

ACal Pressure Calibration Software

User Manual

Additel Corporation

2016.11

Overview

ACal is an advanced calibration software which allows many technicians to work together in calibrating pressure and electrical instruments. It will help in automating your calibrations and manage the devices you calibrate and test.

Some important features include:

- Δ Powerful management tools for instruments involved in your calibrations
- Δ An organized interface that allows you to quickly perform calibrations
- Δ A simple way to build custom certificates for your calibrations
- Δ Batch mode for importing, calibrating, and generating certificates for multiple units at a time
- Δ User Accounts and Roles to allow you to control your calibration process
- Δ Utilities to schedule calibrations in advance and create reminders
- Δ Automated detection of Additel units
- Δ QR code integration to allow units to be easily identified

In addition, ACal Network has the capability to share calibration and instrument data across multiple computers, allowing your team to be more cohesive and quick.

We are confident that ACal can make your calibrations easier. Feel free to contact us at service@additel.com or give us a call at 1 (714) 998-6899 if you have any questions. We are ready to help and glad to be at your service.

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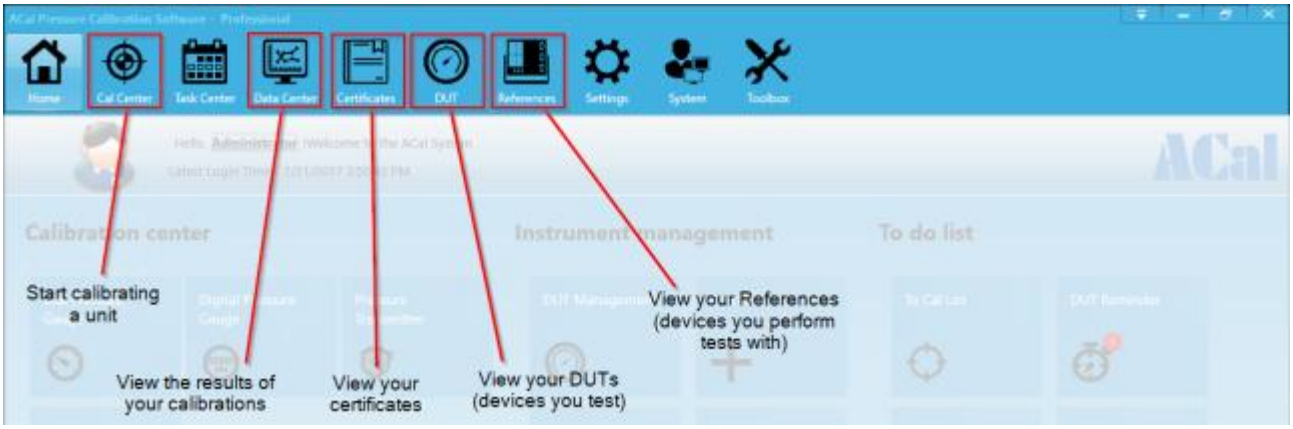
Chapter 1 Getting Started

1.1 Installation and Login

To install ACal on your computer or network, please see the ACal Installation Guide.

1.2 Navigating through ACal

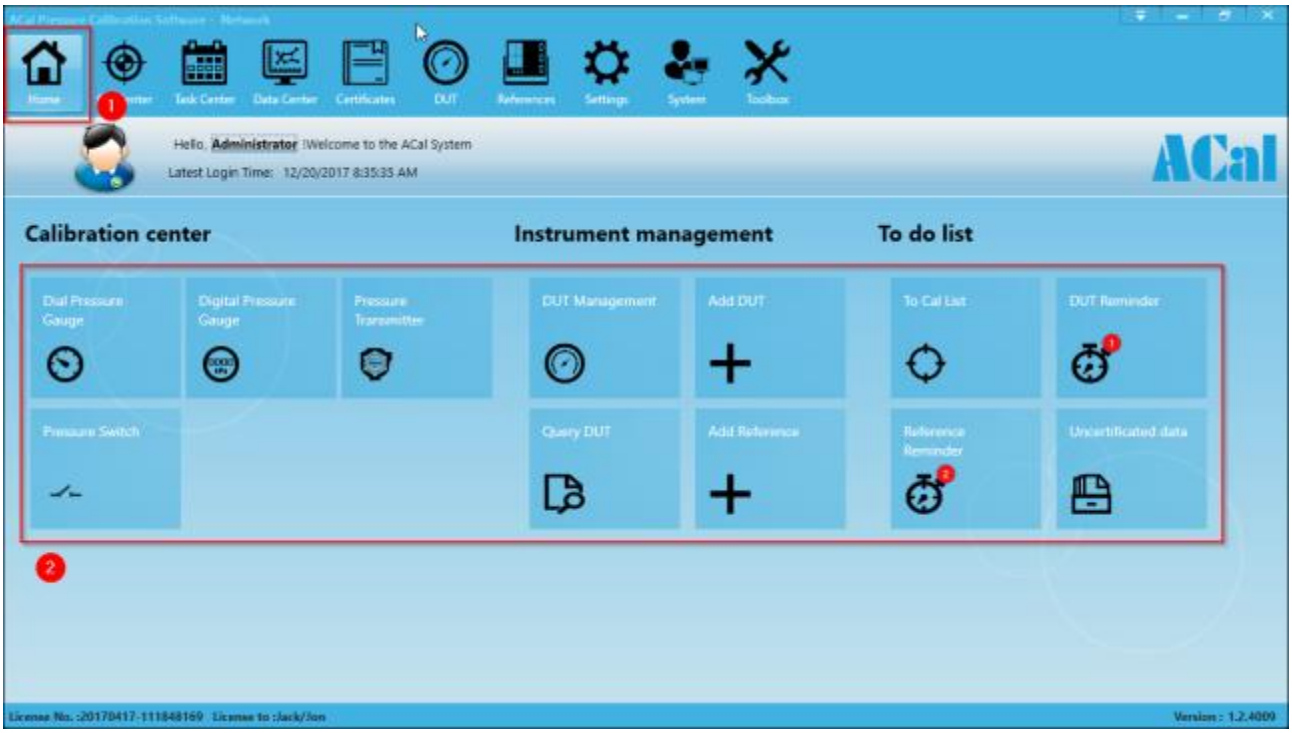
ACal can help you with many parts of your calibration process. Its functionality is divided into nine different categories which can be navigated through the toolbar at the top of the program. Five categories relate directly to the calibration of your units.



The four other categories have a variety of uses. Each of these nine categories will be covered in detail later in this manual.



While you read through this manual, you will learn how to use ACal through the nine menus. However, many actions, such as calibrating, managing your instruments, and accessing reminders can be started directly from the home menu.



Chapter 2 System management

2.1 Managing Users

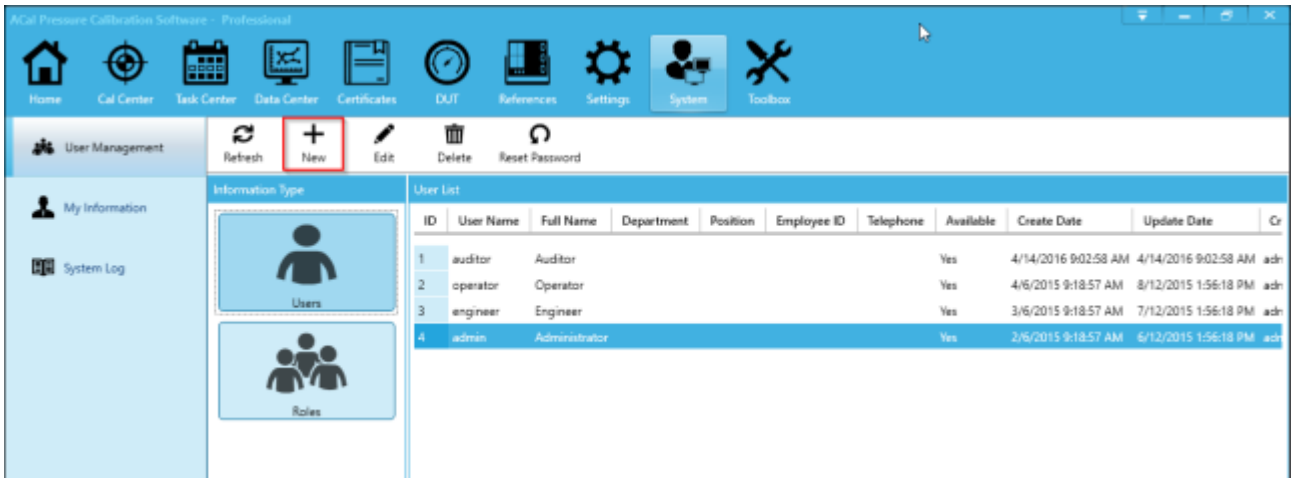


ACal can be used by a single operator, but it can also fit the needs of larger organizations that have many people involved in the calibration process. User accounts can be created and assigned to roles, which dictate what a user can and can't do.

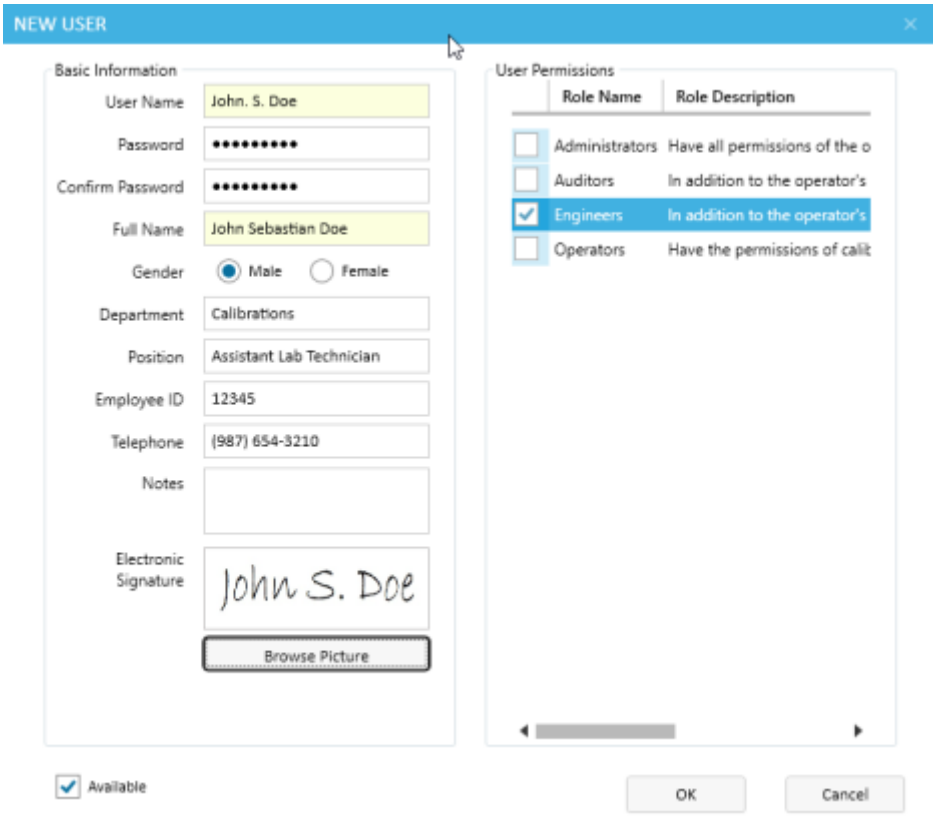
This functionality is found in the system menu. If you do not see this menu, your user account doesn't have a role with the needed permissions to see it. To access this function you will need to log in using the Administrator account or an account with similar rights.

2.1.1 Creating a New User

1. Click New.



2. You will see the New User window pop up. Fill in the new user's information. You will also need to give the user a role (or multiple roles). Roles give users specific permissions.



