES	YES	YES	YES	NO
Edit Job Properties	YES - E1	YES - E1	YES - E1	YES - E1	YES - E1	NO
Delete Job	YES - E1	YES - E1	YES - E1 E2	NO	NO	NO
"Complete" a job	YES	YES	YES	NO	NO	NO
Un-complete Job	YES	NO - E2	NO	NO	NO	NO
Print a job report	YES	YES	YES	YES	NO	NO
Be designated as job manager	YES	YES	YES	NO	NO	NO

Job Tree						
Add Asset / Enter new data	YES - E1	YES - E1	YES - E1	Only if originator - E1	Only if originator - E1	NO
Edit existing data	YES - E1	YES - E1	YES - E1	Only if originator - E1	Only if originator - E1	NO
Delete Test Data	YES - E1	YES - E1	YES - E1	Only if originator - E1	Only if originator - E1	NO
Remove Asset from job	YES - E1	YES - E1	YES - E1 E2	YES - E1 E2	YES - E1 E2	NO
View Completed	YES	YES	YES	YES	YES	NO

	Administrator	Manager	Power User	User	Technician	Form Designer
Address Book						
Create New	YES	YES	YES	YES	YES	NO
Edit existing	YES	YES	YES	YES	YES	NO
Delete address	YES	YES	YES	YES	YES	NO
Delete Company	YES	YES	YES	YES	YES	NO
Configuration						
Alter system settings	YES	NO	NO	NO	NO	NO
Alter region names	YES	NO	NO	NO	NO	NO
User Accounts						
Create new	YES	NO - E2	NO	NO	NO	NO
Edit accounts	YES	NO - E2	NO	NO	NO	NO
Delete	YES	NO - E2	NO	NO	NO	NO
Change user password	YES	Own Only - E2	Own Only	Own Only	Own Only	Own Only

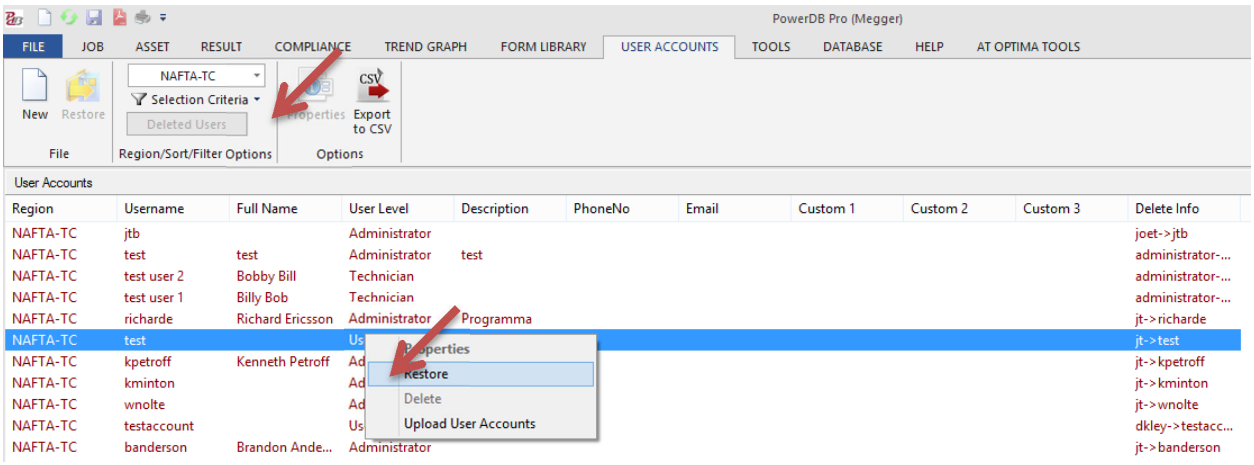
Exceptions and Future release notes:	
E1	Cannot if it is a completed job
E2	Can be changed in admistration settings

12.1.3 Change Password

The current user's password can be changed by selecting 'Change Password' from the Tools menu. The Change Password dialog box will appear. A valid current password is required for the password to be changed. Forgotten passwords can be reset by a user with Administrator privilege level by editing the user account from the Account List.

12.1.4 Restoring Delete/Disabled Users

Deleted Users can be restored by using the Show Deleted selection criteria then either using the right click menu restore or the Restore button in the View menu. Accounts that have been disabled can be brought back in a similar manner by going to the User properties and unchecking Account Disabled in the Security box.



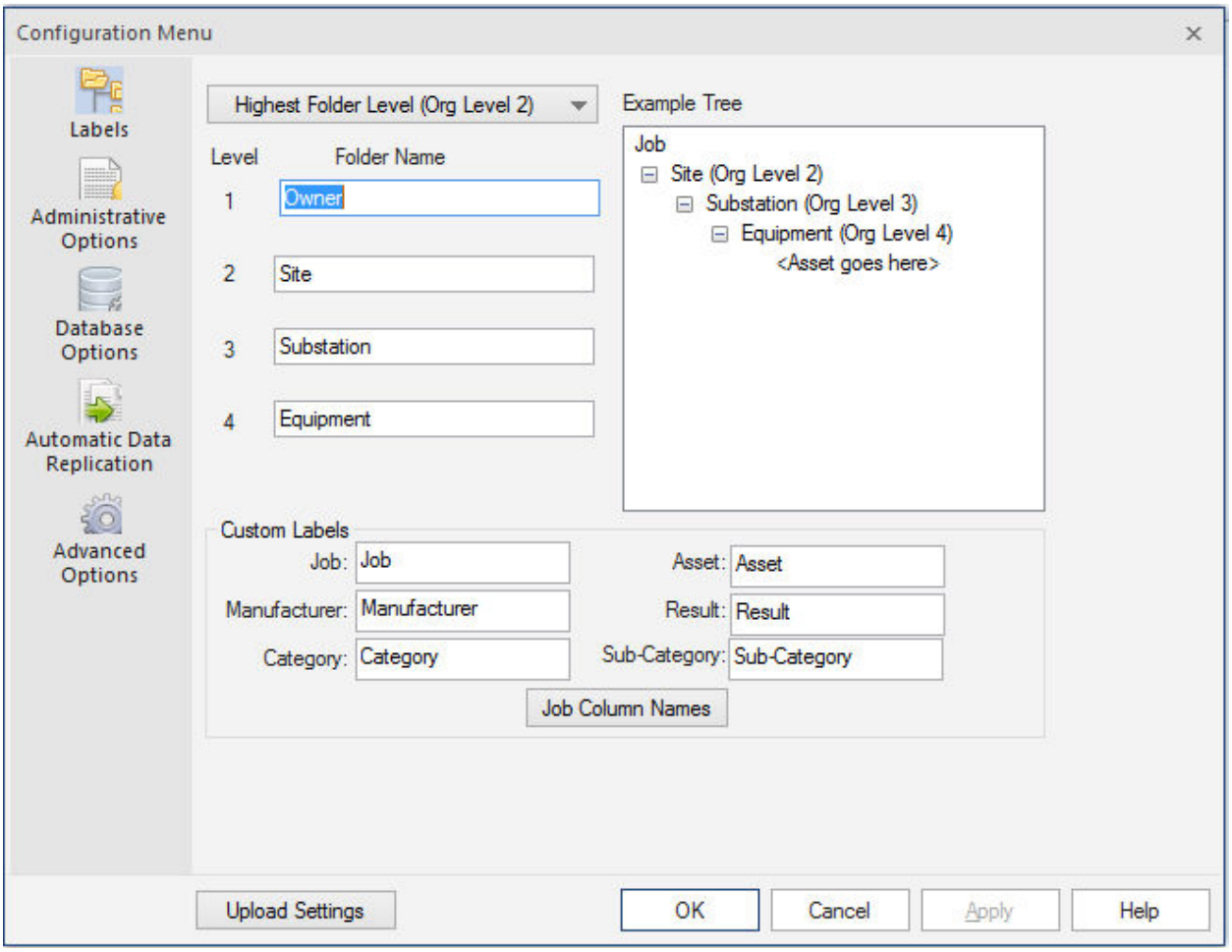
12.2 Configuration

The configuration options can be found by clicking '**Database Admin**' from the Tools menu. The administrative properties are divided into five tabs: Labels, Administrative Options, Database Options, Automatic Data Replication, and Advanced Options and is only accessible to a user with Administrator privileges.

12.2.1 Labels

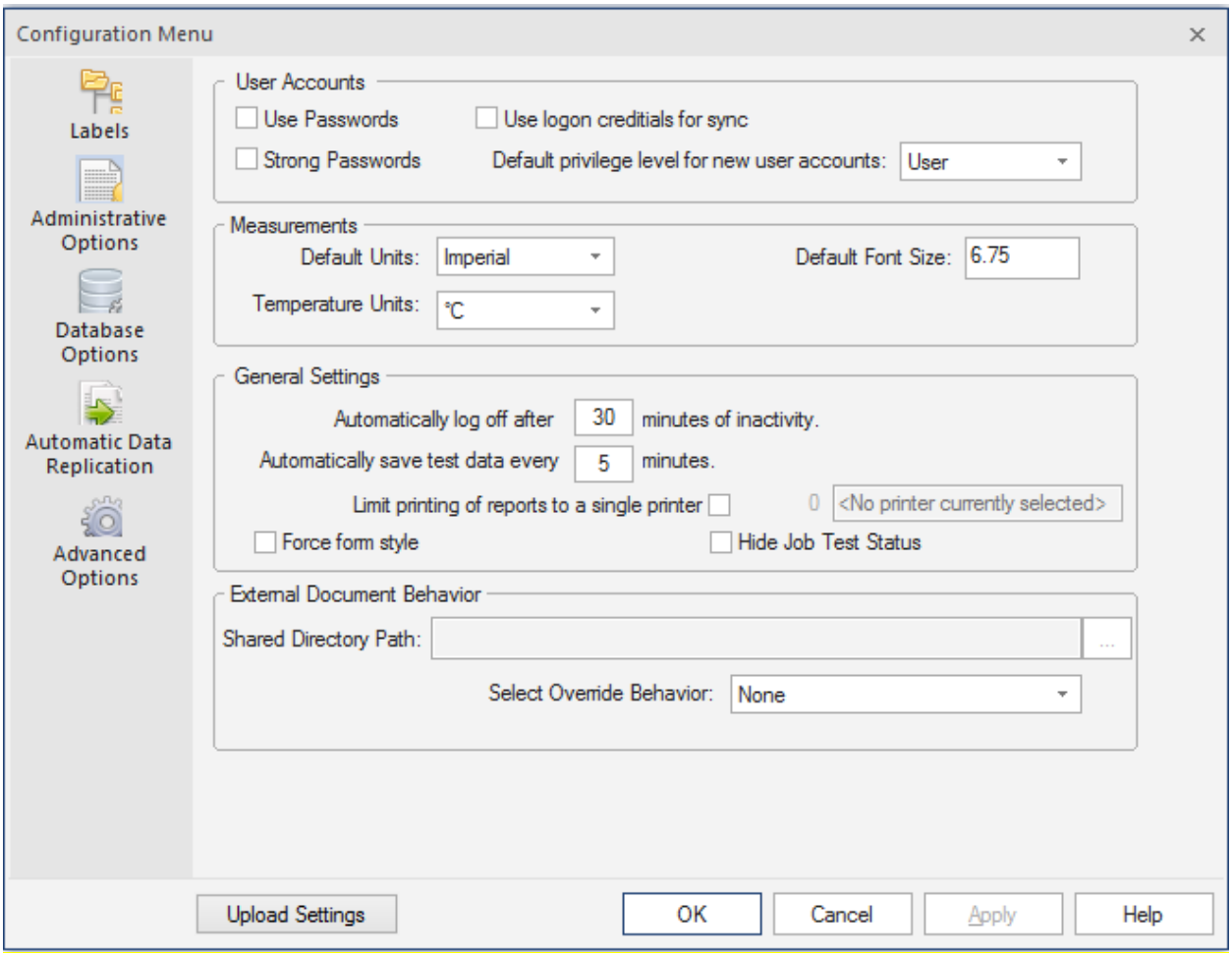
An Administrator level user can customize the names of the folders in the Job Tree or Asset Tree as well as the commonly used labels. Folder names can be left blank. The Highest Folder Level setting enforces the minimum number of folder levels to be specified when adding an asset.

Job Column Names can be customized by entering values in the Field Name column. It is suggested that fields indicated to be dates be used as date fields due to formatting.



12.2.2 Administrative Options

Within this tab an Administrator can change overall application settings.



When the checkbox ‘Use Passwords’ is not checked then no password prompts are shown during logon. If the checkbox ‘Use Passwords’ is checked, then a password prompt is shown during logon. If ‘Strong Passwords’ is checked, a password must contain a lower-case letter, an upper-case letter, at least one number, at least one special character, and cannot match any of the previous 4 passwords. The password must also contain at least 8 characters. The special characters are: !@#$%^&*|<>.-+(){}[]. A dropdown can be used to set the default privilege level when creating new user accounts.

Measurements settings allow the user to globally select Imperial or Metric in the application. Ambient temperature units will default to Celsius if Measurement Units are set to Metric. If Measurement Units are set to Imperial, ambient temperature units will default to the last selected units. The Default Font Size will affect controls used in the Form Editor.