3. Click OK when finished.

2.1.2 Resetting a User's Password

1. Click on the User Account that needs to be Reset.
2. Click the Reset Password button.



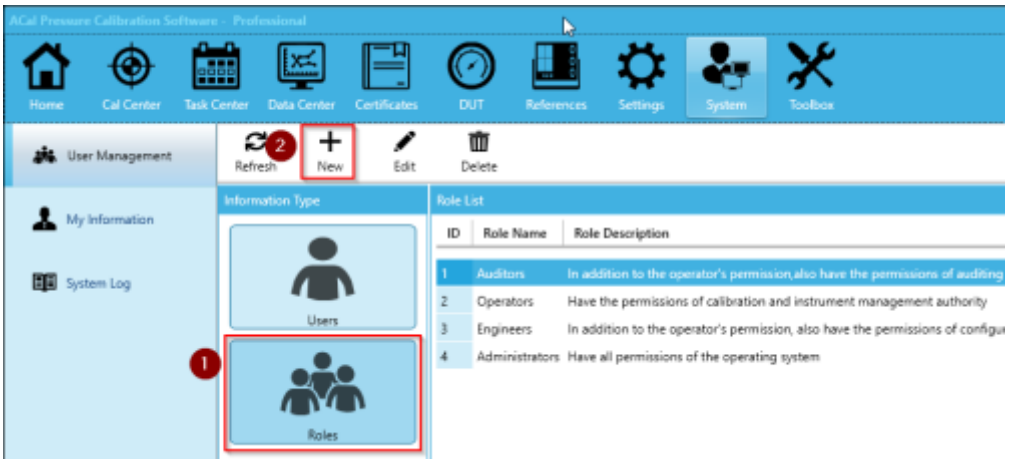
2.1.3 Creating a New Role

Roles give users permission to perform certain tasks inside of ACal. ACal includes three pre-built roles:

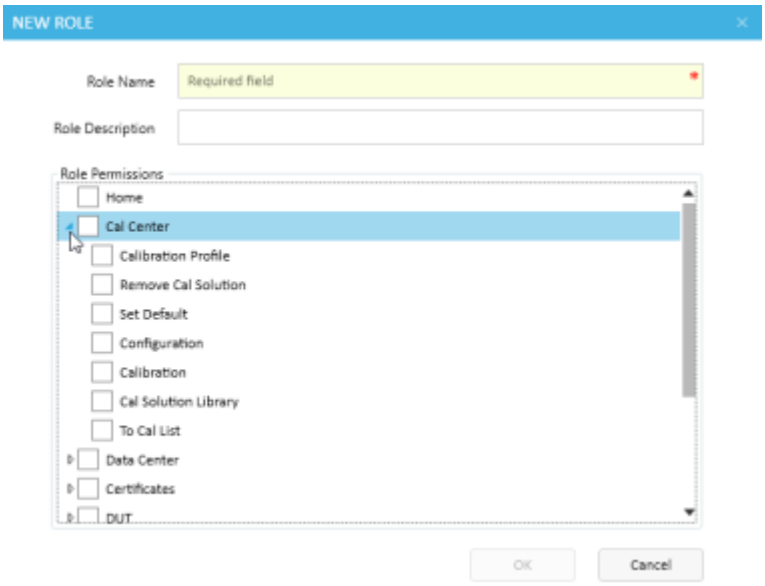
1. Operator – Operators have permission to manage and calibrate DUTs.
2. Engineer – Engineers can manage and calibrate DUTs, and also configure some settings.
3. Administrator – Administrators have all available permissions.

If these roles aren't suitable for your needs, you can modify or remove them. You can also choose to create a new customized role by following the steps below:

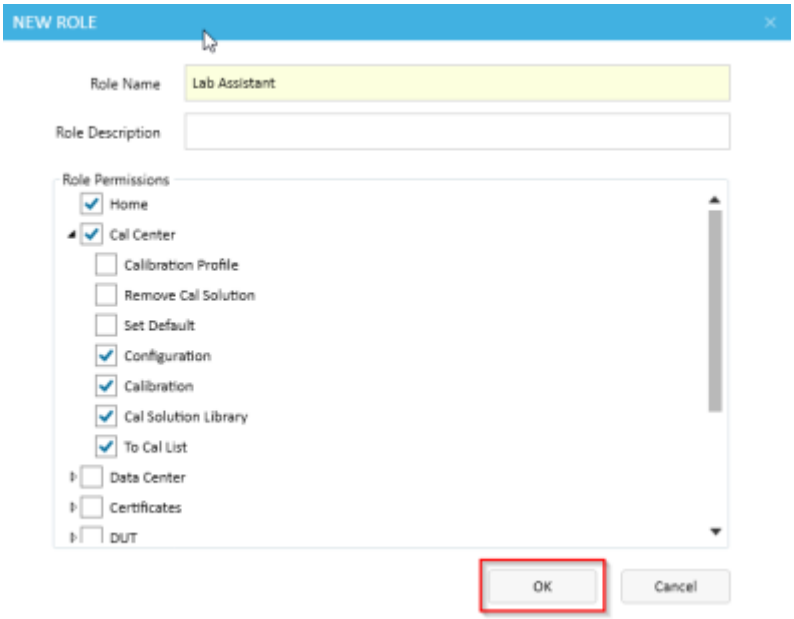
1. Click the Roles Subtab. Then click New.



2. The New Role Window will appear. You will see a list of permissions. If you click on the arrows to the left of some of the permissions you can also see sub-permissions.



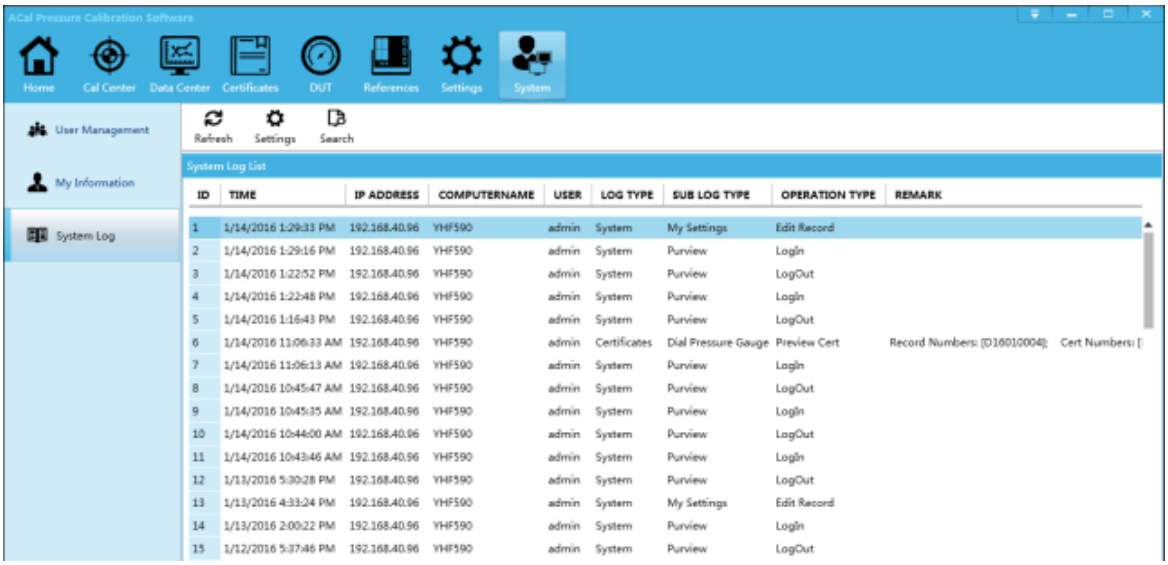
3. Check the permissions you would like the user to have. These permission relate to the menus and submenus ACal has. When you are finished, click OK.



2.2 View the System's Log of Operations

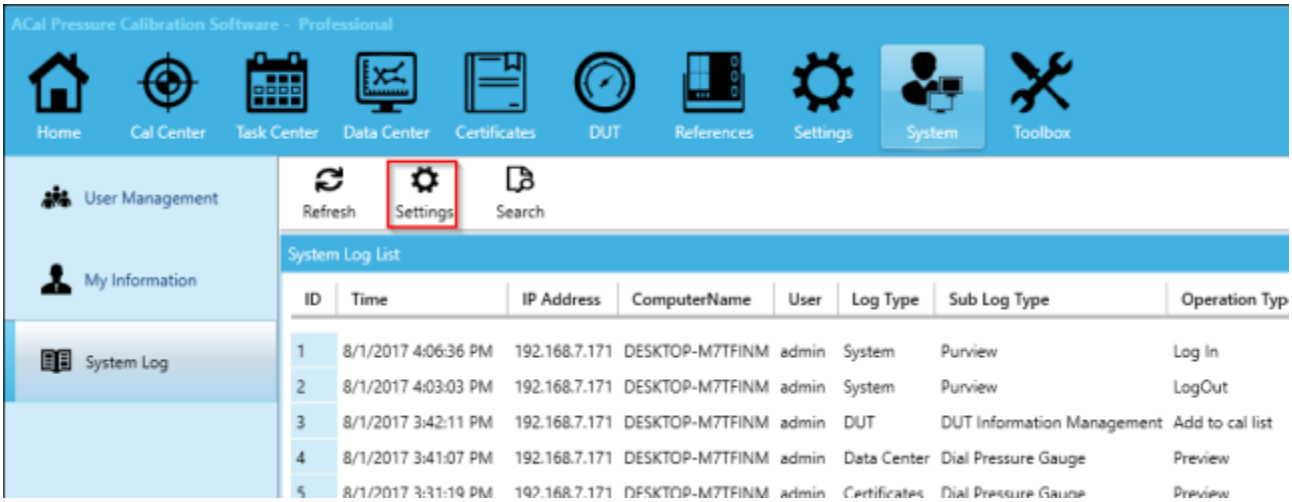
ACal can record a log of every operation it performs. This can allow you to easily Audit those who are using ACal and what files they are accessing. *This log is turned off by default*. When turned on, it records:

1. When a Calibration, DUT, or Reference record is changed
2. When a Certificate is built, previewed, printed, or exported
3. When a program setting is modified
4. When a user logs on or logs off

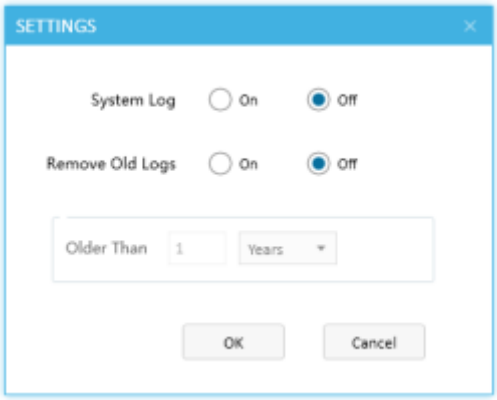


2.2.1 Managing the System Log

1. Start by clicking the Settings button.

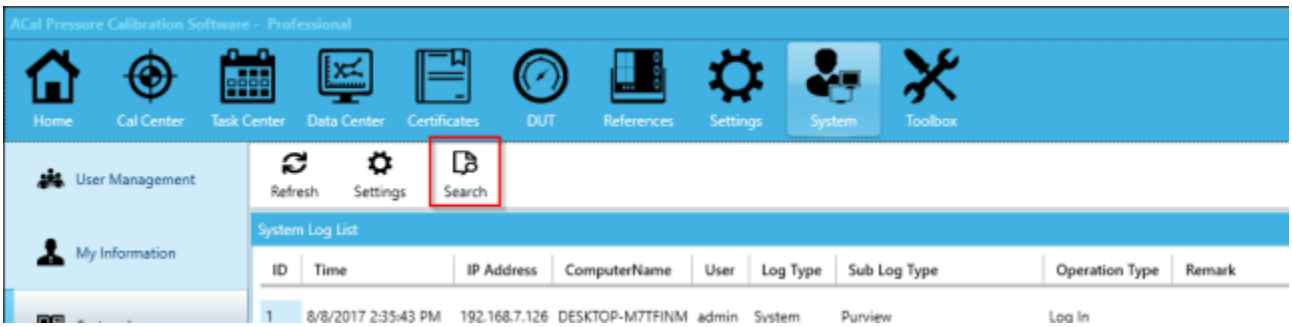


2. The Settings window will appear. Here you can turn the system log on or off, and control whether and when the system deletes old logs. Once you are finished, click OK.

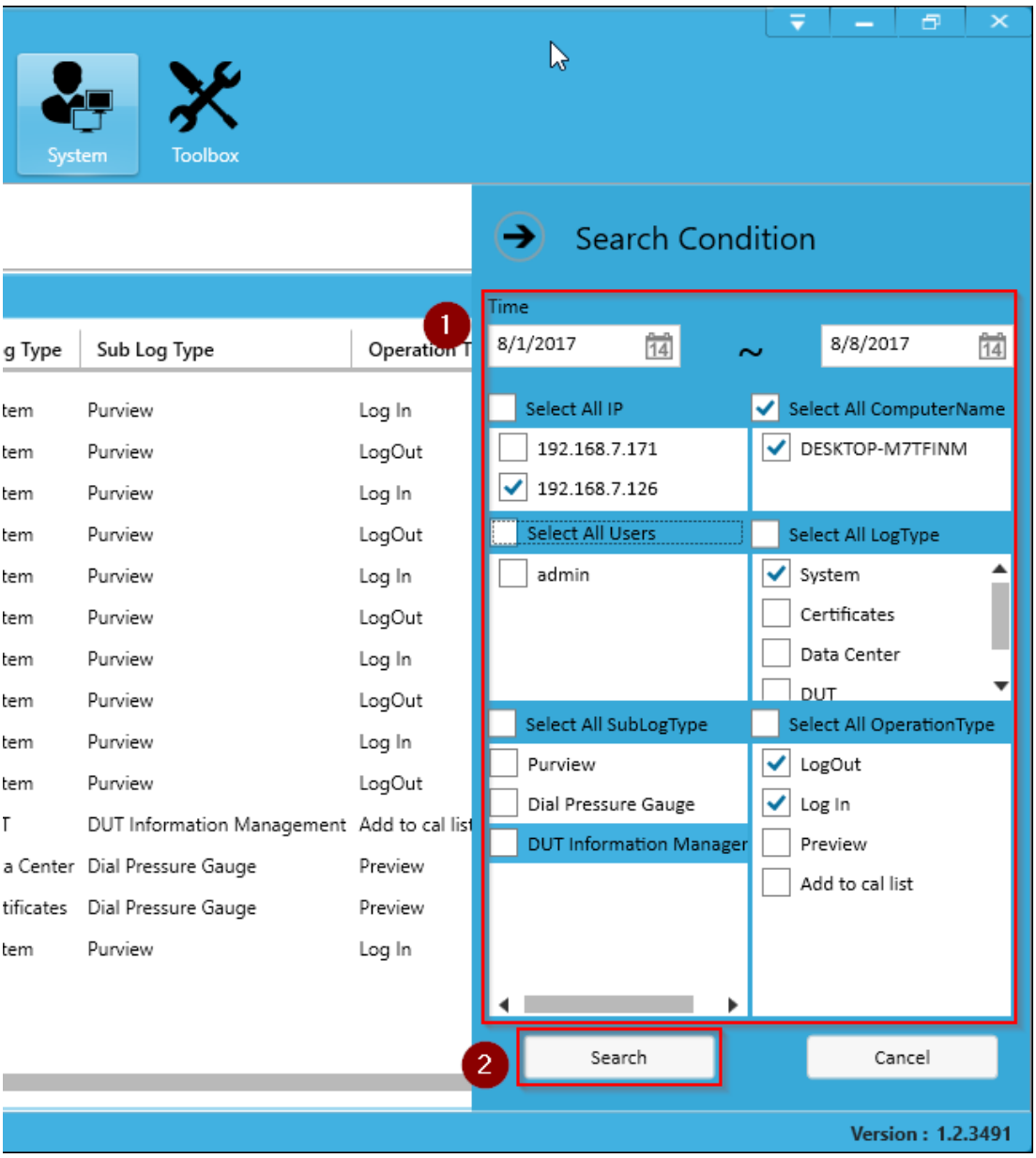


2.2.2 Searching the System Log

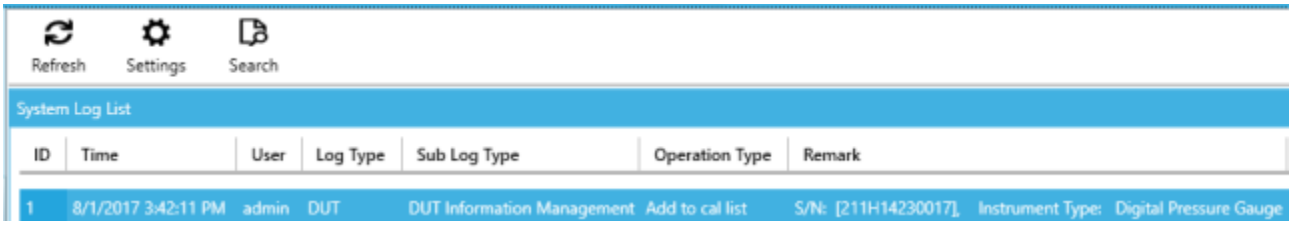
1. Click Search.



2. Add Search conditions as desired and click Search.



1. The logs will be filtered according to your criteria.



Chapter 3 Settings

The Settings tab lets you control ACal's numerous options. A lot of these options may seem trivial, but they will make more sense as we step through the calibration process in the next chapter.

3.1 Laboratories

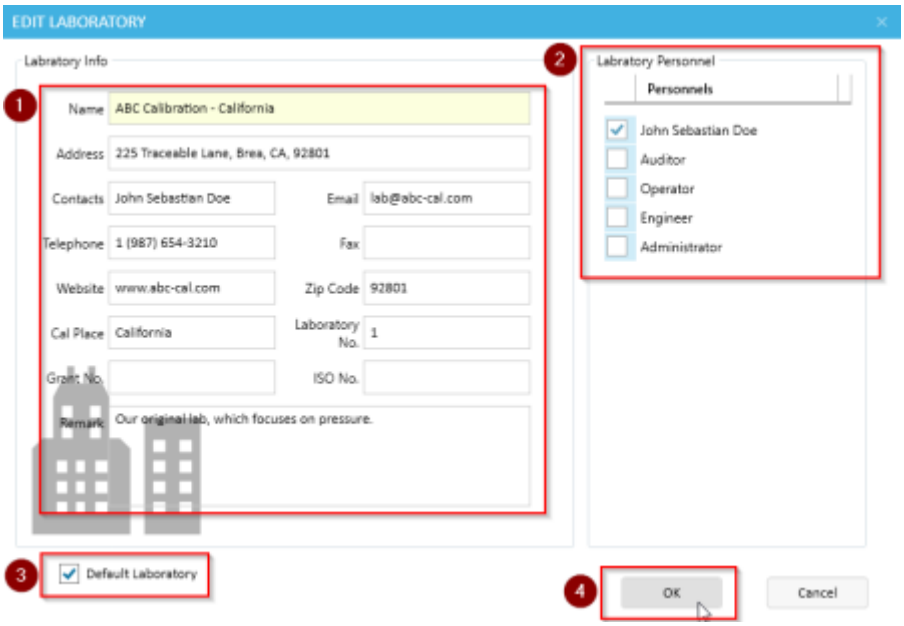
ACal allow you to set up a list of company labs which you perform calibrations from. You can see a list of your labs by clicking the Settings tab. When first installed, ACal will list a single (default) lab. Before you start any calibrations, you should edit it so it has the correct information.

3.1.1 Creating or Editing a Lab

1. Go to the Settings tab. Click on the lab. Then click edit (or new for a new lab).

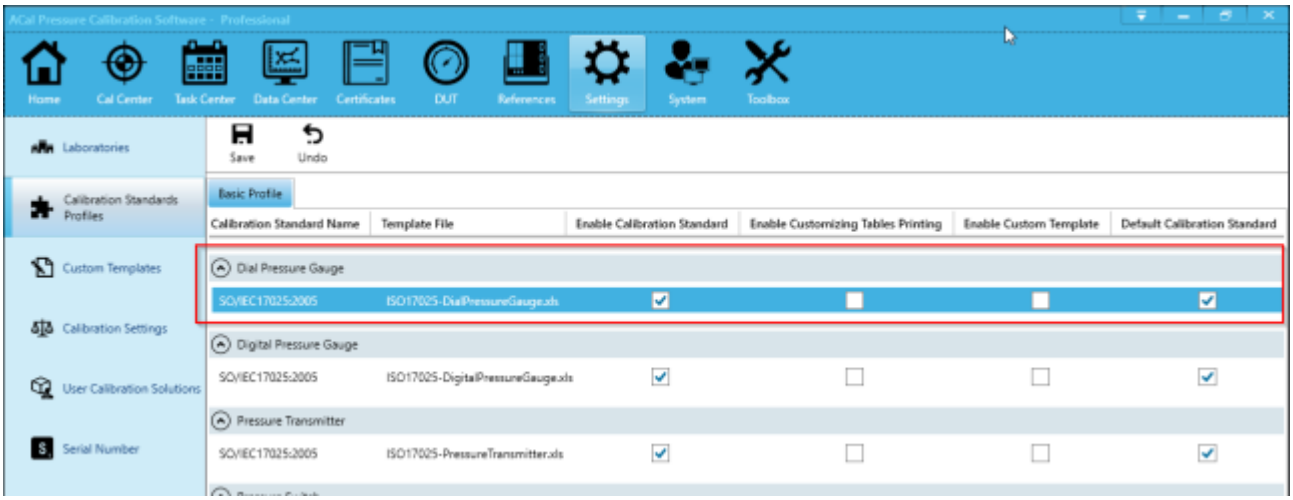


2. Fill in your lab's information. Make sure to select which personnel work at that lab. If that lab is the one you use most often, select it as the default lab. Then click OK.



3.2 Calibration Standards Profiles

Generally, when you calibrate a unit, you do it according to a specific standard (most units are calibrated to a specific standard. Each standard can have different requirements, and you may want a different template for each of them. This subsection allows you to enable or disable standards according to your business needs. You should configure this before you perform any calibrations.



3.2.1 Enabling the Standard

1. Check the corresponding box in the Enable Calibration Standard column
2. If you wish to set the standard as the default for that specific type of unit, check the box in the default calibration standard column.

3.2.2 Enabling Custom Templates

Custom Templates let you modify how ACal exports and prints your calibration certificates.

1. Check the box in the Enable Custom Template Column.
2. You can then modify the existing templates as described in Appendix A.

3.2.3 Enabling Custom Table Printing

Custom table printing lets you print on paper which already has a fixed format or template.

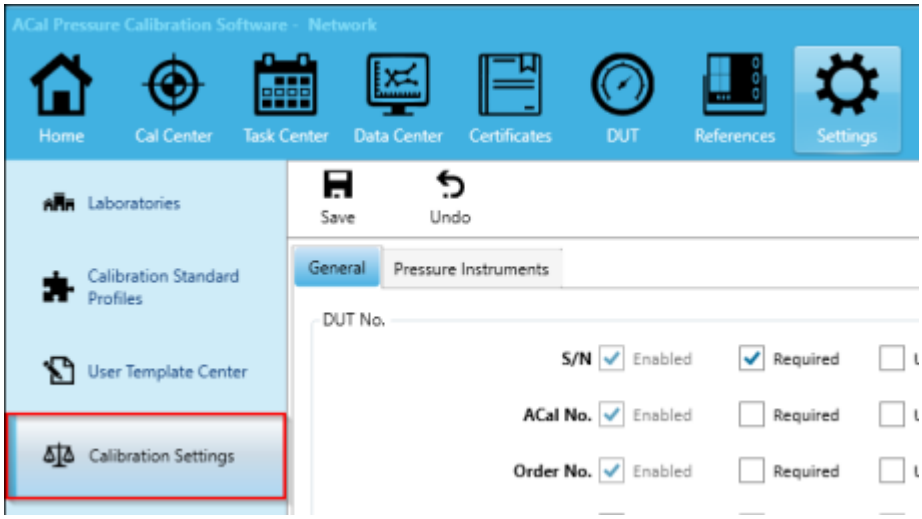
1. Check the box in the Enable Custom Table Printing.
2. You can then modify the existing templates as described in Appendix A.

3.3 Custom Templates

See Appendix A for more details on how to use custom templates.

3.4 Calibration settings

ACal provides a lot of different settings that may prove useful to your calibration process. You can control most of them from this section.