The ‘Automatically log off after ## minutes of inactivity’ option is disabled with a value of zero. If the value is a non-zero, then PowerDB will exit after the specified interval of inactivity. No test data will be saved unless specified in the auto-save feature.

The ‘Automatically save test data every ## minutes’ option is disabled with a value of zero. If the value is a non-zero, then test data will be saved to the database after the specified interval during data entry.

The ‘Printer Limitation’ option may be used to allow specifying a single printer to be used for printing reports. Users without administrator privileges will not be able to print from PowerDB to any other printer other than the one specified.

The ‘Force Form Style’ option will apply all three configurable View Settings options to databases created from the master. The three settings are normally configurable by individual users on their PCs using Tools > User Options. Selecting ‘Force Form Style’ overrides user settings. The three options are:

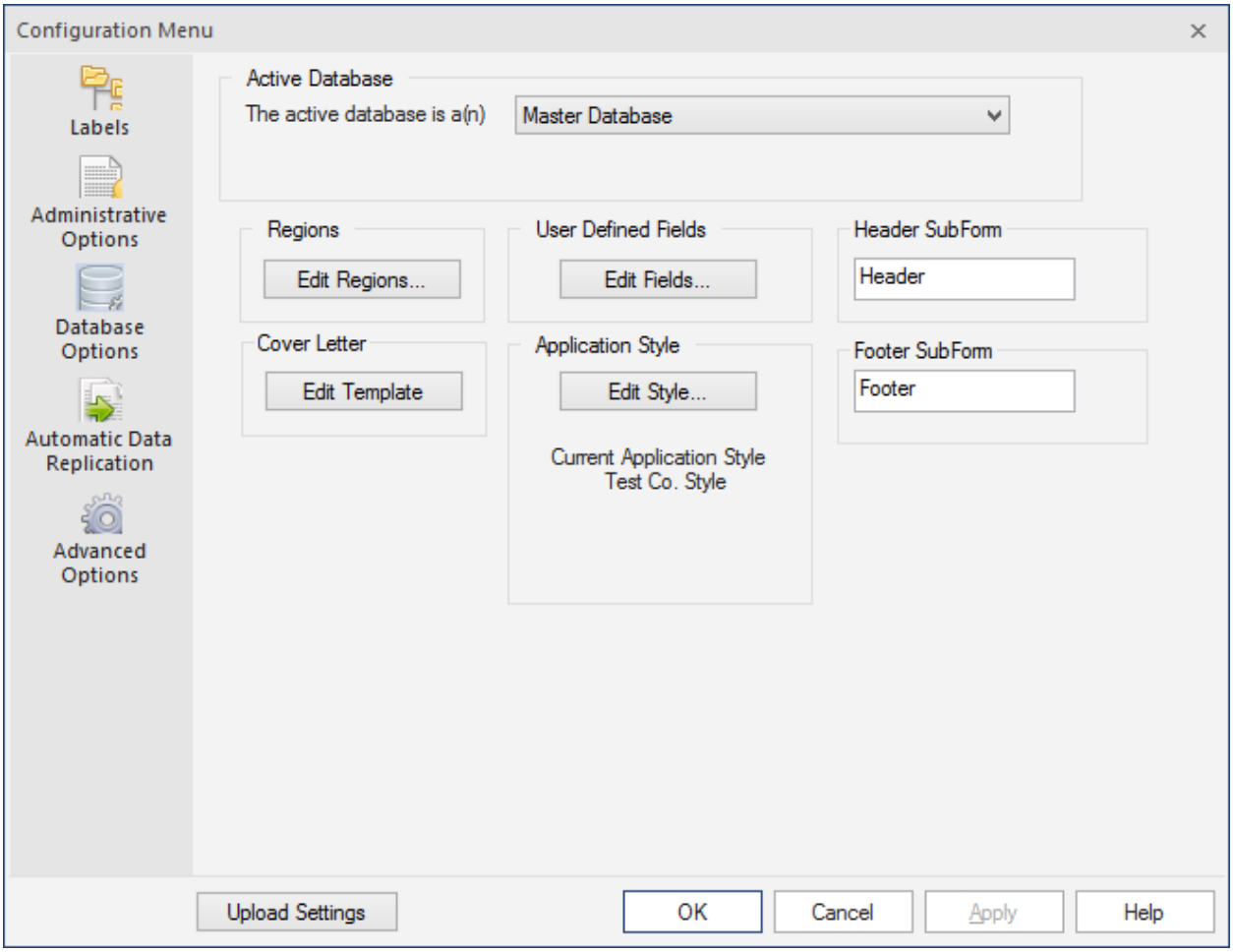
- Indicate dropdown fields on forms
- Rectangular border on data entry fields
- Display forms with grey background

Hide Job Status hides the current status of all Results in a Job from being displayed.

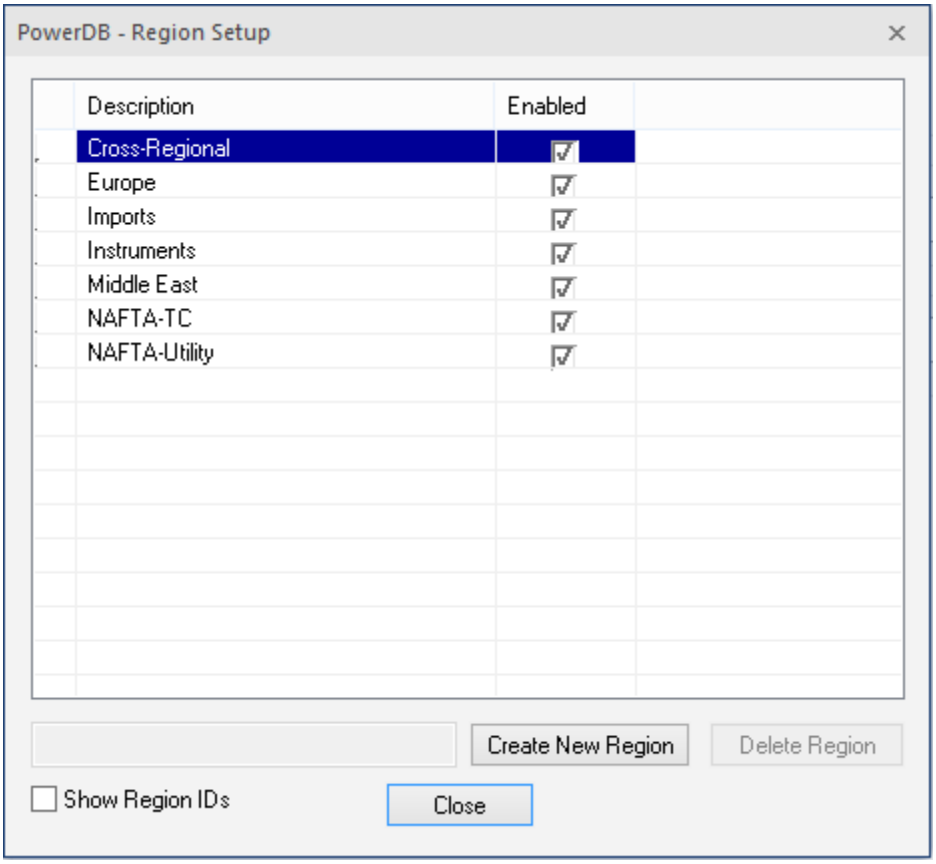
‘External Document Behavior’ allows entry of a Shared Directory Path for storing documents outside of the PowerDB database. ‘Select Override Behavior’ lets the administrator determine how all external documents will be handled or allows each user to decide which of three options will be used (Database, Shared Directory, Local File Path).

12.2.3 Database Options

The Database Options tab displays whether the active database is a master or field database. Note: Multi-license users should only have one master database.



Edit Regions allows an Administrator to create and edit Region names. Regions are subsets of the Job List, Assets, User Accounts and Address Book. Jobs are assigned to a region through Job Properties and company address book entries are assigned to a region. Inside the Region Setup window, Regions can be enabled/disabled, new Regions can be added or deleted. When viewing the Job List, Asset, Results or User Accounts, they may filtered by selecting from the available Regions.



The Cover Letter option is not used in the general application. Use provided Cover Letter forms or a custom version may be created which can then be added to Job results as other forms are added.

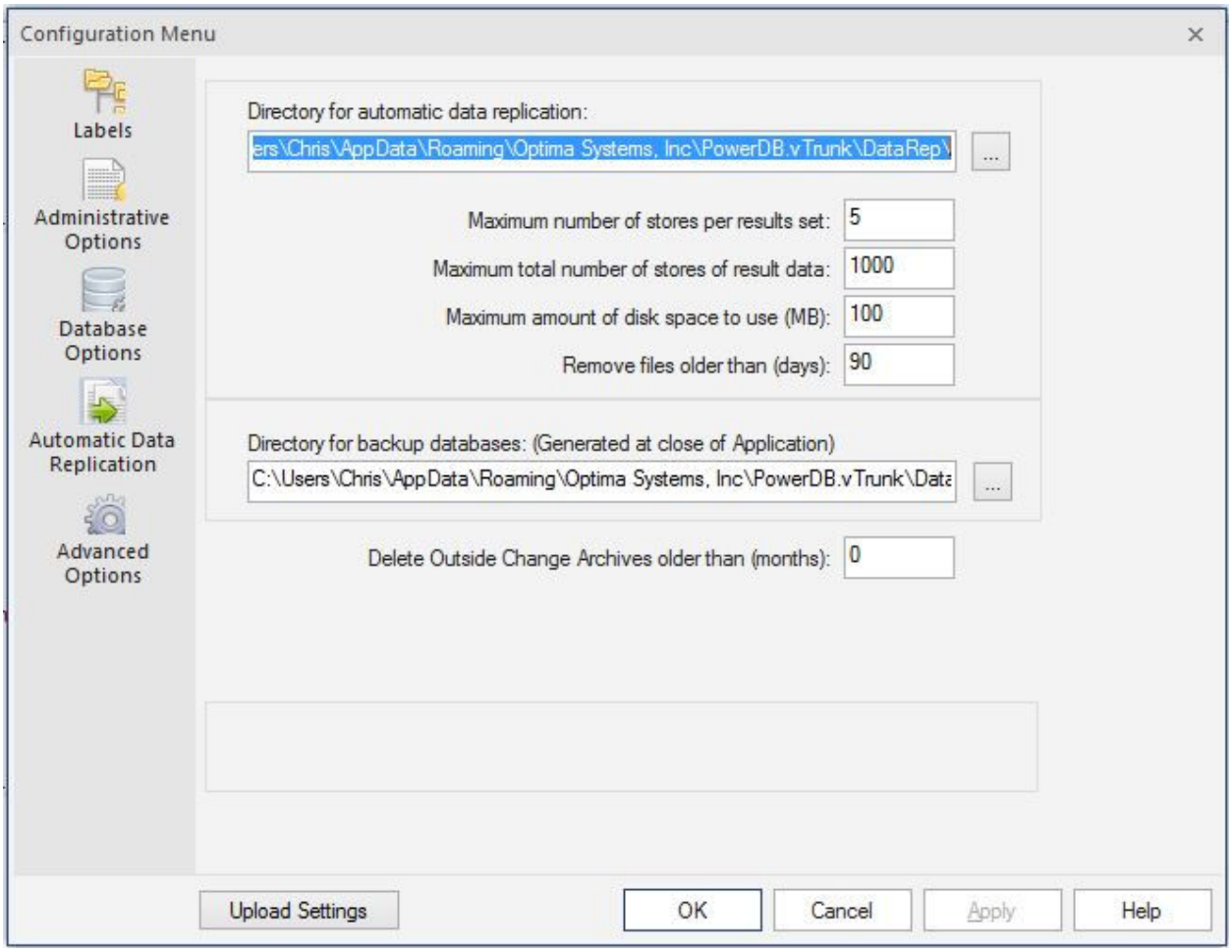
User Defined Fields allows users to add additional custom sort fields. Refer to the Printing section of this document for further explanation.

Application Style will assist in basic database configuration setup. This is not recommended to be changed after initialization. Available options are Test Company style (Standard only) and Asset Owner Style (Standard or Jobless).

Custom header and footer subforms can be set by name to be used globally.

12.2.4 Automatic Data Replication

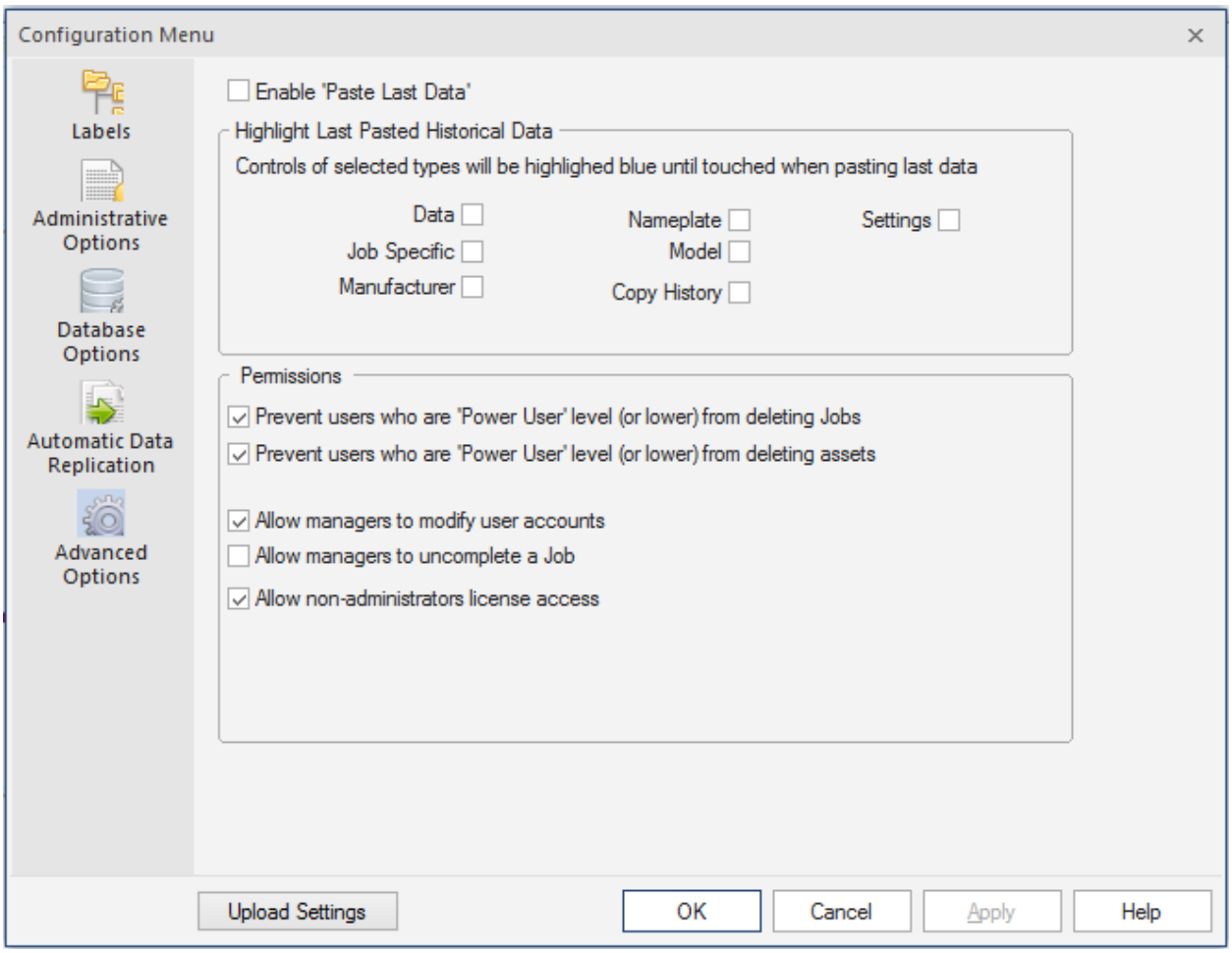
As results are entered into test forms, the system automatically creates backup 'replication' files that might be useful if a loss of data occurs. The Automatic Data Replication tab allows an administrator to change data backup settings. The directory for automatic data replication can be changed to another directory other than its default. Administrators can set the maximum number of backups that will be stored per result set, and the total number of stores of result data. Administrators can also limit the amount of disk space to use for backup, and automatically remove old files from the directory.



12.2.5 Advanced Options

If the setting for Enable 'Paste Last Data' is selected then the control types checked in Highlight Last Pasted Historical Data will be highlighted blue until touched in Job data entry mode. Specific tag types can also be singled out pasting last data.

There are also a group of Permissions here to limit or extend certain access to user level groups.



13 Form Design

Form and Subform editing must be done in a Development Database (refer to **Section 10 Development Database**).

13.1 Forms Editor

The Forms Editor is used to create test forms that will be used for entering and printing test data and field service reports. Some generic tools displayed include cut, copy, and paste.

The Forms Editor allows for two views of the workspace. In the Design Mode, a ruler and a grid of tick marks are visible to aid in placing and sizing controls on the workspace. At 100% zoom in Design Mode, the tick marks are spaced at 1/32” and the ruler is sized at 1/16”.

In Test Mode, toggled with the ‘Test Form’ button, the form is displayed in page layout view. Entries or changes can be tested for input controls, check boxes and radio buttons.

While working in the form workspace, it is possible to perform certain steps from right and left clicks of the mouse. While the mouse cursor is on the workspace of a form, a right mouse click will display a

short menu of choices. Click on 'Test' to switch to/from the Test Mode. Click on 'Properties' to open the Form Properties dialog box.

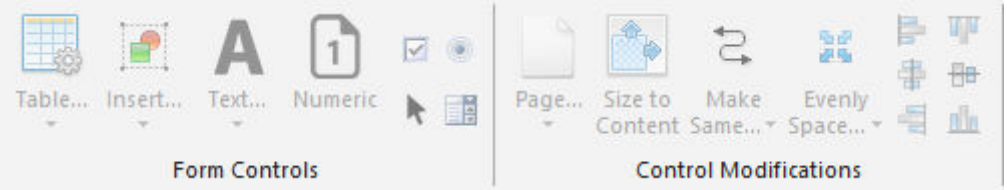
While the mouse cursor is on a control, double clicking will open the appropriate properties dialog box and shift double click will open the Script Editor. While the mouse cursor is on a control, a single left mouse click selects the control which is confirmed by the display of the control handles. When the handles are displayed, it is possible to drag or resize the control. When a control is selected, a single right click will display a menu of options defined below.

- **Test**
  Will switch the form from Design Mode to Test Mode
- **Delete**
  Click 'Delete' to remove a selected control from the form workspace. A pop up box will appear to allow the choice to be changed before the delete action is executed. Click 'Yes' to delete or click 'No' to cancel the action.
- **Cut**
  The selected control will be removed from the workspace. It may be pasted back on this or another form by choosing the Paste option.
- **Copy**
  The selected control along with all its properties attributes will be copied.
- **Paste**
  If Paste is selected following the Copy command, the replicated control will be displayed with its handles visible and will be slightly offset from the original control. This control can be moved to the desired location by dragging the pasted control.
- **Auto Define Tabs**
  Automatically assigns the tab order of the input controls from left to right, top to bottom. Tab order must be defined for forms and subforms as well.
- **Define Tab Order**
  Sets the tab order or modifies the tab order or modifies the tab order defined by the auto define function. To change the tab order, hold down the *Ctrl* key and click on the control preceding the needed change. Next, release the *Ctrl* key and begin clicking the controls in the desired tab order. The system will renumber the remaining controls. Tab order must be defined for forms and subforms as well.
- **Show Tag Names**
  Makes tag names visible.
- **Find Controls**
  Locates a controls by its tag name.
- **Copy Scripts or Paste Scripts**
  Within a table, allows scripts to be copied from one control to others.
- **Outline**
  Outline will display a four-sided border around the selected control. Selecting Outline again will remove this border.

- **Underline**
  Underline will display a single underline below the control. The appearance of this underline can be modified at the 'Borders' button of the properties dialog box. Selecting 'Underline' again will remove this feature.
- **Bring Forward**
  When two controls overlap each other, define which control is made visible over the another control.
- **Send Back**
  When two controls overlap each other, defines which control will be hidden behind another control.
- **Select Column**
  Select a single cell within a table column and then click 'Select Column'. This will select all adjacent cells as evidenced by their handles being visible. Cells may be deselected by clicking on the cell again.
- **Select Row**
  Select a single cell within a table row and then click 'Select Row'. This will select all adjacent cells as evidenced by their handles being visible. Cells may be deselected by clicking on the cell again.
- **Select Table**
  If selected from upper most left control, the entire table will be selected. If selected from any other control in the table, this will select all controls below and to the right of the selected control.
- **Change Type**
  Click 'Change Type' to display a dropdown box. Click the down arrow to view and make a selection. Allows change of the selected control to another type of control.
- **Edit Flyover Text**
  Click a control and then select 'Edit Flyover Text' from the right click menu. This will open an edit box to enter information to be viewed in the data entry mode of a form. A user may view this text information in a form by holding down the *Shift* key as they move the cursor over the form.
- **Set Tag to label**
  Select an even number of Read Only and Input controls then select the 'Set Tag to Label' right click menu item to match the tag name of the input controls to the Read Only label control.
- **Properties**
  Click 'Properties' to view the appropriate properties dialog box.

Form Tools

A brief explanation follows for the Form Tools menu buttons. These buttons are located along the top of the window and are used to add and edit controls in the form. Hovering over a button without a name will display the name.



- **Cut**
  Select and left click on a control then click on the 'Cut' button. This will copy the control and remove it from the workspace. (Not pictured)
- **Copy**
  Select and left click on a control then click on the 'Copy' button. This will copy the control and all of its properties. (Not pictured)
- **Paste**
  After a control has been cut or copied, it can be pasted by left clicking and selecting 'Paste'. The control will appear slightly offset from its original position. It can be moved around the workspace by left clicking the control and dragging or by using the keyboard arrow keys. (Not pictured)
- **Test Form**
  Click on the 'Test Form' button to display the form in the Test Mode. Click on the 'Test Form' button again to return to the Design Mode.
- **Table**
  Click on the 'Table' button. The mouse will appear as a crossbar on the workspace. Click and drag an approximate location for the desired table to open the Table Wizard dialog. Clicking the lower section of the button will present more options.
    - **Table Wizard**
      See above.
    - **Resize Table Horizontal**
      Click the button to equally resize selected columns or an entire table.
    - **Resize Table Vertical**
      Click the button to equally resize selected rows or an entire table.
- **Insert…**
  Clicking the lower section of the button will present more options.
    - **Rectangle**
      Click on the 'Rectangle' button. The mouse cursor will appear as a crossbar on the workspace. Click and drag downward and to the right to outline the area to be designated as a rectangle. Additional items may be added within the perimeter of the area outlined by the rectangle, such as a text control or an image.
    - **Image**
      Click on the 'Image' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop an image control onto the form. Left clicking once and dragging the handles will resize the image.

- **Chart**
  Click on the 'Chart' button. The mouse cursor will appear as a crossbar on the workspace. Click and drag downward and to the right to outline the area to be designated to insert a chart.
- **Subform**
  Click on the 'Sub-Form' button. The mouse cursor will appear as a crossbar on the workspace. Click and drag slightly downward and to the right to designate the position of the upper left corner of a preexisting sub-form.

- **Text**
  Click on the 'Text' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a text control onto the form. Left clicking once and dragging the handles will resize the control. Clicking the lower section of the button will present more options.
  - **Enhanced Text**
    Described in **Section 13.5 Enhanced Text**.
  - **Read Only Text**
    Click on the 'Read Only Text' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a read only text control onto the form. Left clicking once and dragging the handles will resize the control.
- **Numeric**
  Click on the 'Numeric' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a numeric control onto the form. Left clicking once and dragging the handles will resize the control.
- **Check Box**
  Click on the 'Check Box' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a check box control onto the workspace. To resize the check box, double click on the control to open the Check Box Properties dialog box. Deselect the standard size selection and click OK. Click and drag the control handles to the desired size.
- **Radio Button**
  Click on the 'Radio Button' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a radio button control onto the workspace. To resize the radio button, double click on the control to open the Radio Button Properties dialog box. Deselect the standard size selection and click OK. Click and drag the control handles to the desired size.
- **Select**
  The 'Select' button enables standard Windows mouse properties. Click and drag the mouse downward and to the right to select single or multiple controls or left click to select individual controls. Multiple controls can be selected by holding down the shift key and left clicking the desired controls.
- **Drop down box**
  Click on the 'Dropdown Box' button. The mouse cursor will appear as a crossbar on the

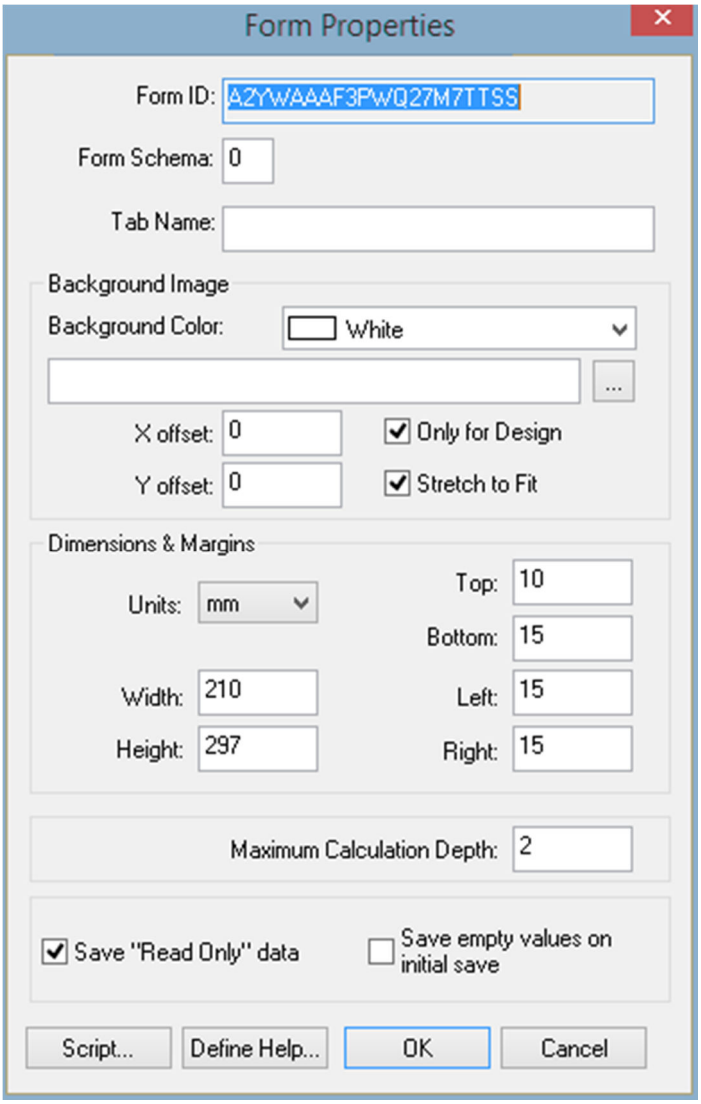
workspace. Left click once on the workspace to drop a dropdown box control onto the workspace. Left clicking once and dragging the handles will resize the dropdown box control.