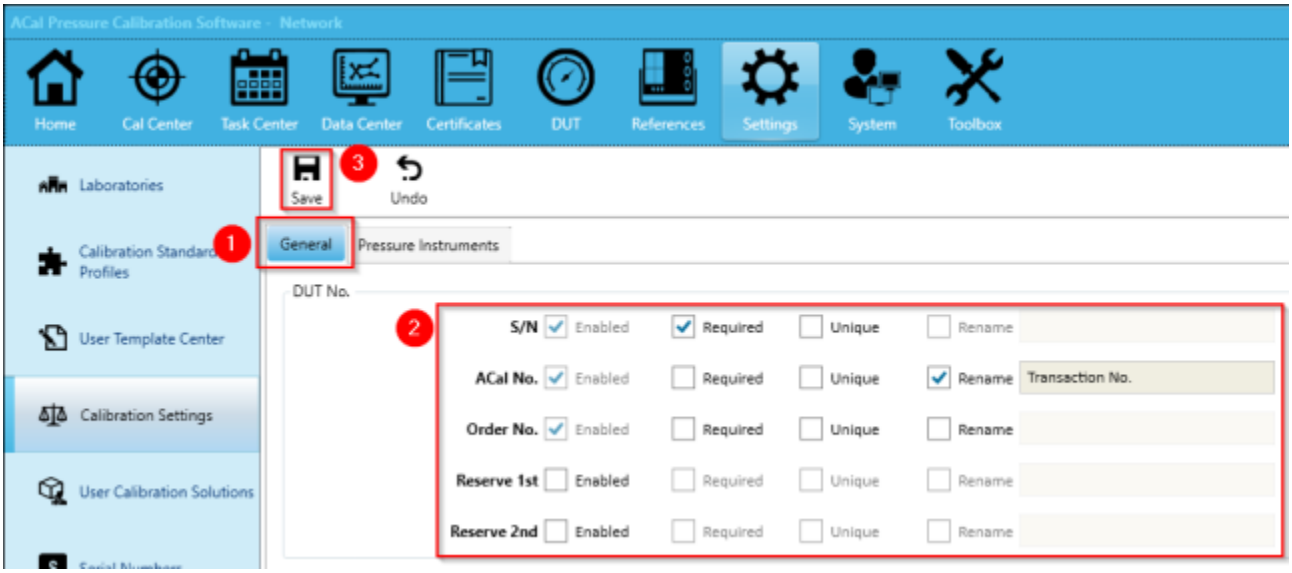


3.4.1 Changing DUT Numbers

The units you will be calibrating (DUTs or Devices under Test) have several numbers you can use for identification, which you can change on the General sub-tab. These numbers are especially useful when you are looking up DUTS, Calibrations, or Certificates. You can customize these numbers in the following ways:

1. Enabled – If enabled, a field with this name will appear when you enter DUT records. S/N (Serial Number), ACal Number, and Order Number cannot be disabled.
2. Required – If checked, that field will be a required field, and the record will not be able to be saved without a value being entered.
3. Unique – If checked, that field must contain a unique value. This means that the field will never contain duplicate entries among all of your DUTs (or the record will not save).
4. Rename – If checked, a field will be made available to the right, where you can type a new name for the field.

Click Save when you are done editing these options.



3.4.2 Changing Calibrator Task Settings

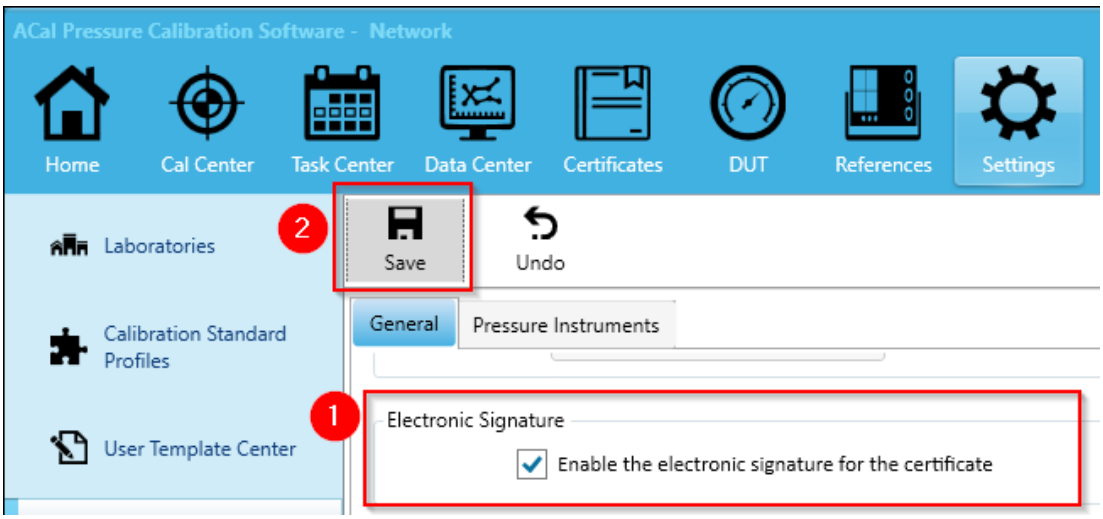
See Chapter 10 for more details on how to use Calibrator Task Settings.

3.4.3 Backup Settings

See Chapter 9 for more details on how to use the Backup Settings.

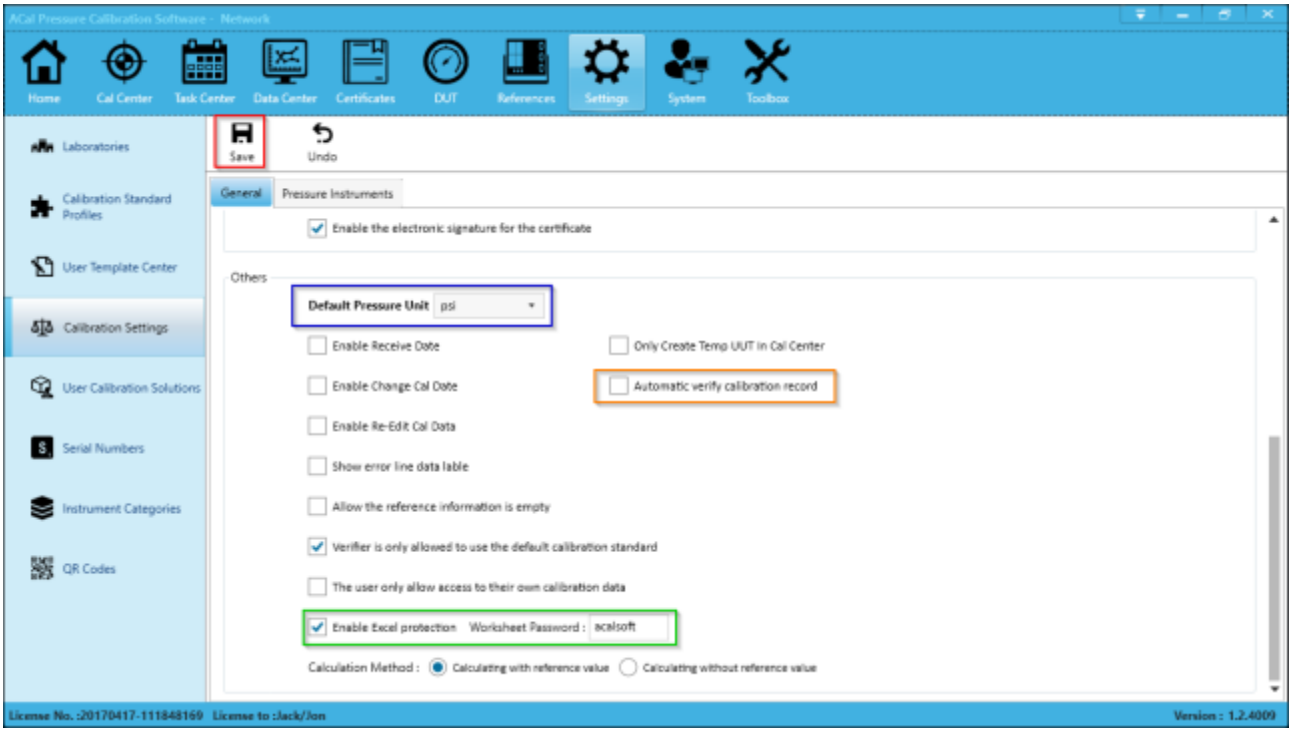
3.4.4 Certificate Electronic Signature Settings

You can display a user's electronic signatures on your templates (see Chapter 2 for how to create a new user with an electronic signature). To turn the setting on, simply check the available box and click Save.

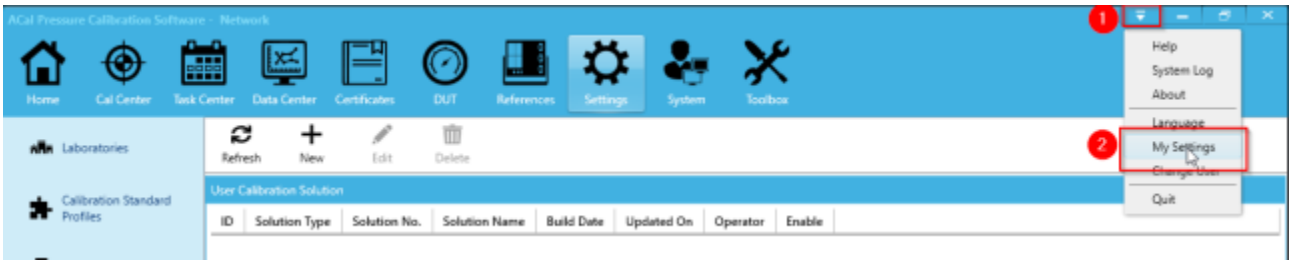


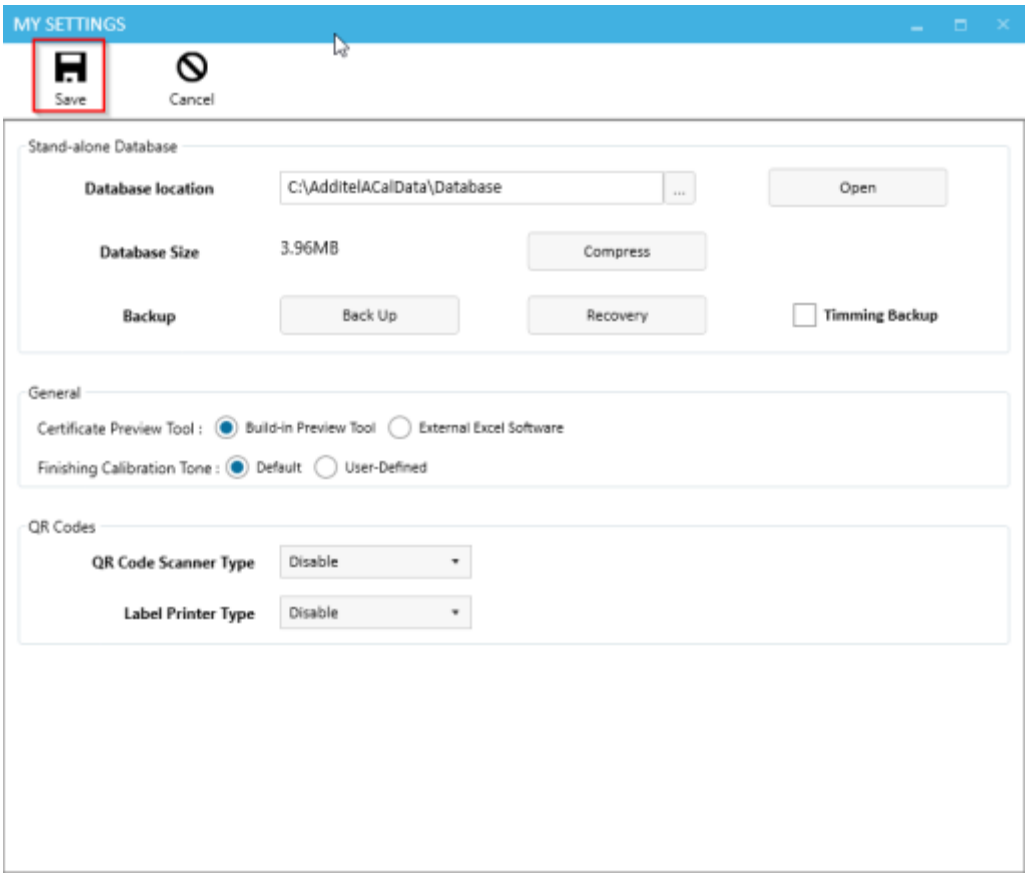
3.4.5 Other Settings

There are a lot of settings that don't fit into a specific category. Browse through them to see which ones could be useful to you. Some important settings you might use include the Default Pressure Unit, the Certificate Protection Password, and Automatic Verification of Certificates.



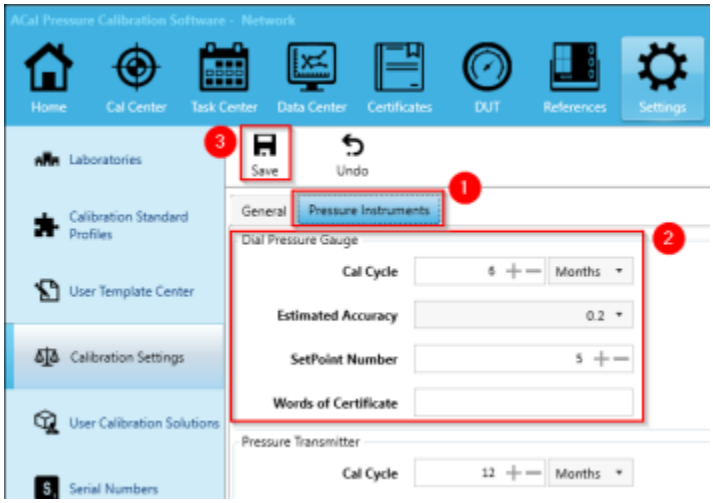
Some additional settings can be found in the dropdown in the upper right hand corner under 'My Settings'. If you modify them, be sure to click Save.