- **Page…**
  Clicking the lower section of the button will present more options.
  - **Previous**
    Left click the 'Previous Page' button to move back one page in a multi-page form.
  - **Next**
    Left click on the 'Next Page' button to move forward one page in a multi-page form.
  - **New**
    Left click on the 'New Page' button to add a page at the end of the form.
  - **Delete**
    Left click on the 'Delete Page' button to delete a page from a multi-page form. The first page of a form may not be deleted.
- **Size to Content**
  Click on two or more controls or table cells, then click on the 'Size to Content' button. This will increase or decrease the size of the control or table cells to fit the size of its content.
- **Make Same...**
  Clicking the lower section of the button will present more options.
  - **Width**
    Click on two or more controls or table cells and then click on the 'Make Same Width' button. This will resize the width of selected controls or same row table cells to the width of the control selected last.
  - **Height**
    Click on two or more controls or table cells and then click on the 'Make Same Height' button. This will resize the height of selected controls or same column table cells to the height of the control selected last.
- **Evenly Space...**
  Clicking the lower section of the button will present more options.
  - **Horizontal**
    Drag the mouse to select multiple controls on the workspace, then click the button to evenly space the controls horizontally within the perimeters of selected range. To evenly space pairs of controls, hold down the shift key and click the button to match the spacing between subsequent pairs to the spacing of the first pair.
  - **Vertical**
    Drag the mouse to select multiple controls on the workspace, then click the button to evenly space the controls vertically within the perimeter of the selected range.
- **Align Left**
  Click on two or more controls and then click on the 'Align Left' button. This will left-align selected controls with the control selected last. Selected controls will overlap if not vertically separated.

- **Align Top**
  Click on two or more controls and then click on the ‘Align Top’ button. This will top align selected controls with the control selected last. Selected controls will overlap if not horizontally separated.
- **Align Center**
  Click on two or more controls and then click on the ‘Align Center’ button. This will vertically align selected controls with the control selected last. Selected controls will overlap if not vertically separated.
- **Align Middle**
  Click on two or more controls and then click on the ‘Align Middle’ button. This will horizontally align selected controls with the control selected last. Selected controls will overlap if not horizontally separated.
- **Align Right**
  Click on two or more controls and then click on the ‘Align Right’ button. This will right align selected controls with the control selected last. Selected controls will overlap if not vertically separated.
- **Align Bottom**
  Click on two or more controls and then click on the ‘Align Bottom’ button. This will bottom align selected controls with the control selected last. Selected controls will overlap if not horizontally separated.

13.1.1 Form Properties

Within a form workspace, right click to display the context menu. Click on ‘Properties’ to display the Form Properties dialog box.



- **Background Image**
  A bitmap can be imposed on the form as a background image to assist in forms creation and data placement. Entering positive or negative values in the X Offset and Y Offset boxes can shift the background image alignment. If the 'Only for Design' box is checked, this image will only appear when working in the Design Mode. If the 'Stretch to Fit' box is checked, the background image will be stretched to fit the form. To reduce data storage requirements it is recommended that the background image be removed after the form design is complete.
- **Dimensions**
  Defines the size of the form. A standard size form can be produced in landscape orientation by reversing the height and width measurements.
- **Margins**
  Defines the margins of the form. The margins are displayed when designing a form as a guideline for control placement.

- **Maximum Calculation Depth**
  This defines the number of levels of calculation dependency. For example, if field tag 'B' is based on tag 'A', and tag 'C' is based on tag 'B', then a depth of three is sufficient to propagate the calculations. This is the number of times that the calculations will be carried out.
- **Script…**
  Clicking the 'Scripts' button opens the Script Editor Dialog Box. The scripting language used is Microsoft VBScript, which is a subset of Microsoft Visual Basic.
- **Define Help…**
  PowerDB allows population of help screens for assisting users with instructions specific to the form.

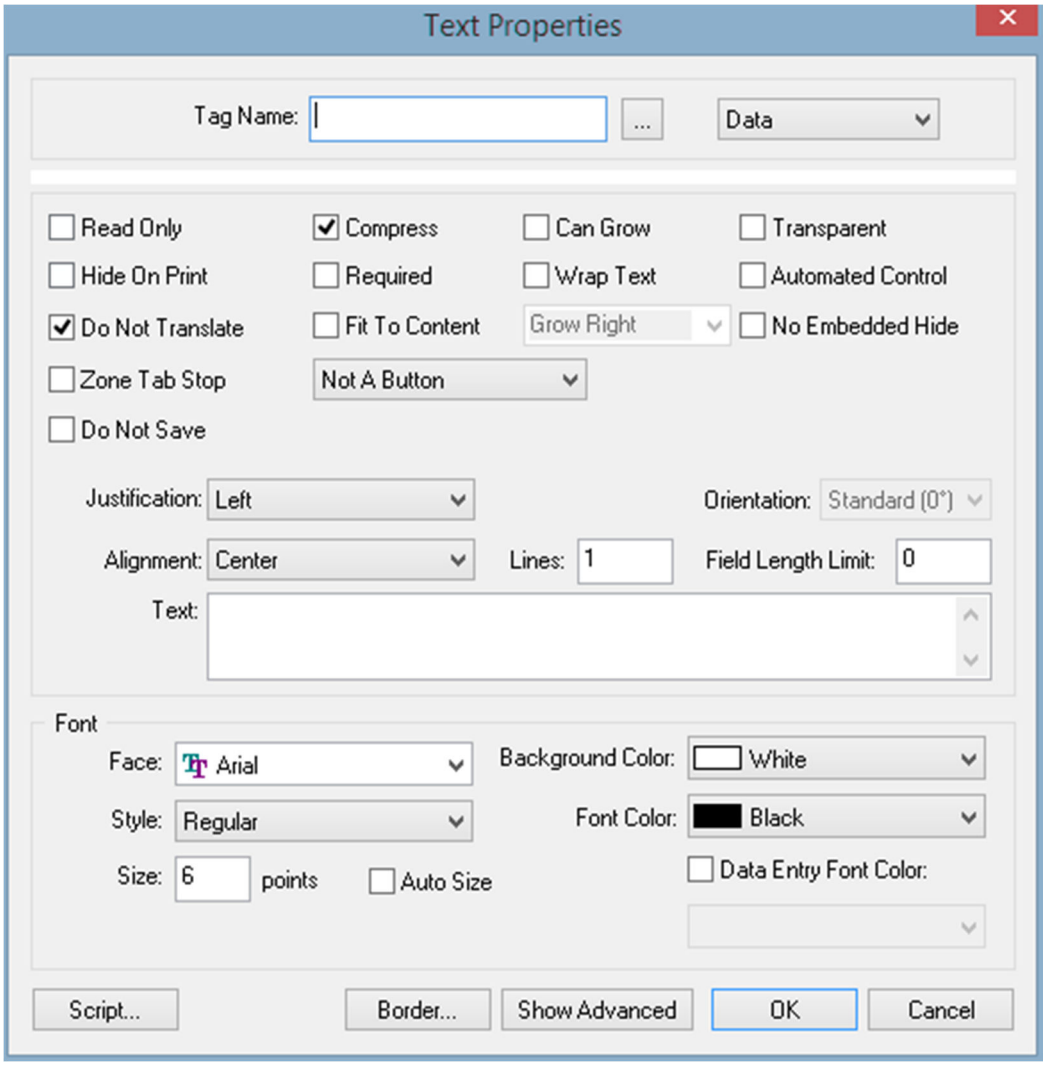
13.1.2 Form Controls

Workspace coordinates are displayed on the status bar in the lower left corner of the screen as the mouse cursor moves around the workspace. Holding down the Ctrl key while moving the mouse around the workspace causes details to be shown on the status bar for the particular control under the mouse cursor.

Form controls identify their data via "tag names" specified in the control properties dialogs. Each control to receive input or be used in a calculation must have a unique tag name. If a duplicate tag name is used in the same form, a warning is displayed when the form is saved or loaded. A tag name may be located on the form by selecting Show Tag Names or Find Control from the right click menu in form design.

13.1.2.1 Text Control

To create a text control on the form workspace, click on the 'Text' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the size of the text control. Double click within the text control to display the Text Properties dialog box. Click in the first dropdown box to specify the classification of the control data. Dropdown lists are displayed for text justification, alignment within the text box, and orientation. Font selections are made in the lower portion of the dialog box.

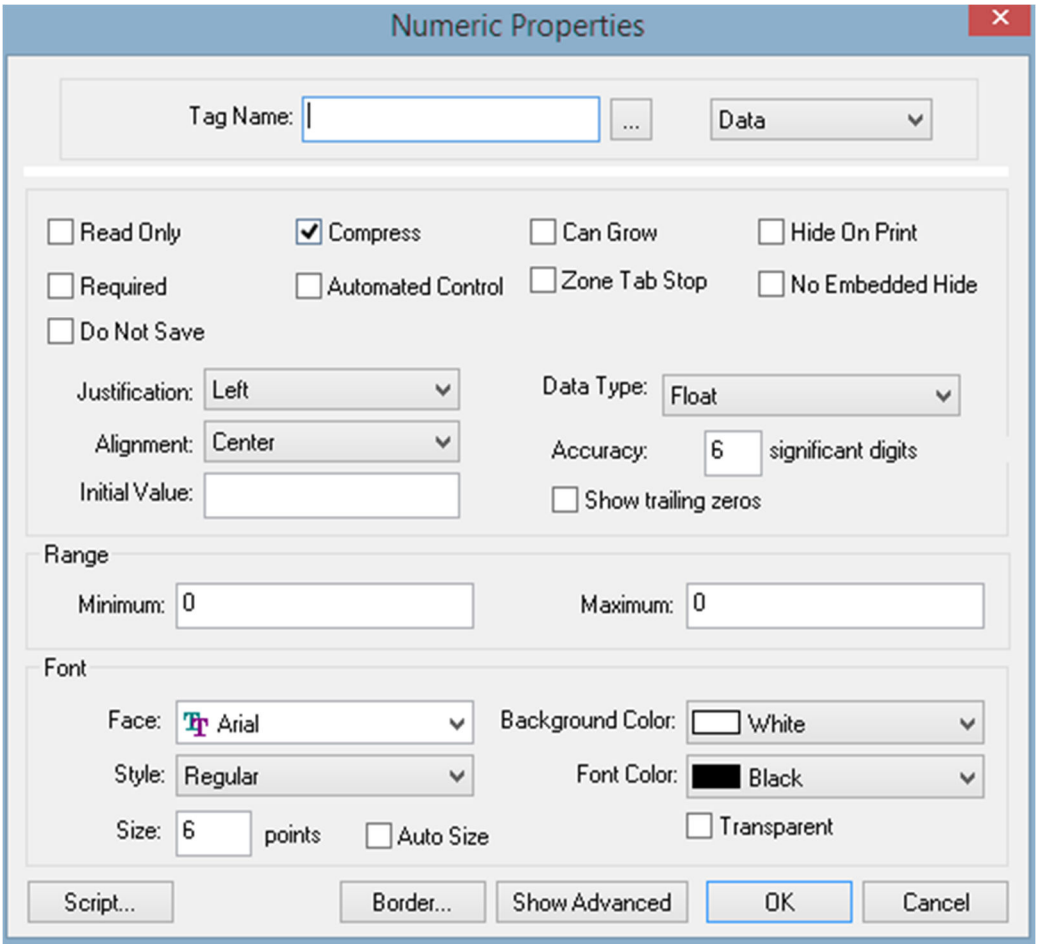


If a text control is checked to be 'Read Only' the data entered in the Text area will be displayed on the form as entered in the dialog box. If a tag name is specified for a read-only field, then the value displayed may be changed via scripting. The 'Lines' field defines the number of text lines displayed.

If the text control is not checked to be 'Read Only' it is designated as an input control. A 'Field Length Limit' number other than '0' will truncate the input data displayed.

13.1.2.2 Numeric Control

To create a numeric control on the form workspace, click on the 'Numeric' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the size of the numeric control. Double click within the numeric control to display the Numeric Properties dialog box. Click in the first dropdown box to specify the classification of the control data. Dropdown lists are displayed for text justification and alignment within the numeric control. Font selections are made in the lower portion of the dialog box.



If a numeric control is checked to be 'Read Only', the data entered in the Initial Value area will be displayed on the form as entered in the dialog box. If a tag name is specified for a read-only field, then the value displayed may be changed via scripting.

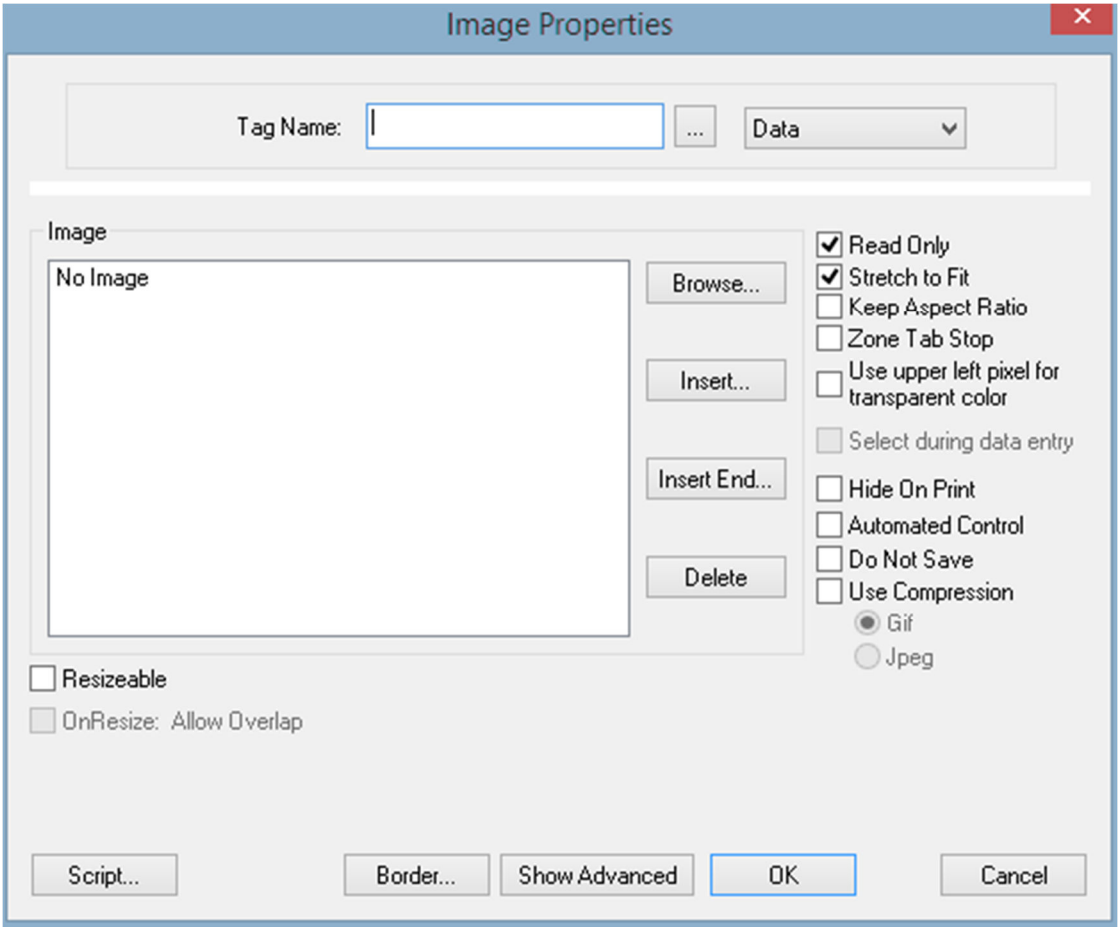
If the numeric control is not checked to be 'Read Only', it is designated as an input control. The editor will ignore any input that is other than numeric.

The Data Type dropdown list provides Boolean, integer or float as allowable data type designations. If float is selected, the decimal place accuracy and show trailing zeros options are enabled. If float or integer is selected, a minimum and maximum range can be specified. An entered value outside of this range will create a warning message. If Boolean is selected, the value will be true or false. If anything other than false is entered into the Value field, the value will be true. The Minimum Value and Maximum Value fields are disabled when the Boolean data type is selected. When a Boolean control is edited in Test Mode, clicking on it will toggle the value between true and false.

13.1.2.3 Image Control

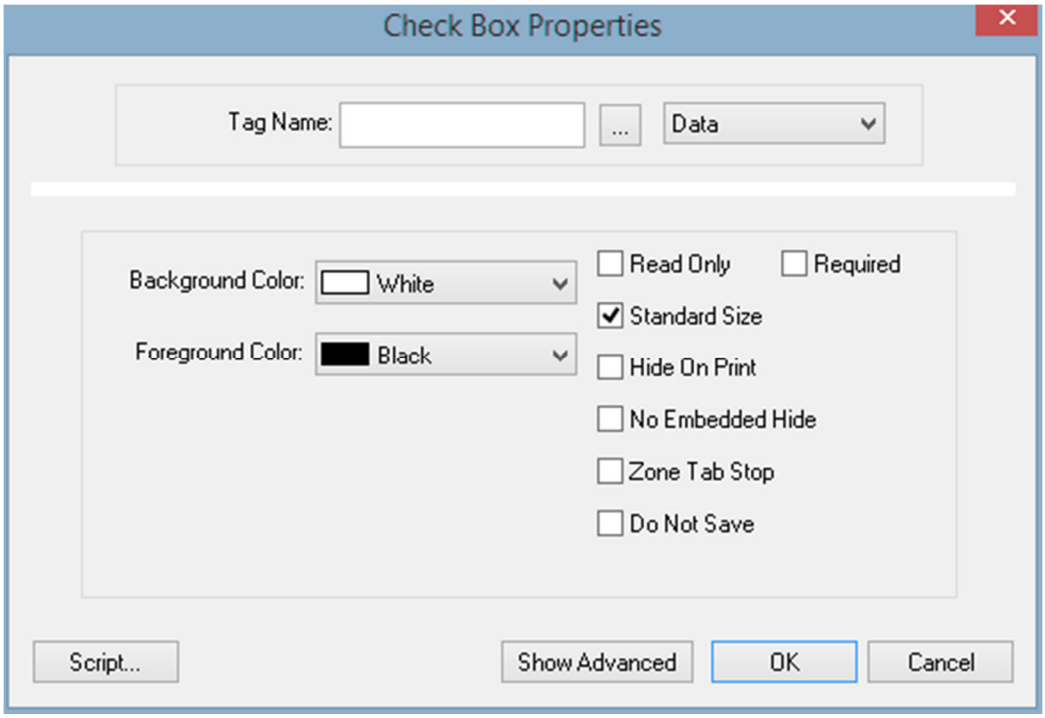
To place an image on the form workspace, click on the 'Image' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the upper left corner of the image. Double click within the image control to display the Image Properties

dialog box. Click in the first dropdown box to specify the classification of the control data. By clicking the 'Insert' button, a dialog box will pop up enabling the ability to browse for a .bmp, .gif or .jpg image file. After selecting a file, the image may be changed by pressing the 'Browse…' button and searching for a new image. To delete an image, simply press the 'Delete' button. By enabling the Stretch to Fit property, the image will resize to fit in the given area of the image control. If this property is not enabled, the image will remain full size and some clipping may occur. If the image is not read only and the 'Select during data entry' option is chosen, an image file can be chosen during data entry. Images are enumerated in the order they appear in the Image Properties Dialog, starting with zero. For example, if the tag is equal to '2' then the third image in the list is displayed.



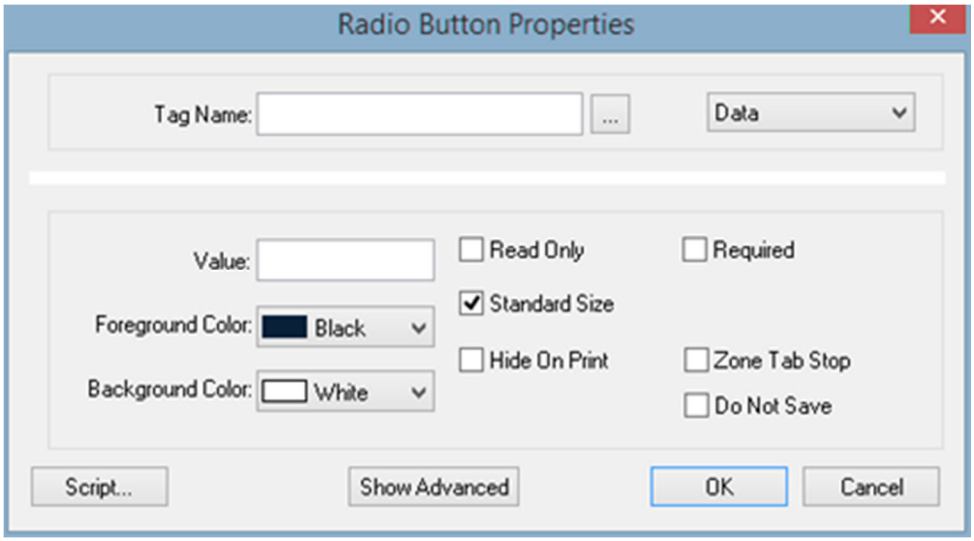
13.1.2.4 Check Box Control

To create a check box on the form workspace, click on the 'Check Box' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the check box control. Double click within the check box control to display the Check Box Properties dialog box. Click in the first dropdown box to specify the classification of the control data. If the check box is not designated as read only, it will be designated as an input control. The standard default size of the check box can be modified by unchecking the 'Standard Size' check box, clicking the 'OK' button, and then dragging the handles of the check box to the size desired.



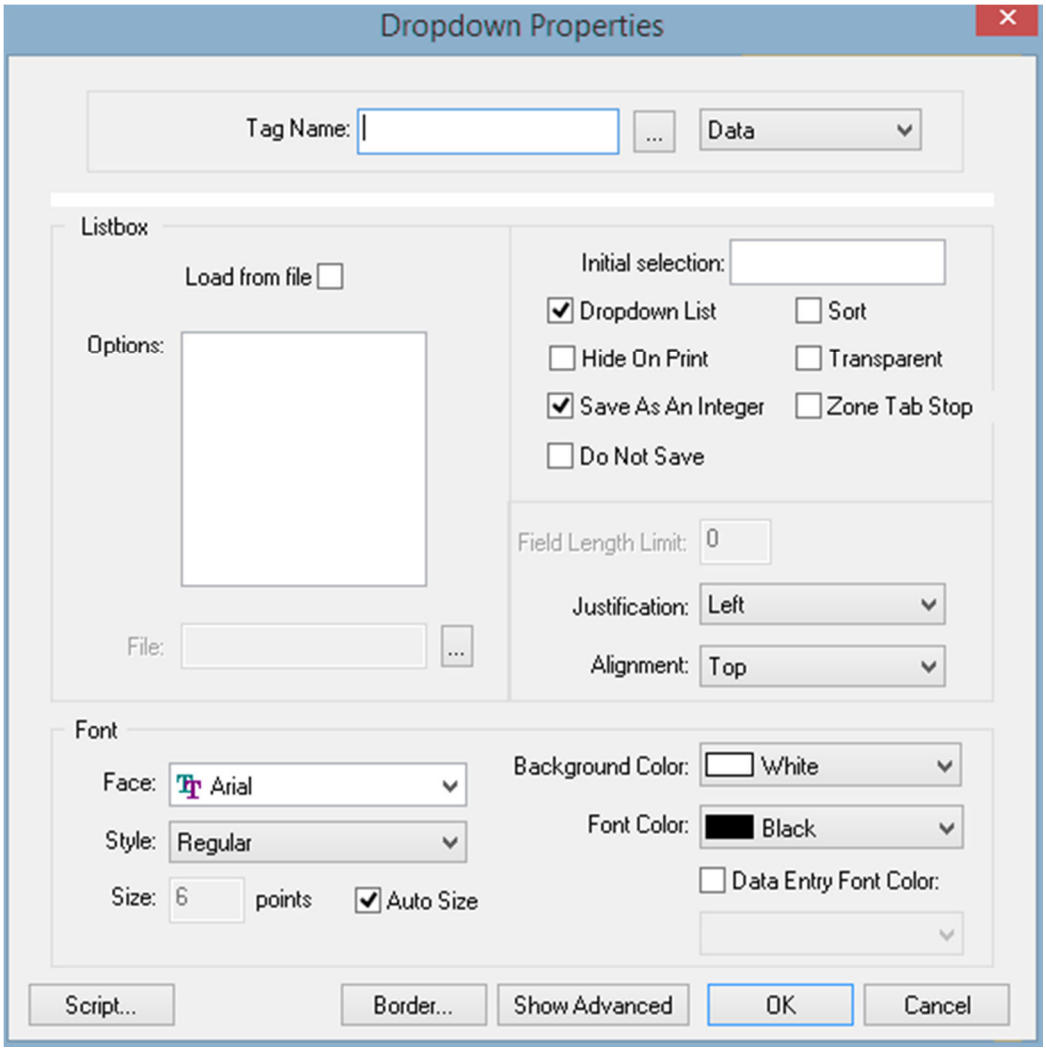
13.1.2.5 Radio Button Control

A radio button control should be used when a single selection among a grouping of mutually exclusive items is required. To create a radio button on the form workspace, click on the 'Radio Button' button on the Form Tools palette. The mouse will change from an arrow to a crossbar. Click and drag to establish the location of the radio button control. Double click within the radio button control to display the Radio Button Properties dialog box. Click in the first dropdown box to specify the classification of the control data. All radio buttons controls within a single grouping should be given the same tag name. Each individual radio button control within a grouping is given a unique Value identifier. The standard default size of the radio button can be modified by unchecking the 'Standard Size' check box, clicking the 'OK' button, and then dragging the handles of the radio button to the size desired.