3.4.7 Default Settings for Pressure Instruments

In the Pressure Instruments sub-tab, you can find the default settings for each type of unit you test. This includes defaults for the Calibration Cycle and Accuracy. Again, once you make changes, be sure to click Save.



3.5 Calibration Solutions

Labs usually have a few instruments they perform most of their calibrations with. Oftentimes a specific set of instruments are used for performing calibrations with certain properties (for example, you probably use different instruments when the medium is air compared to when the medium is oil). These sets of instruments can be arranged into calibration solutions.

A complete solution can contain all of the following (or less, according to your needs):

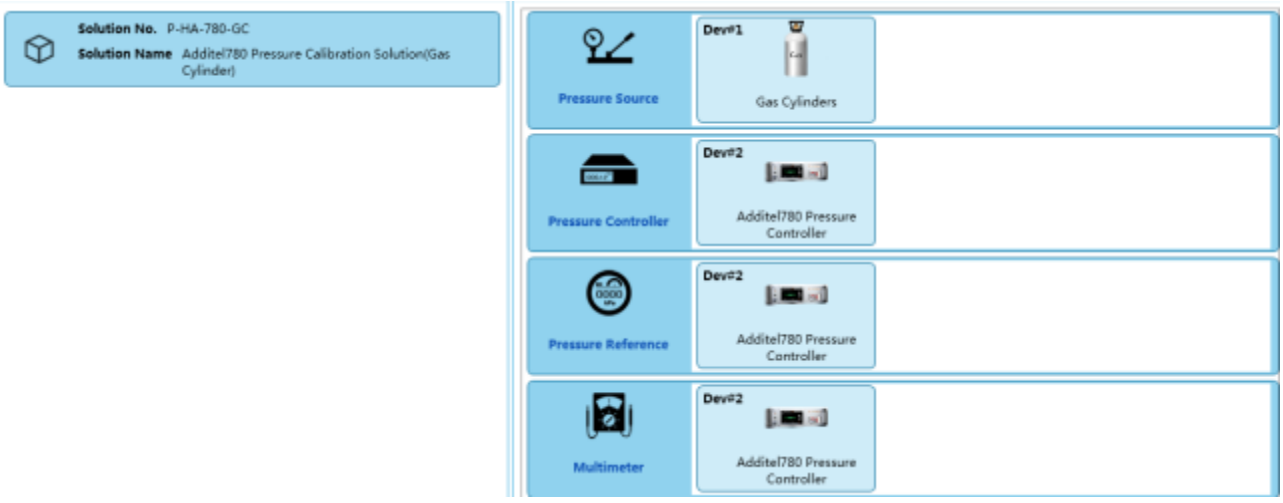
1. **Pressure Source:** The instrument that provides pressure (such as a cylinder)
2. **Pressure Controller:** An instrument which controls pressure, allowing for greater accuracy (such as the Additel 760, 761, or 780)
3. **Pressure Reference:** An instrument which shows the current pressure and acts as a standard to compare the DUT to.
4. **Multimeter:** An instrument used in measuring a DUT with an electrical output such as a Pressure Transmitter or Pressure Switch.

There may be additional categories as well, with other various types of instruments. You will need to create a calibration solution in order to perform any calibrations. The steps to perform a calibration (in Chapter 4) include the steps used for setting up a calibration solution.

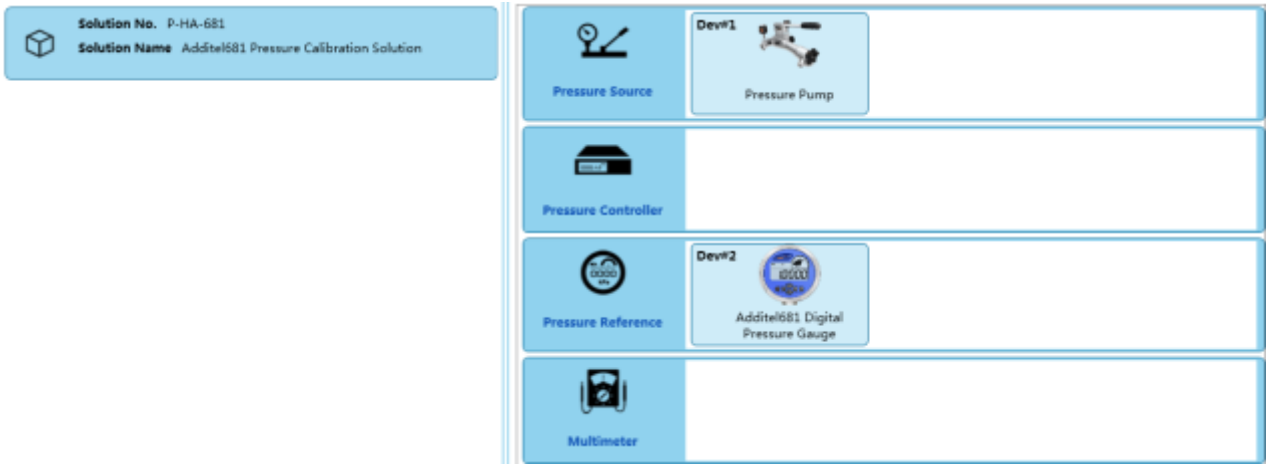
3.5.1 Example Calibration Solutions

Here are some examples of solutions you might use in your calibration lab:

1. **Gas Cylinders** are used as the **pressure source** and an **Additel 780** is used as the **Pressure Controller, Pressure Reference, and Multimeter**. This solution can calibrate dial pressure gauges, digital pressure gauges, pressure transmitters, and pressure switches.

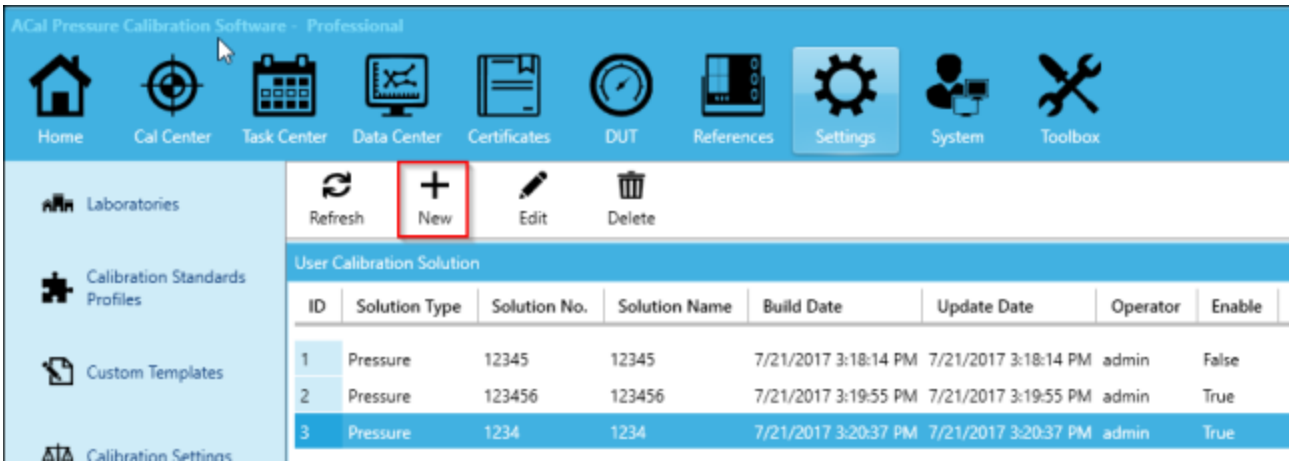


2. A **Pressure Pump** is used as the **pressure source**, and an **Additel 681 Digital Pressure Gauge** is used as the **Pressure Reference**. This solution can calibrate Dial Pressure Gauges, and Digital Pressure Gauges.

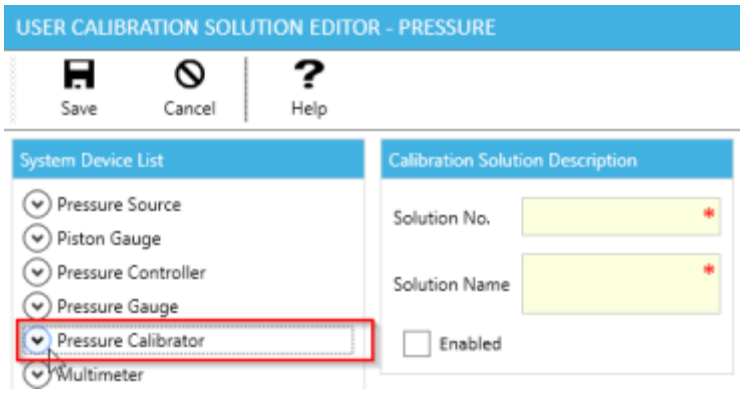


3.5.2 Create or Edit a Calibration Solution

1. Click New (if you want to Edit an existing calibration, click Edit instead).



2. Click on the list of instruments you would like to see in more detail.



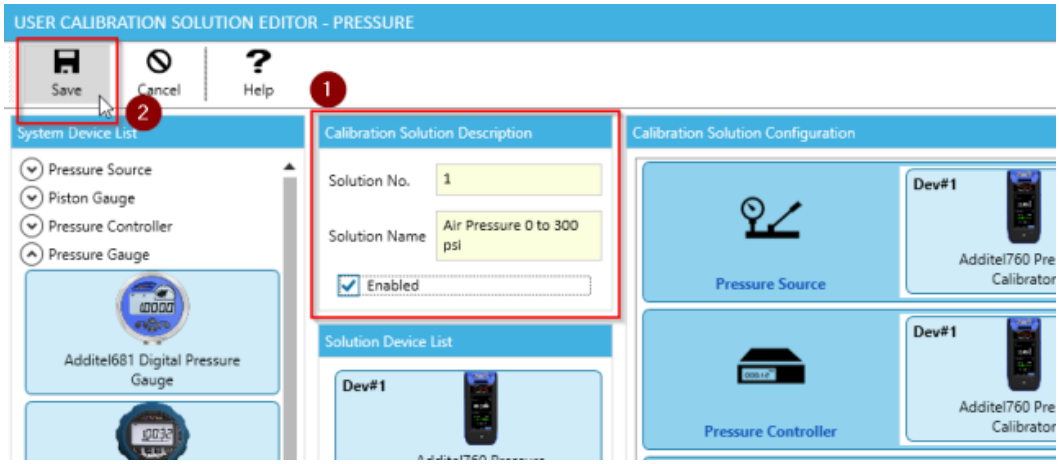
3. Drag and Drop an Instrument you would like to use in your solution into the Configuration section on the right.



4. You may drag over as many instruments as you would like to use in that specific solution over as you would like.



5. Give your solution a number and a name. Enable the solution if you want to use it at this time. Then click Save.



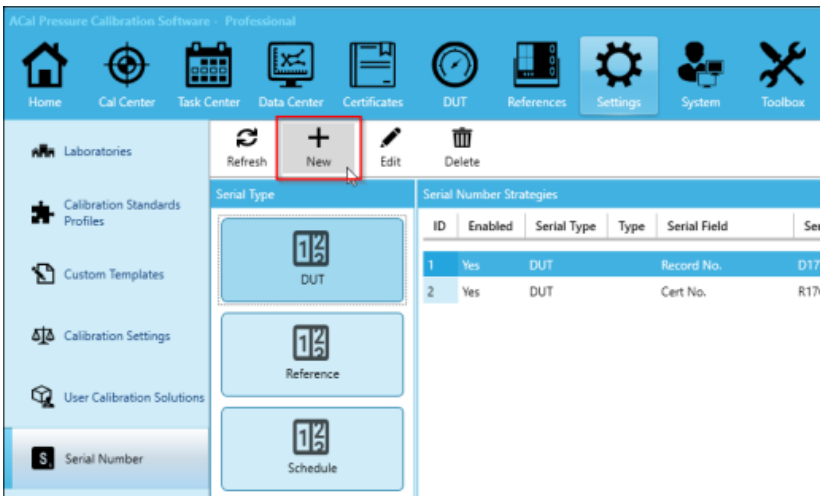
3.6 Serial Numbers

ACal includes many built in reference numbers which can be used to help you identify the instruments you use and test. Many of these numbers are customizable, which allows you to change them to better fit your business.

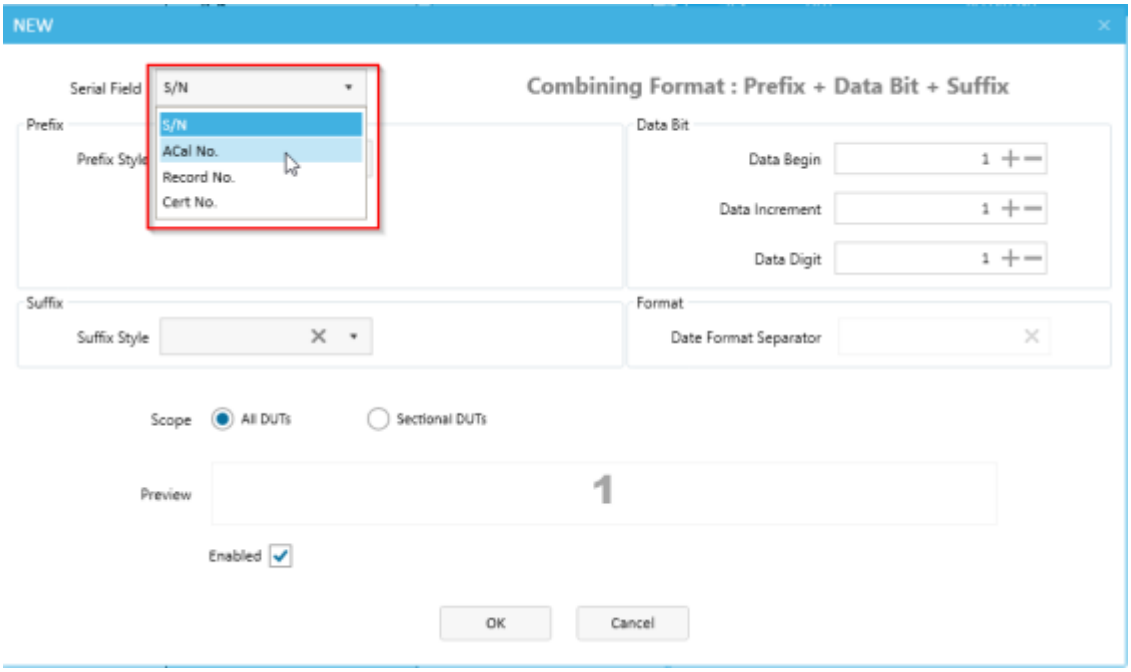
Please also remember that once a document has a number, it can't be changed. This makes it is a good idea to set up these numbers before you start using ACal on a regular basis. If you change the format of a number, only records created after the format was changed will be affected. Previous records will not be changed.

3.6.1 Create or Edit a Serial Number

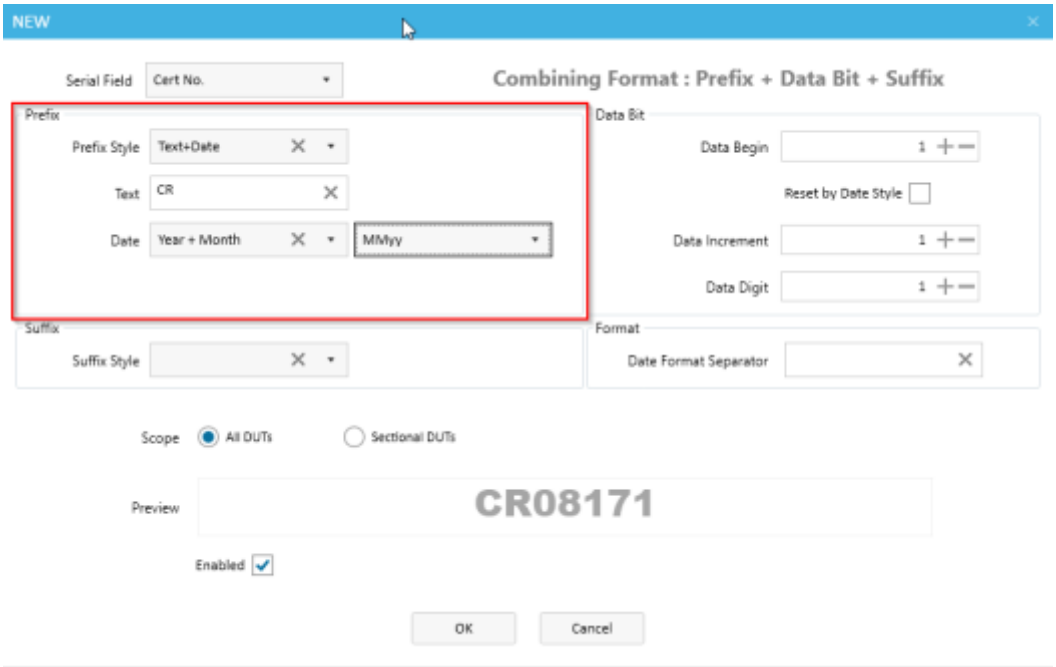
1. In this example, a DUT serial number will be created (there are also serial numbers for references and schedule documents). Click New (or Edit to edit an existing one)



2. Select the type of Serial Field you'd like to Edit.

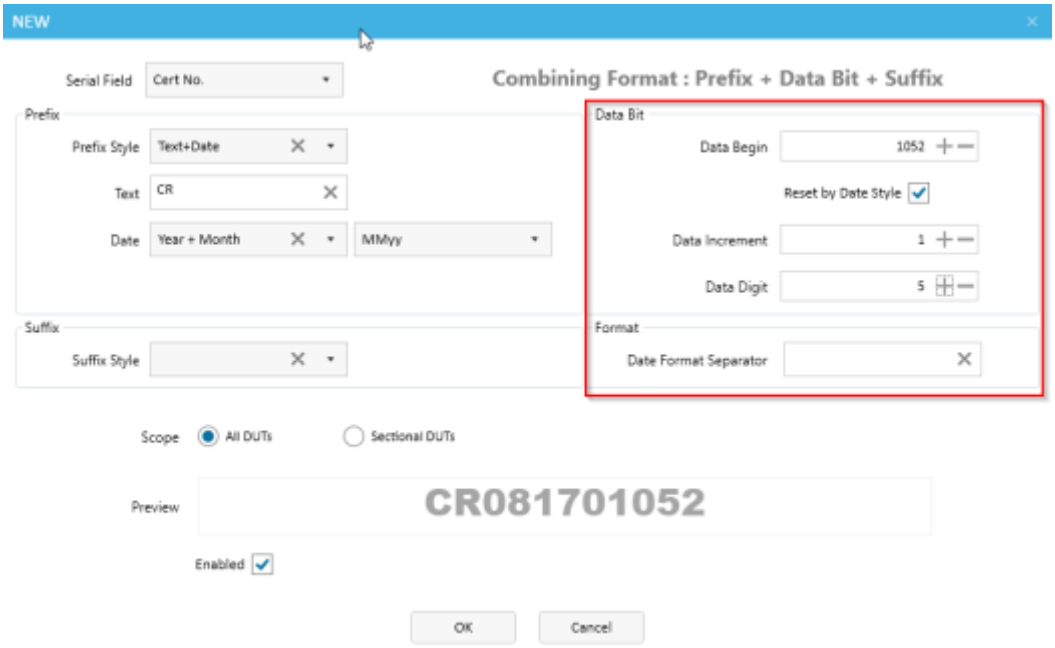


3. Choose your Prefix Preferences. The prefix will go before the "number" part of that serial number field. If you were designing a certificate number, you might use a prefix of "CR" with a reference to their date. You'd do this by setting up your prefix as seen below. (If you change your mind about having a prefix, you can remove it by pressing the X in the Prefix Style dropdown).

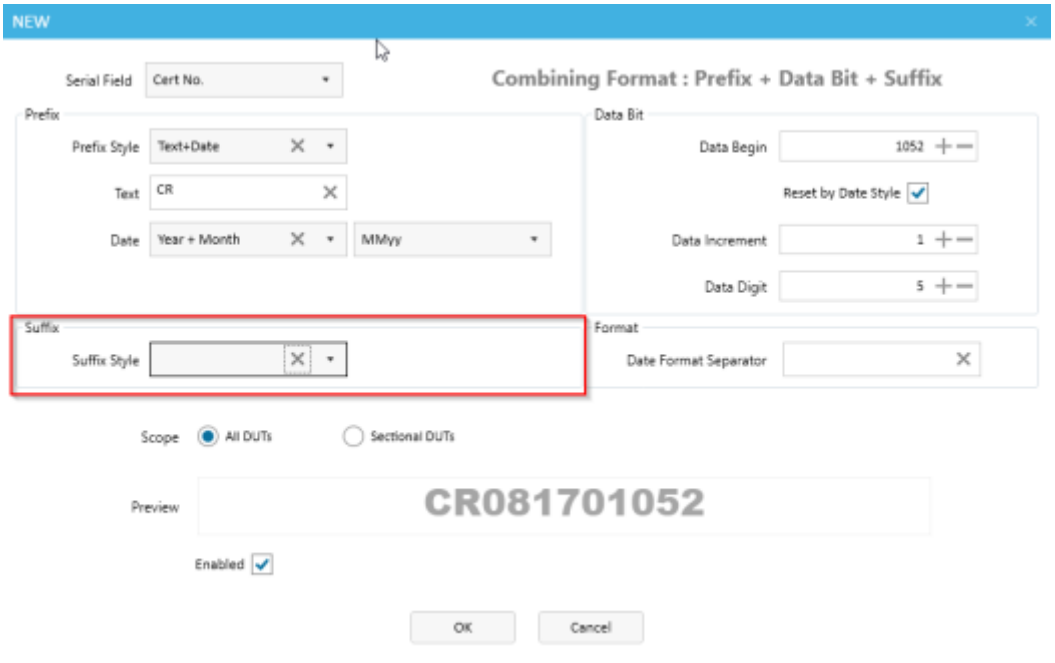


4. Choose your Data Bit Settings. This allows you to pick a starting number, control how

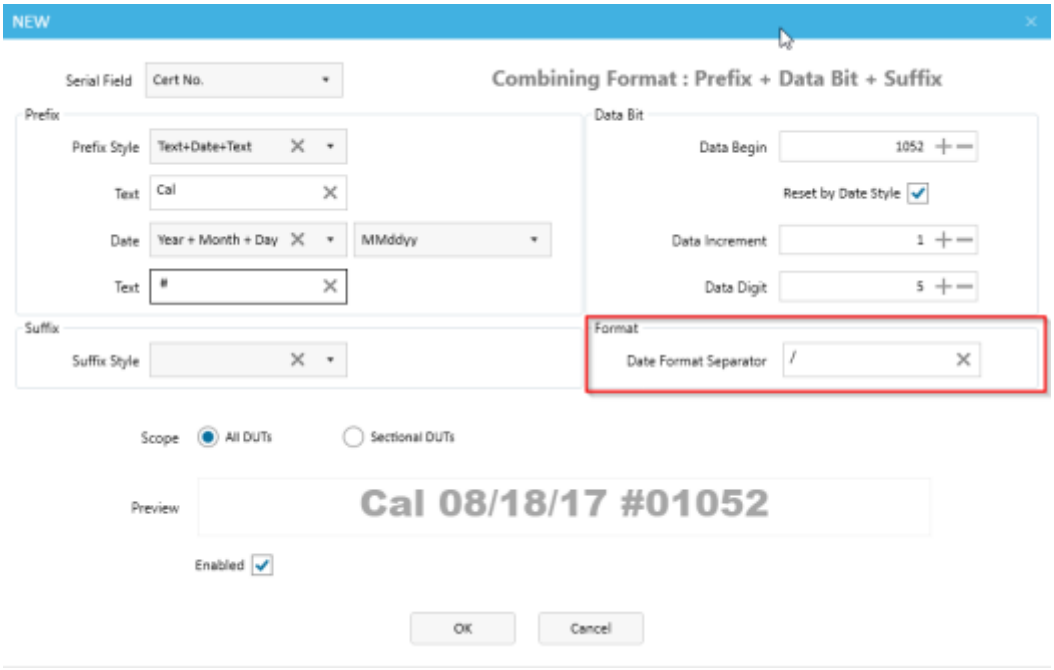
quickly the numbers increase, and specify how many digits your number will have. You can also make the number reset back to its starting number each day, which is useful when you have the date in the prefix or suffix.