13.1.2.6 Dropdown Box Control

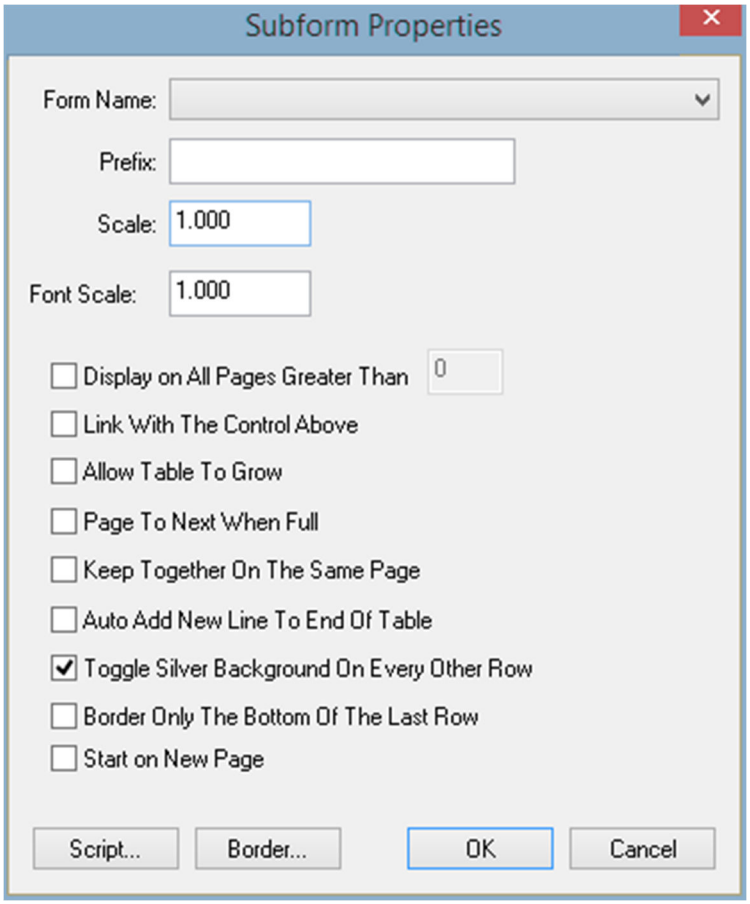
A dropdown box should be used when a predetermined selection list is to be provided. To create a dropdown box on the form workspace, click on the 'Dropdown Box' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the dropdown box. Double click within the dropdown box to display the Dropdown Box Properties dialog box. Within the List Box Options area of the dialog box, enter the selections allowed. Selecting the Sort check box will sort the listing in ascending order. Selecting the Dropdown List check box will limit entry only to items listed in the List Box Options. A dropdown control can be populated from a file located in the PowerDB installation directory by checking 'Load from file' and specifying the file name.



13.1.2.7 Subform Control

Sub-Forms are created in the Subform section of the software. To place one of these subforms onto a form workspace, click on the 'Subform' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the upper left corner of the subform. Double click within the subform control to display the Subform Properties dialog box. Click the down arrow to display a listing of previously created subforms. Click on the desired subform to place it

on the form workspace, and then click OK. The outline of the subform will be displayed. Dragging the field can move the location of the subform. The size, content or appearance of the subform can only be changed in the Subform. Any changes made to a subform will be reflected in all forms where the subform is used.



While in form design mode, it is possible to jump to a subform by pressing the Ctrl key and double-clicking on the subform. Click on the Show Forms toolbar icon to return to the form design. Subforms may contain tables which can be designed to 'grow' as data is entered. For these controls select to Link With The Control Above and Allow Table To Grow. Refer to the Forms Design FAQ under the Help menu for further instructions.

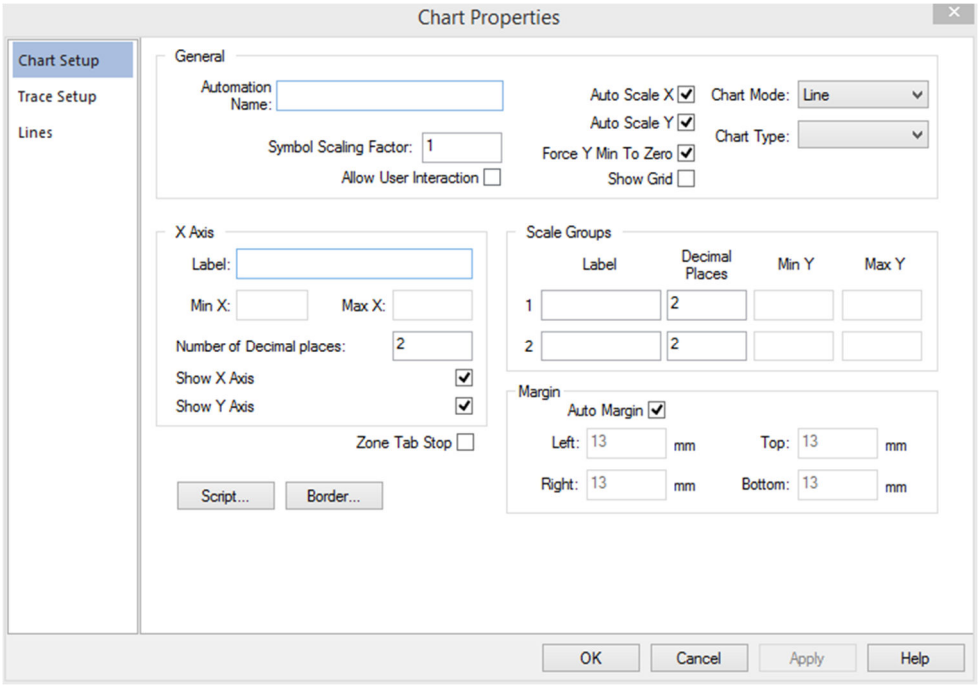
13.1.2.8 Chart Control

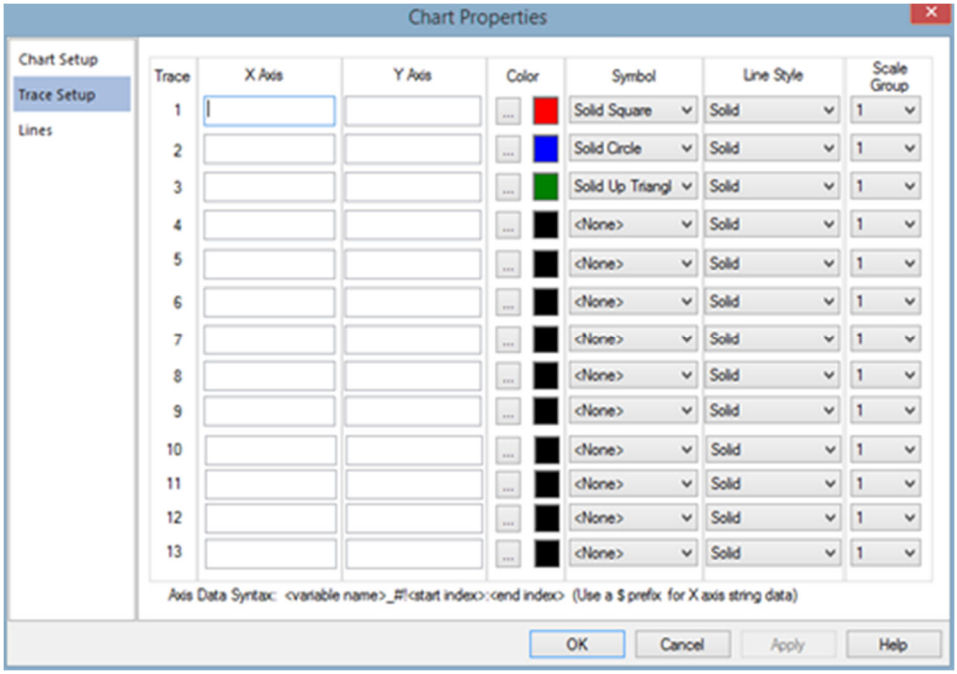
To create a chart on the form workspace, click on the 'Chart' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the chart. Double click within the chart field to display the Chart Properties dialog box. Tabs for Chart Setup, Trace Setup, and Lines are shown. Tags to retrieve the X-axis and Y-axis data can be specified for each trace from a created table in the following format:

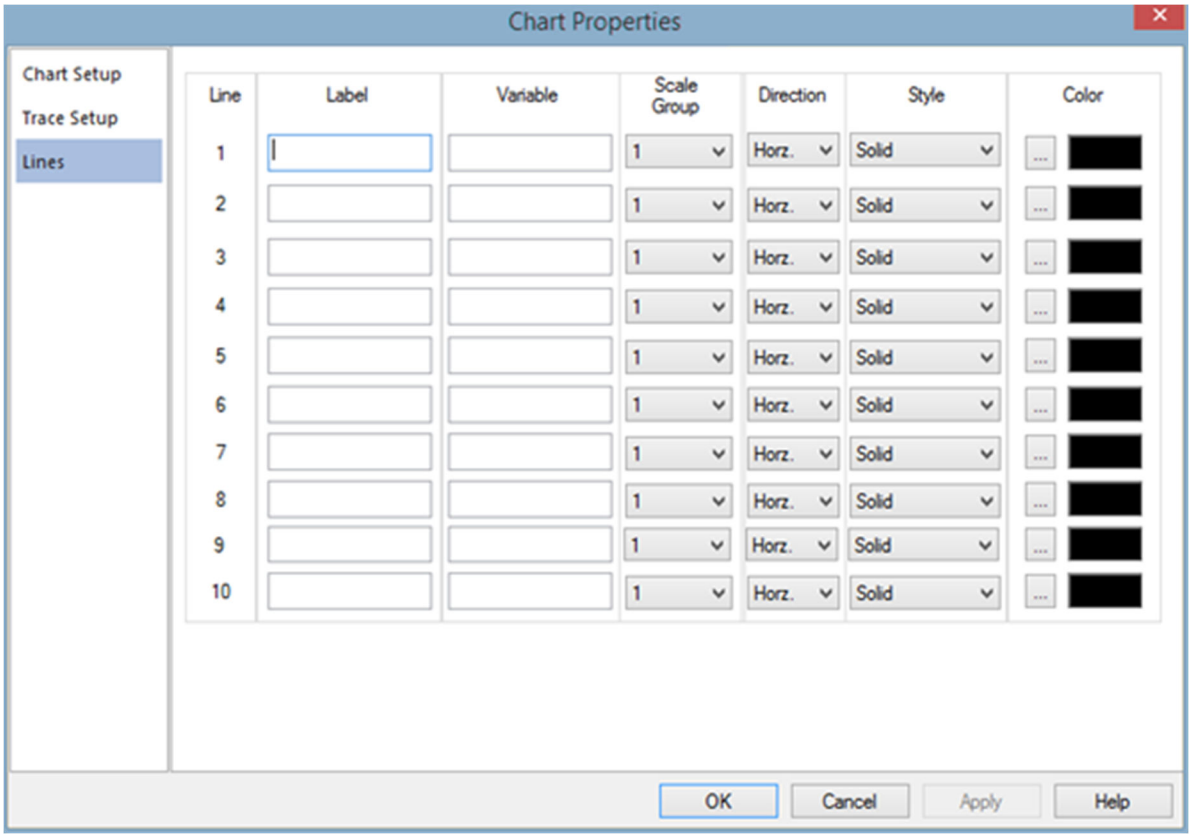
tagname#!from:to

The pound sign specifies where the number to iterate is located within the tag. The exclamation mark specifies the end of the tag name. The iteration range is specified by from:to. For example, OpTime_#!1:5 retrieves data from the tags OpTime_1, OpTime_2, OpTime_3, OpTime_4, OpTime_5.

The ‘Lines’ tab is designated in order to assign a tag name to a horizontal or vertical line. In addition, the scale group control is utilized when the Y-axis represents data of different scales and need to be grouped.



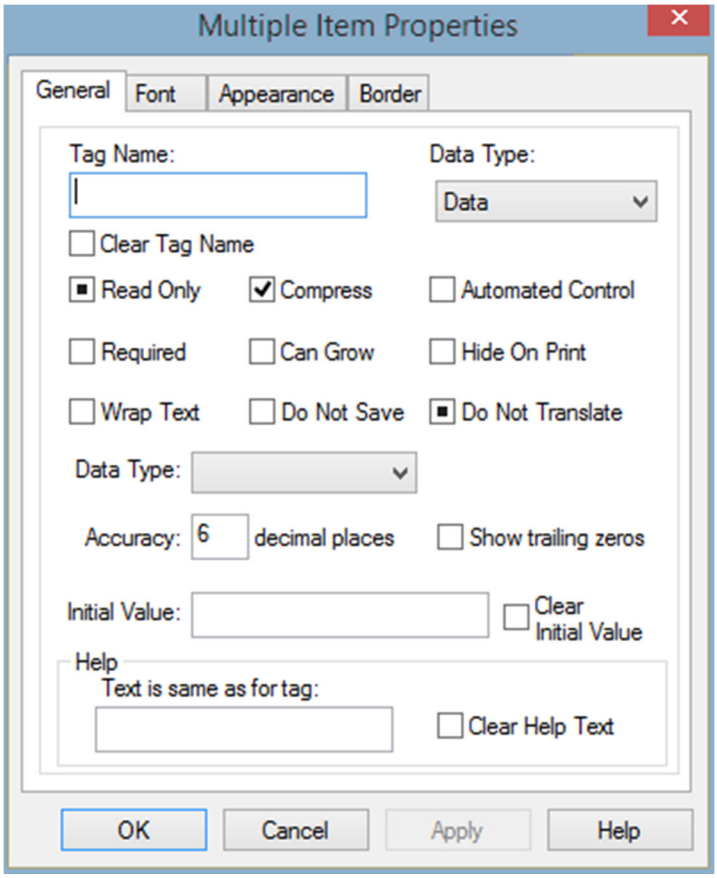




13.1.3 Multiple Item Properties

Multiple controls may be selected by holding down the shift key while left clicking the desired controls, or by click-and-dragging a “rubber band” around the items. After clicking the last desired control, right click to display a menu of options to modify the selected controls. Select ‘Properties’ to open the Multiple Item Properties dialog box. Various tabs are displayed to modify the contents of all the controls selected.

- **Tag Name / Clear Tag Name**
  It is possible to set or clear the tag names of multiple controls. Set the tag name numerical sequencing of multiple controls by using the following syntax in the Tag Name field.
  Text##Text – Numerically sequences tag names starting at 1
  Text##Text<5> – Numerically sequences tag names starting at 5
- **Initial Value**
  It is possible to set the text or numeric value to display in multiple controls by entering data in the Initial Value field. Add numerical sequencing to multiple controls by using the following syntax in the Initial Value field.
  ## - Numerically sequences the controls starting at 1
  ##<5> - Numerically sequences controls starting at 5



13.1.4 Scripts

Scripts are a set of instructions which define calculations using given data or which carry out tasks that are repetitive. Scripts are useful when data in one field affects data in another field. The Script Editor uses the VBScript engine to process the code.

13.1.4.1 Control Script Editor

While in design mode, the Script Editor dialog box may be opened by shift double clicking a selected control or by going to the control's properties and clicking the 'Script' button.



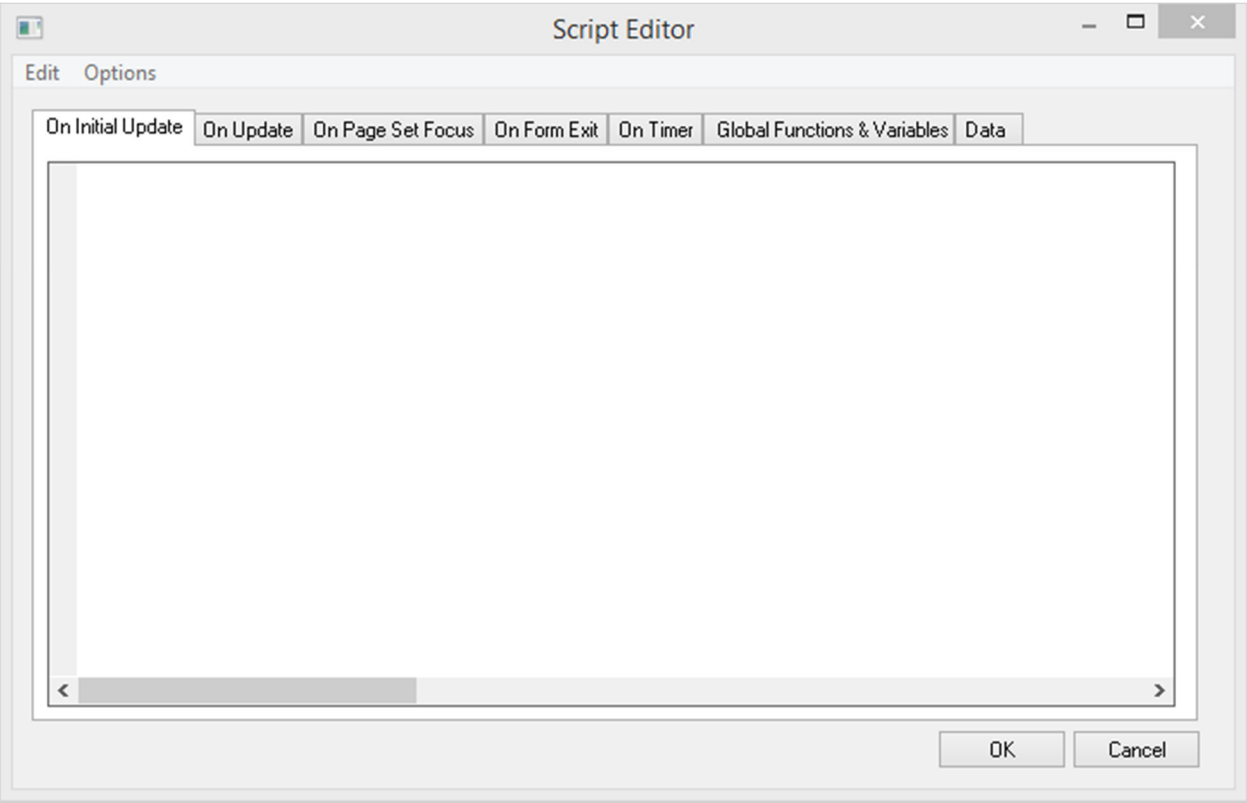
The following five tabs are displayed in the dialog box and their functionality is defined below:

- **On Initial Update**
  When the form is opened the scripts in these controls will be carried out.

- **On Update**
  Every time there is any type of entry or change on the form the scripts in these controls are carried out.
- **On Select**
  Every time a control with an On Select script is selected the respective scripts are carried out.
- **On Enter**
  On Enter scripts are automatically run when the form is initially loaded (for the purpose of initializing dependent calculations) and also when controls that contain these scripts are modified. Controls that have this property will carry out the scripts when the respective field has data entered in to it.
- **On Right Click**
  On Right Click scripts are run when the control is right clicked.

13.1.4.2 Forms Script Editor

While in Design mode, the Script dialog box may be opened by going to the Form Properties dialog box and clicking the 'Script' button or by going to the File menu and selecting Properties. The purpose of the Forms Script Editor is to write scripts and functions that are common throughout the form.



The following seven tabs are displayed in the dialog box and their functionality is defined below:

- **On Initial Update**
  When the form is opened in Test Mode, the scripts in these controls will be carried out.

- **On Update**
  Every time there is any type of change on the form in Test Mode, the scripts in these controls are carried out.
- **Functions**
  This tab contains functions that will be repeated within the form and variables that can be used within scripts throughout the form. When working within the functions, controls within the form must be referred to by putting a 'Form.' before the tag name.
- **On Set Page Focus**
  The scripts in these controls are carried out the first time that the page receives focus.
- **On Form Exit**
  When a form is exited, the scripts in these script controls are carried out.
- **On Timer**
  The scripts in these script controls are carried out every second.

13.1.4.3 Global Script Editor

Global functions may be accessed by opening the Tools menu and selecting Global Functions, or by simply pressing Ctrl+F9. The purpose of the Global Script Editor is to write functions and constants that are common throughout multiple forms.

The following two tabs are displayed in the dialog box and their functionality is defined below:

- **Global Functions**
  User-defined common functions and constants are written here so that they may be used throughout various forms.
- **Standard Functions**
  Standard Functions are predefined functions that may be used in any of the forms, but may not be edited by the users. These functions include a divide function with error handling, and the functions to facilitate looking up values from Comma Separated Value (*.csv) files.

13.1.5 Table Wizard

Clicking the 'Table' button on the Form Tools palette starts the Table Wizard. The mouse cursor will appear as a crossbar on the workspace. The overall size of the table can be outlined by dragging the cursor downward and to the right, or precisely sized within the first dialog box of the wizard.

- **Sizes Dialog Box**
  A precise overall size for a table can be defined in the Width & Height fields. If the 'Use Existing Sizes' check box is selected, the area previously drawn by dragging the mouse will determine the table size. The number of rows and columns is defined in the right hand portion of this box. If the 'Grow Table as Necessary' checkbox is selected, the wizard will resize the table to fit the font size selected. Select the 'Next' button to proceed with the wizard.
- **Row Settings Dialog Box**
  The height of the table rows will default to be evenly sized within the dimensions previously defined. If the 'Sizes Set Individually' radio button is selected, a dropdown box will allow each

row height to be set individually. Select the 'Next' button to proceed with the wizard or the 'Back' button to return to the previous step.

- **Column Settings Dialog Box**
  The width of the table columns will default to be evenly sized within the dimensions previously defined. If the 'Sizes Set Individually' radio button is selected, a dropdown box will allow column widths to be set individually. Select the 'Next' button to proceed with the wizard or the 'Back' button to return to the previous step.
- **Type Selection Dialog Box**
  A dropdown list allows specification of the type of field the table cells are to be created as. Select the 'Finish' button to proceed with the wizard or the 'Back' button to return to the previous step.
- **Properties Dialog Box**
  Depending upon the type selected in the previous step, the appropriate properties dialog box will appear to further define the table cell contents. After completing this dialog box, click 'OK' to create the table.

13.1.6 Border Style

Border styles and color can be set in the properties dialog for most controls and selections on the Form Tools palette. A border width of 0 will be invisible. A corner radius of 0 will be right angles. Manipulating the corner radius values will smooth the corners of the control. A 3-D option is also available.

13.1.7 Zoom

To increase the form workspace area visible on the screen, click on the 'Zoom Out' button in either the Design or Test Mode. There are three levels in addition to 100%. To decrease the visible area down from an enlarged display, click on the 'Zoom In' button in either the Design or Test Mode. To snap back to the standard size in a single step, click on the 'Zoom to 100%' button. To view the left and right borders, click on the 'Fit to Width' button.

13.1.8 Full Screen

To view forms on the entire screen while on the Asset or Job trees select the Full Screen option from the view menu.

13.1.9 Alignment

Alignment of controls or table cells can be performed by selecting the area around the controls or by clicking each control while holding down the shift key and then clicking on the desired tool palette button. Controls will be aligned with the last control selected. Dragging the mouse to surround the desired controls and then clicking on the desired tool palette button can also perform alignment. This second method will align the controls with the lowest most field in the area selected. Controls that have been selected will appear with their handles (eight small solid boxes at the corners and borders) to be visible. A control may be deselected by shift-clicking on it again. To cancel an entire selection, click in a blank area of the form workspace.

13.1.10 Control Sizing

To determine the size of a control or table cell, click on the control to reveal its handles. If not all handles are visible, a portion of the control might be hidden behind another. Selecting the control to reveal its handles can change the size of a control or table cell. After selecting a control, if the crossbar appears with four arrows, dragging the mouse will move the entire control. If the crossbar changes to a single line with two arrows along an outside edge, dragging this will only affect the edge selected. If the cursor arrow changes to an angled single line with two arrows, dragging this corner handle will affect both the height and width of the control.

Within a table, it is possible to select individual cells, an entire row or an entire column to be resized. Multiple cells can be selected by clicking them while holding down the shift key. To quickly select an entire row or column, click a cell in the row or column, then right-click to display the context menu. Choose 'Select Row' or 'Select Column' from the menu. The height or width of interior rows or columns can be increased or decreased by dragging the single line arrow found at the center of the selected area border. The adjacent row or column will increase or decrease accordingly without affecting the overall size of the table. Selecting an outer row or column will change the outside dimension of the table.

13.1.11 Pages

Forms may span multiple pages. Click on the 'Add Page' button to add an additional page to the end of the form. Click on the 'Delete Page' button to delete the active page from the form. The first page of the form may not be deleted. The 'Previous Page' and 'Next Page' buttons change the active page.

13.1.12 Test Form

Clicking the 'Test Form' button toggles the form editor between Design Mode and Test Mode. Test Mode does not allow control properties to be changed but presents the form as it would look for data entry. Data formatting, calculations, and tab order may be verified in Test Mode.

13.1.13 Tab Order

By selecting 'Auto Define Tabs' from the right-click menu, PowerDB will automatically assign the tab order of the input controls from left to right, top to bottom. Selecting 'Define Tab Order' from the right-click menu allows the user to set the tab order or modify the tab order defined by the auto define function. To change the tab order, hold down the Ctrl key and click on the control preceding the needed change. Next, release the Ctrl key and begin clicking the controls in the desired tab order. The system will renumber the remaining controls. Tab order must be defined for forms and sub-forms as well.

13.2 Subforms

A sub-form is a data entry and presentation tool for commonly used sections of forms. To work within the subform portion of PowerDB, click on the 'Show Subforms' button on the toolbar.

13.2.1 Subform Tree

The Subform Tree is divided into two folders: Standard Templates and User Defined Sub-Forms.

13.2.2 Standard Templates

Standard Subforms may be edited but not deleted. The Default Device Type is used as the initial form for a new form type. The Field Service Report is used as a notepad for general information reporting specific to a job.

13.2.3 User-Defined Subforms

The user-defined subforms are intended for use for identical data presentation across forms. Clicking 'New' on the toolbar while the subform tree is open creates a new subform. A subform named 'New Subform' will be added to the User Defined Subforms folder. Right click on the subform and choose 'Rename' to modify the description. A new user-defined subform will appear as a blank 8.5 inch by 11-inch form. Populate the workspace with controls that will be used in other subforms or forms. Note that the User-Defined Subforms will be additionally organized by Family and Manufacturer.