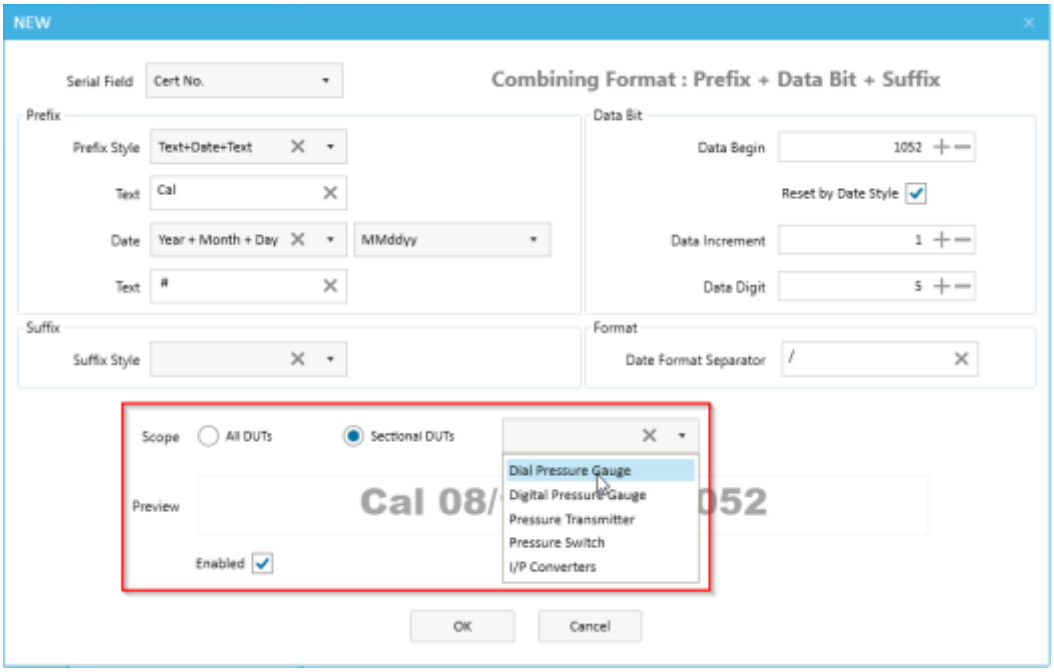
5. Choose your Suffix Settings. The options are very similar to those of the Prefix Settings.



6. You can specify a date separating character. See the picture below for an example of how this might be used.



7. If you are creating a DUT number, you can also select a specific type of unit for your number to be used for (if you are creating a Reference or Schedule Number, you won't have this option, and you can move to the next step).



8. Click OK to save your changes.

3.7 Instrument Categories

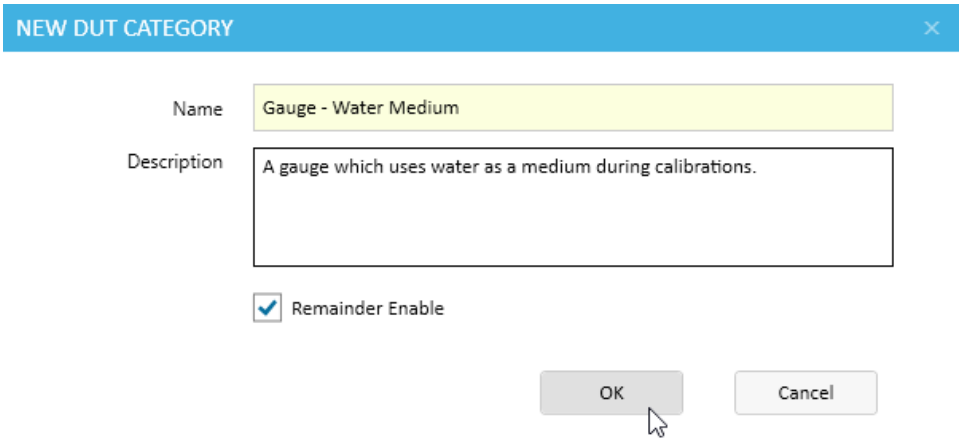
ACal allows you to create custom categories for their DUTs and References. This can help you organize and lookup your units in ways that better suit you.

3.7.1 Create or Edit an Instrument Category

1. Click New (or to edit Click Edit)



2. Fill out the name and description. Check the box if you want to use this custom category when setting reminders. Then Click OK.



3.8 QR Codes

See Appendix B for more details on how to set up QR Codes.

Chapter 4 Performing a Calibration

In ACal, there are four steps that need to be performed to bring a calibration from start to finish:

1. Select a Calibration Solution
2. Select the DUT (device under test)
3. Calibrate the DUT
4. Save the Calibration Data

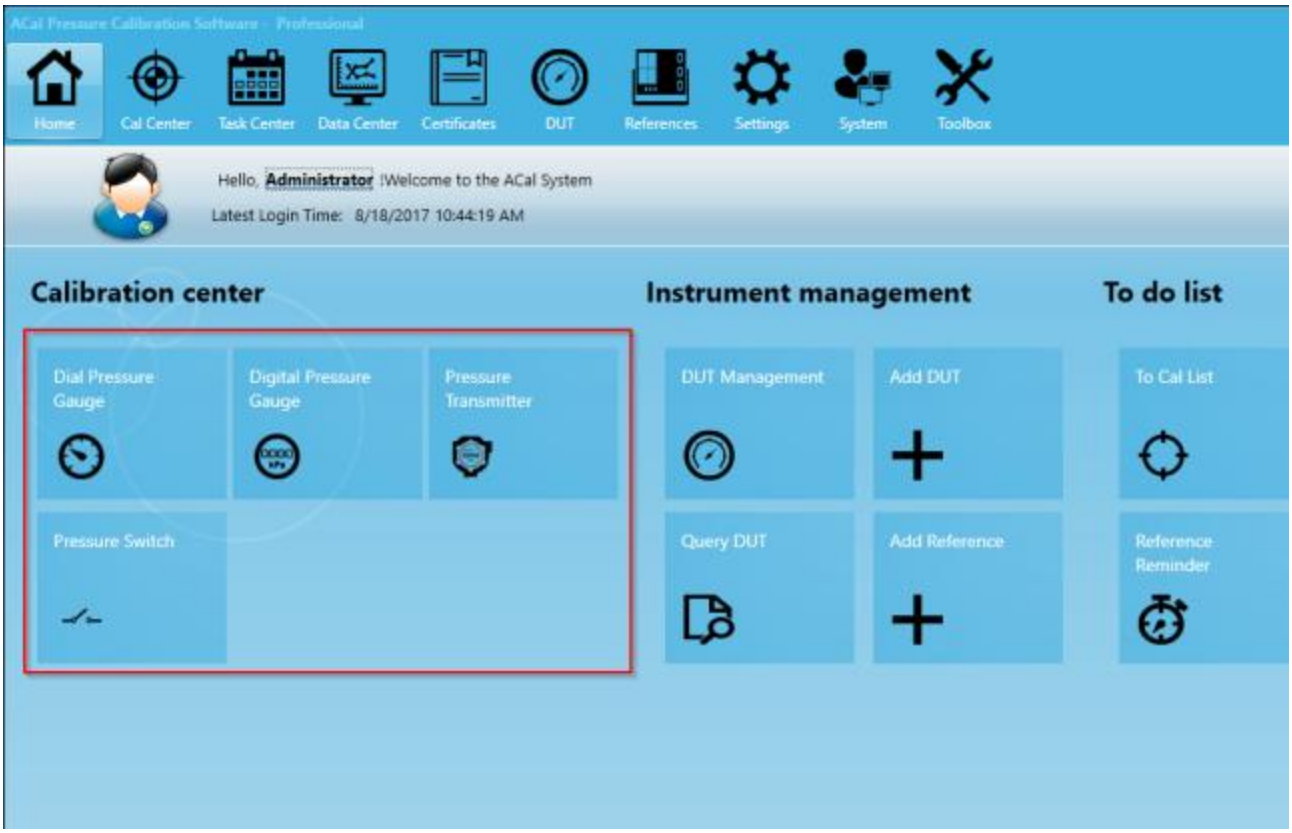
In addition, there are two additional steps for creating a calibration certificate which you can perform immediately after the calibration, or at a later time:

5. Build the Calibration Certificate
6. Preview or Print the Certificate

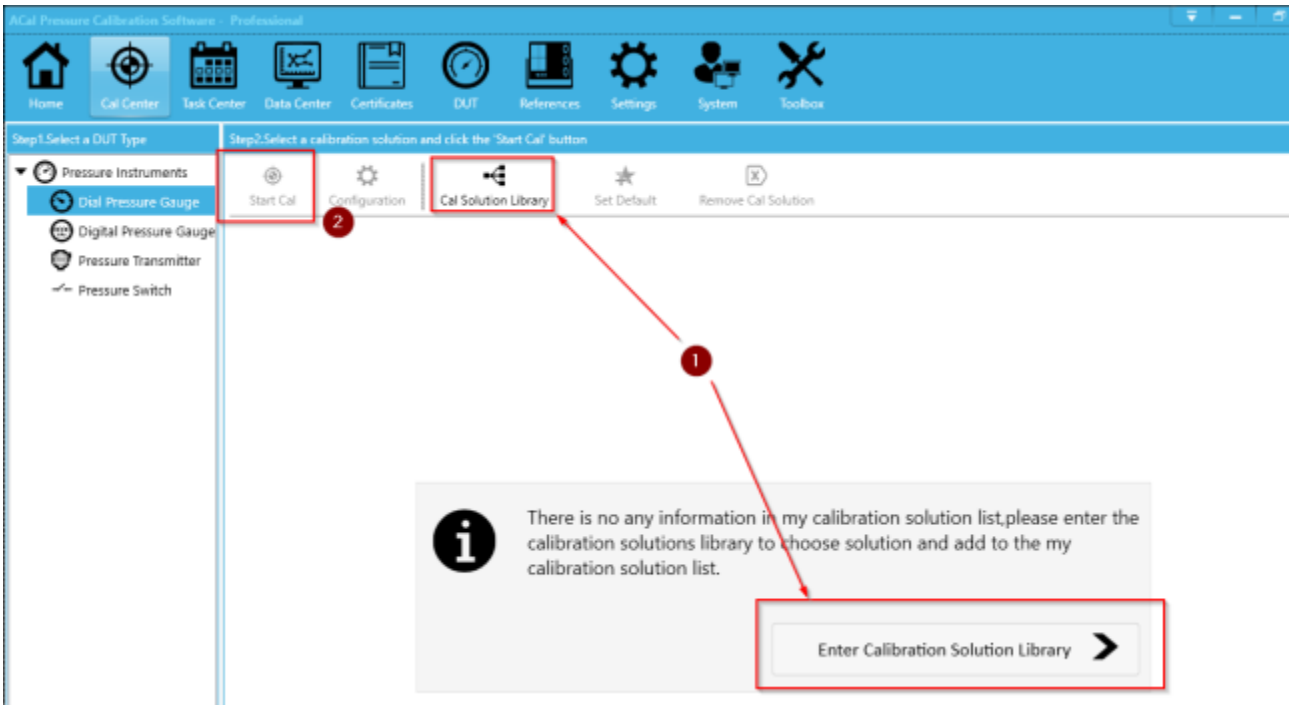
This section will take you step by step through the first four steps.