13.3 Form Files

Form and Subform files are stored as a .pxd file type and may be moved between databases. To move a file from a database, set focus to either the Form Editor or Subform Editor tree as appropriate. Select the file with a single left click. Right click and from the menu select Export Subform and save the .pxd file. To move a file into a database, set focus to either the Form Editor or Subform Editor tree as appropriate. Press the Import Form PXD button and select Import Single Form PXD. Browse to the required file. Selecting Intelligent Import is recommended to avoid overwriting areas that are commonly customized such as logos, headers and footers. A prompt will appear for the form file and each subform file contained in the import file if a similar file exists in the database. It is recommended to Update the existing file, keeping the matching name and ID.

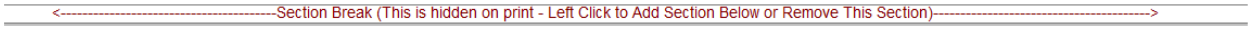
13.4 Additional Help

Please refer to the Forms Design FAQ document available at the Help menu.

13.5 Enhanced Text

It is possible to add a document-like form to a Job. This might be used for purposes such as a transmittal letter or inspection report. This form can be printed as part of the job results. Remember to save at intervals as the document form is built.

To utilize this feature import the following form into the Form Editor tree >> 11111 – DOCUMENT located in the Miscellaneous / General family folder. Form 11112 is also available and includes a standard form header. This form can be added to any Job via the Add to Job wizard. Once added to a Job, open the form. To start building the form, left click in the following area.

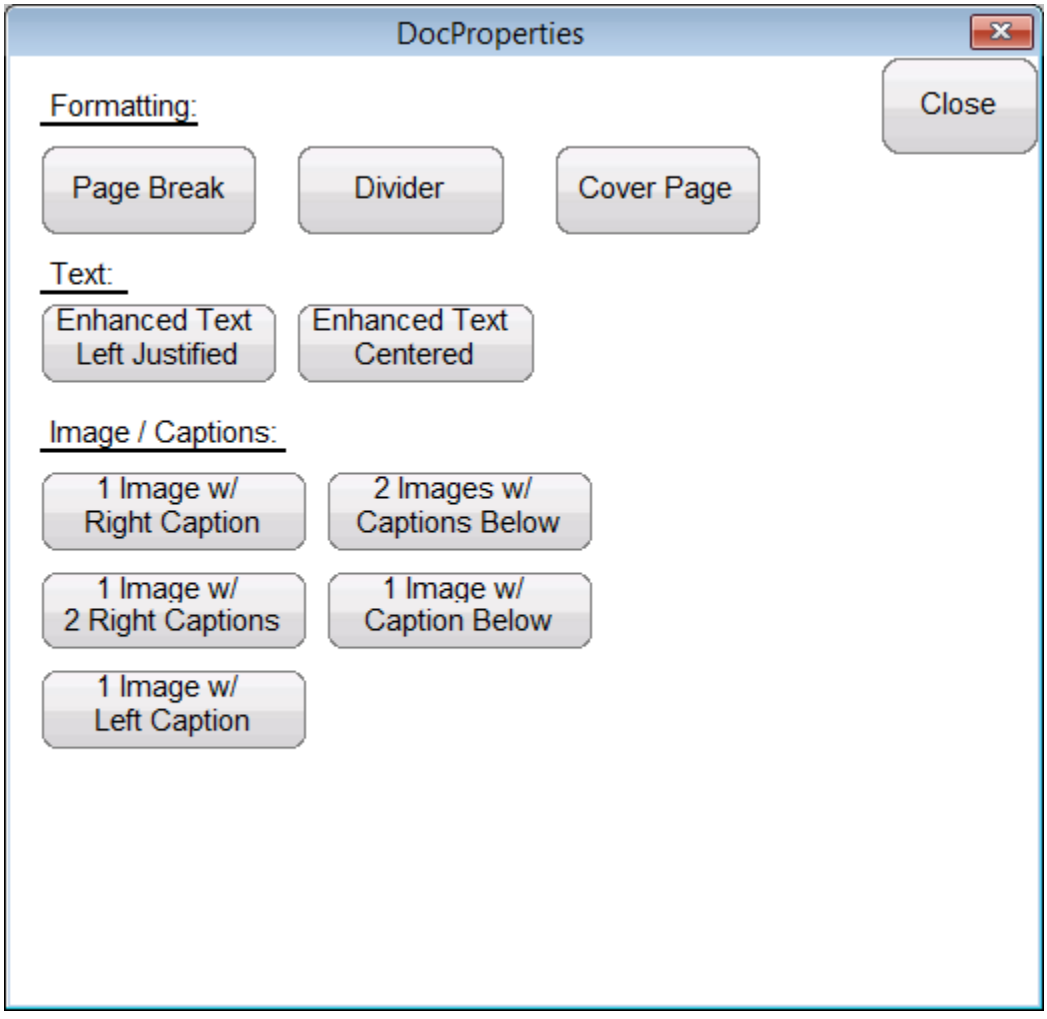


Then click the Add Section Below button.



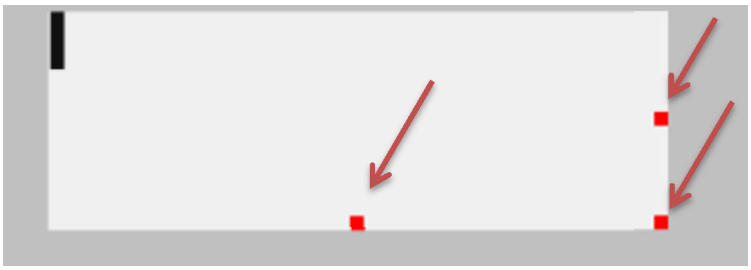
This will display the DocProperties screen to select the desired item to add to the form. Selections include:

- Divider
- Divider – Narrow
- Page Break
- Text Control
- Text Control w/ Divider
- RT (Rich Text) Control
- RT (Rich Text) Control w/ Divider
- Large Image
- Graphic Control w/ Divider
- Image w/ Captions
- Image w/ Captions (Simple)

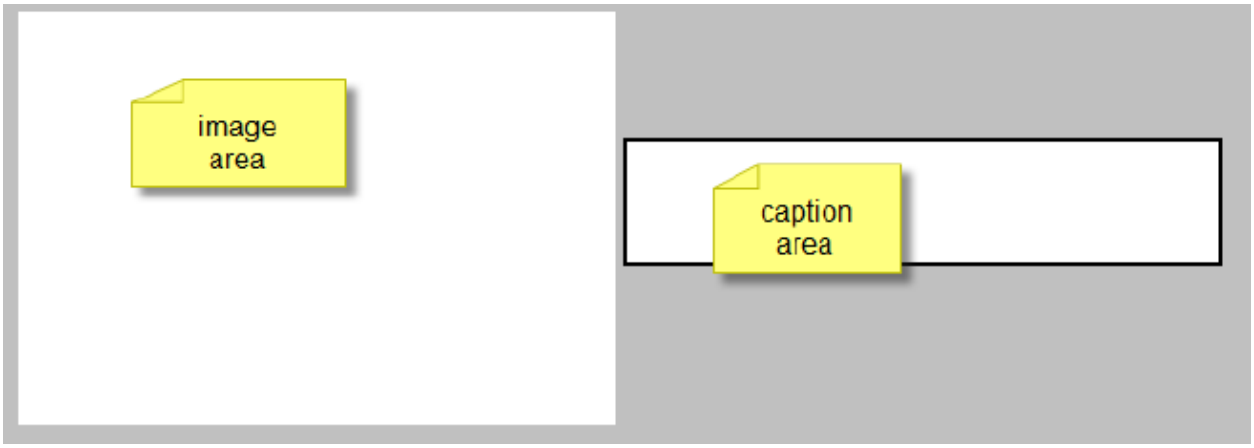


The selected editable area will appear white on the gray background. Click in the area to add text or an image.

If the item added includes a text area, an area will be visible to enter text. This area may be resized left/right and/or up/down by grabbing the red handles. It is also possible to select font style, font color, bold, italic, underline and strike out options.



To populate an image, left-click in the image area and browse to the desired file. To populate a caption, click in the caption area and enter the caption text. Resize as necessary.



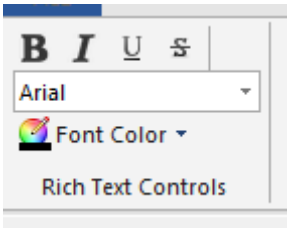
It is possible to add arrows, circles, or ellipses on top of an image. Right-click on the image and select 'Add Shape'. Arrows will be drawn from the start of the mouse click and end at the point of mouse button release. Right-click again to add additional shapes, remove the last shape, or remove all shapes.

To start building the next area of the form, left-click in the Section-Break area again. It is possible to remove a section by clicking this same tool.

Then click the Add Section Below button again.

13.5.1 Enhanced Text Controls in Form Editor

There is a control on the forms tool palette to add enhanced text input fields on forms.



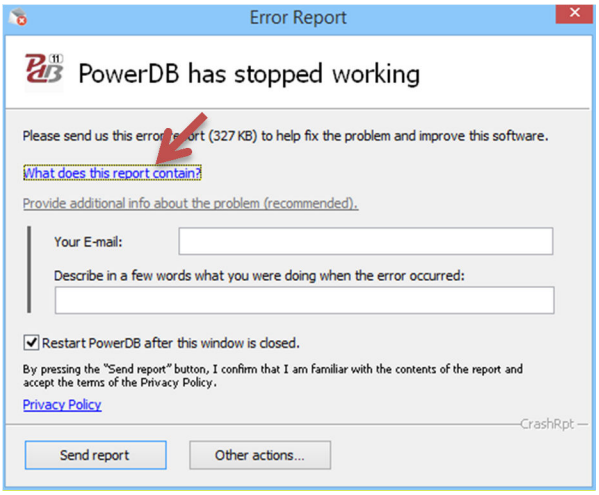
If selected, the icon will add an enhanced text field on to the form workspace. This is handled much like a text input field with the following additional features:

- The area can be resized and can overlap other fields.
- The text can be formatted as to font style, font color, bold, italic, underline, and strike out as data is entered.
- The text area can display simple formatting from other applications (Microsoft Word) such as font size and color. It will not support certain number and bullets characteristics.
- Text input will word wrap within the perimeters as sized.
- Spell checking is not available in these input fields.

14 Miscellaneous

14.1 Crash Reporting

Whenever a crash occurs resulting in the closing of PowerDB a crash report is generated and the Crash Reporting window will appear. The Crash Report contains screenshots of PowerDB prior to the crash and an .xml containing information about the error which can be viewed by left clicking 'What does this report contain?'. This report can be submitted to PowerDB in order to assist in troubleshooting any issues that may have caused the crash. Filling out the email and description are optional but is recommended for a quicker resolution for the issue.



14.2 Log Files

PowerDB automatically generates hidden log files for most activities performed in the application. For Windows users these files are located at C:\ProgramData\PowerDB.v11\LogFiles.

Windows users must select 'Show Hidden Files' at Organize > Folder and Search Options > View in order to view the folder and log files.

If using Windows XP, the directory is slightly different:
C:\documents and settings\all users\application data\powerdb\logfiles

The types of log files are as follows:

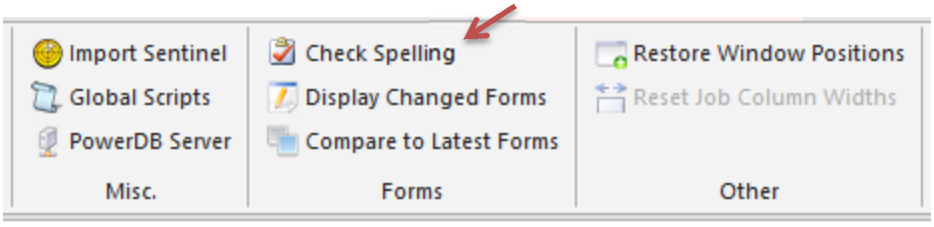
- Pdb.log
  Main application log(s)
- PdbSynch.log
  Data utilities log (synchronization)
- Pdbsynch-Serv.log
  Synch server logs
- PdbAuto.log
  Logs from automated synch runs
- PdbDriver.log
  Logs during instrument automation
- <log name>_old_X
  Historical log files where X is an increasing number (high X = older log)

14.3 Submit Files

PowerDB allows easy submission of database copies, log files, and related external files to PowerDB Technical Support if problems are encountered. To use this feature, go to Help > Submit Files. Confirm that your PC is connected to the internet. Enter your name and contact information plus a description of the reason you are submitting files. Prior to pressing the Submit button, make sure the main PowerDB application is completely closed.

14.4 Check Spelling

PowerDB provides a Check Spelling feature for text entry fields when viewing a result. To use this feature, click the 'Check Spelling' button within the Tools menu.



If a text field is selected immediately prior to clicking 'Check Spelling', only that field will be checked.

If a non-text or no field is selected when clicking 'Check Spelling', the tool will navigate the entire form to check for any spelling errors. Any suspected errors will be underlined to make them more noticeable.