7.1 Add/Configure the Calibration Solution

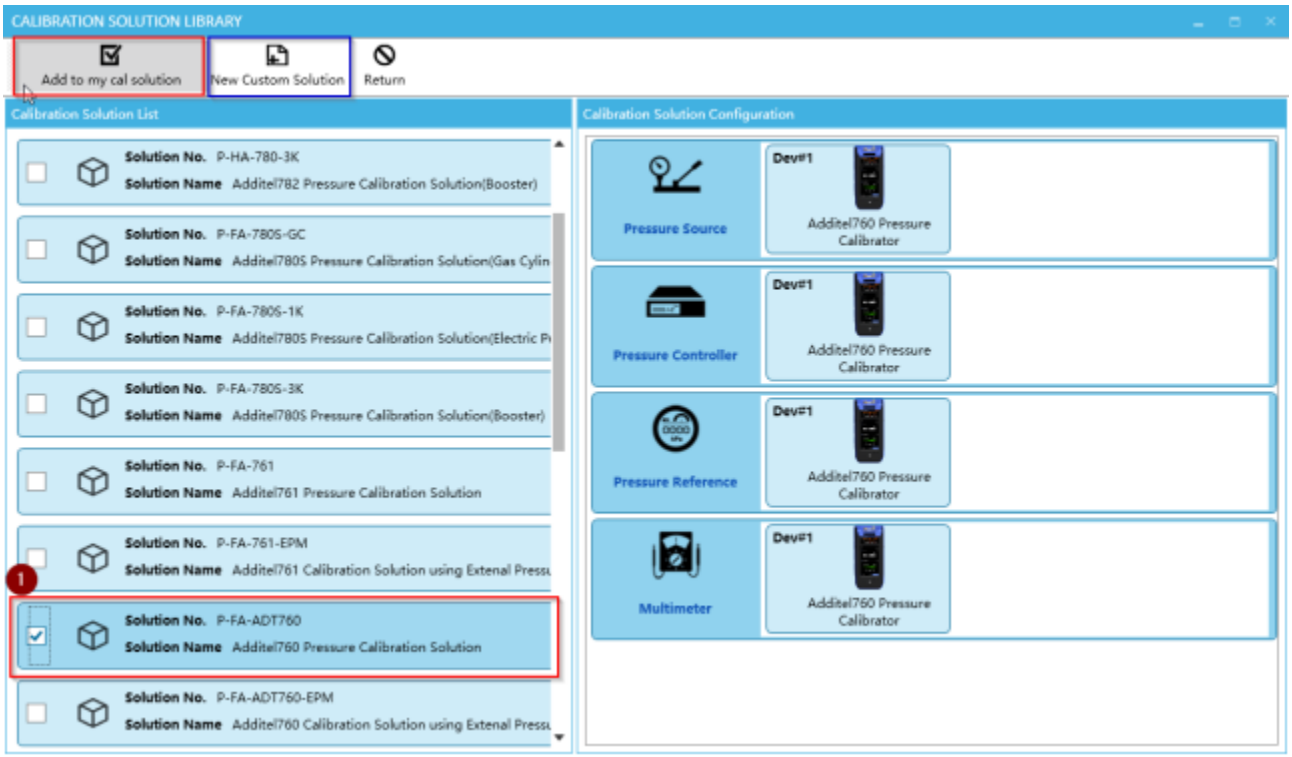
You can start the calibration process from one of two places in ACal. The first is from the home screen. Click the type of instrument you'd like to calibrate.



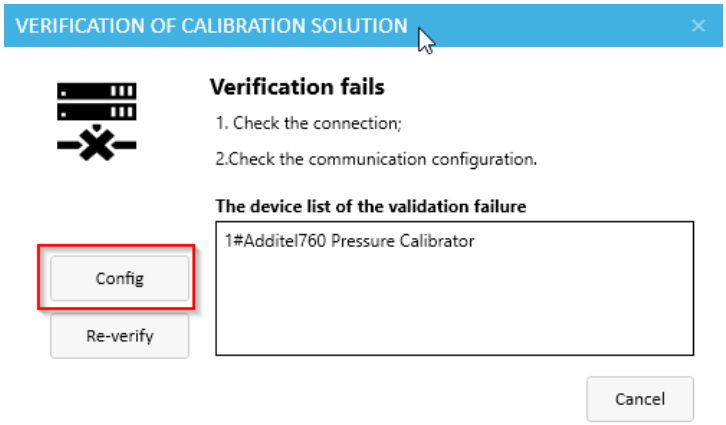
The second place you can start that from is the Cal Center tab. You will need to select a calibration solution, and then (after the calibration solution is picked) click Start Cal.



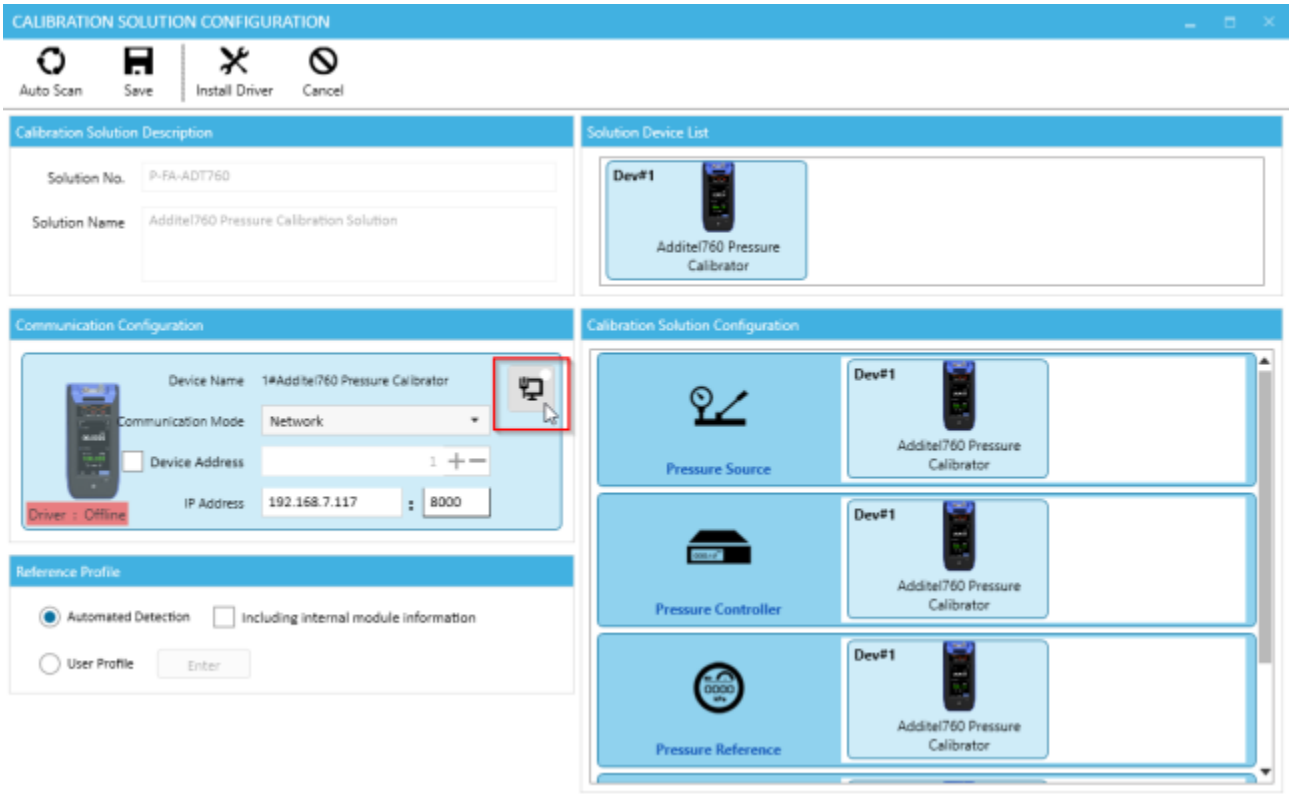
You should see the screen below. A “Calibration Solution” is a list of reference instruments used to perform a calibration. ACal comes with a number of preset solutions which represent combinations of instruments that could be used. Pick one of them, or if none of those fits, you can create a custom solution (see Chapter 3 for more details). Then add it to your list.



Next, if your unit is an Additel unit, but isn't properly connected, you may see a verification screen (if you don't see this screen, you may ignore this). In this case, you can click Config to troubleshoot the communication options of the unit.

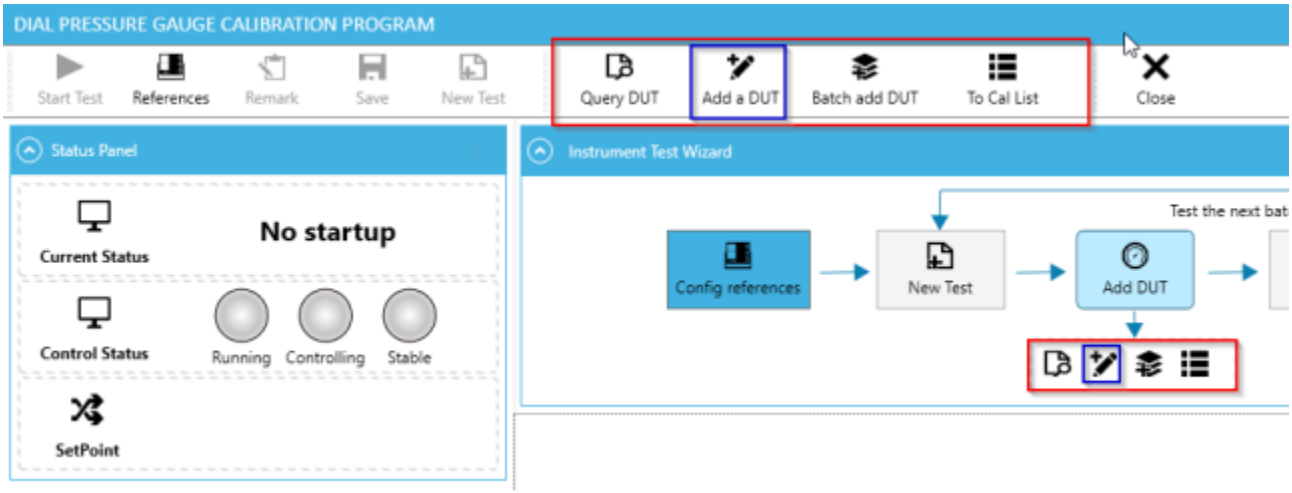


You can there edit the settings and click the retest button (shown below) until the unit becomes properly connected. If you can't get connected, talk to your IT department or coworkers. If you still aren't able to troubleshoot the problem, give us a call at Additel. We'd be glad to assist you.

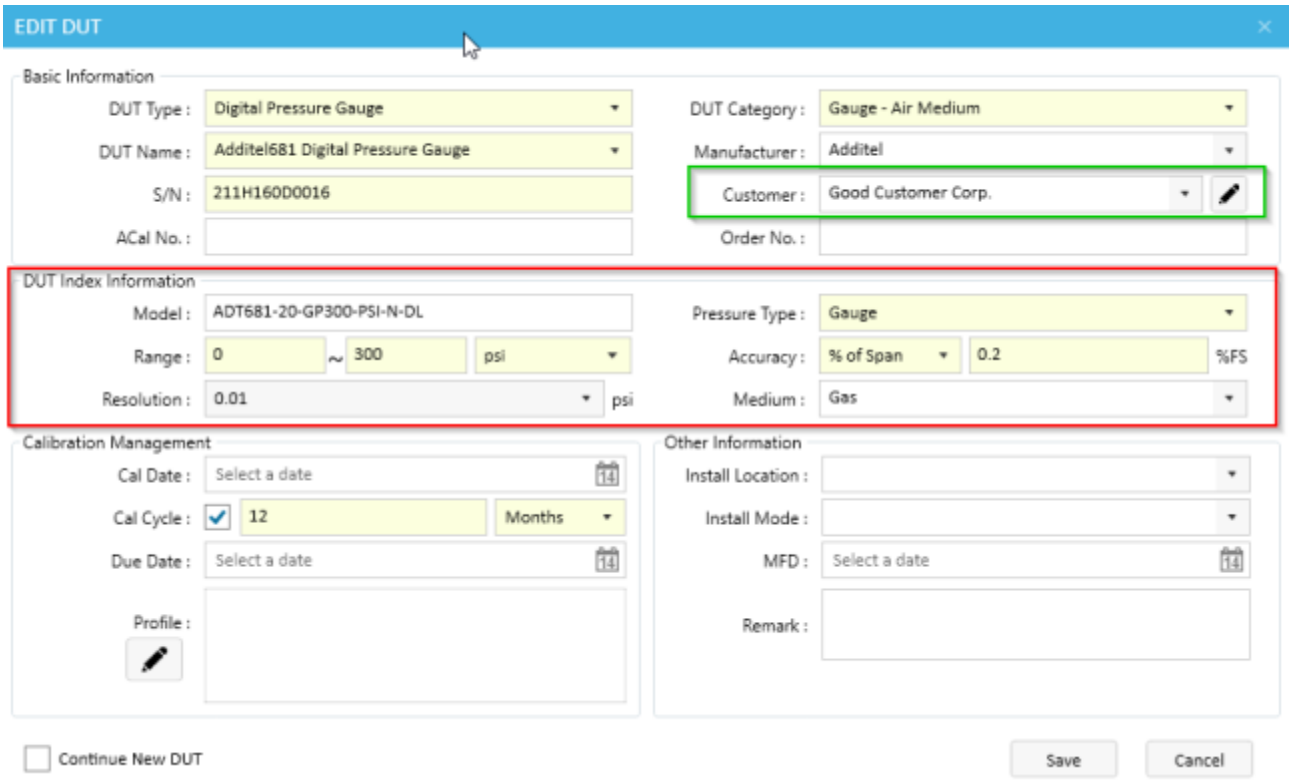


Next, you should see a screen which shows the workflow for the actual calibration. As you've already selected your references, you now need to select the devices you wish to calibrate (or DUTs).

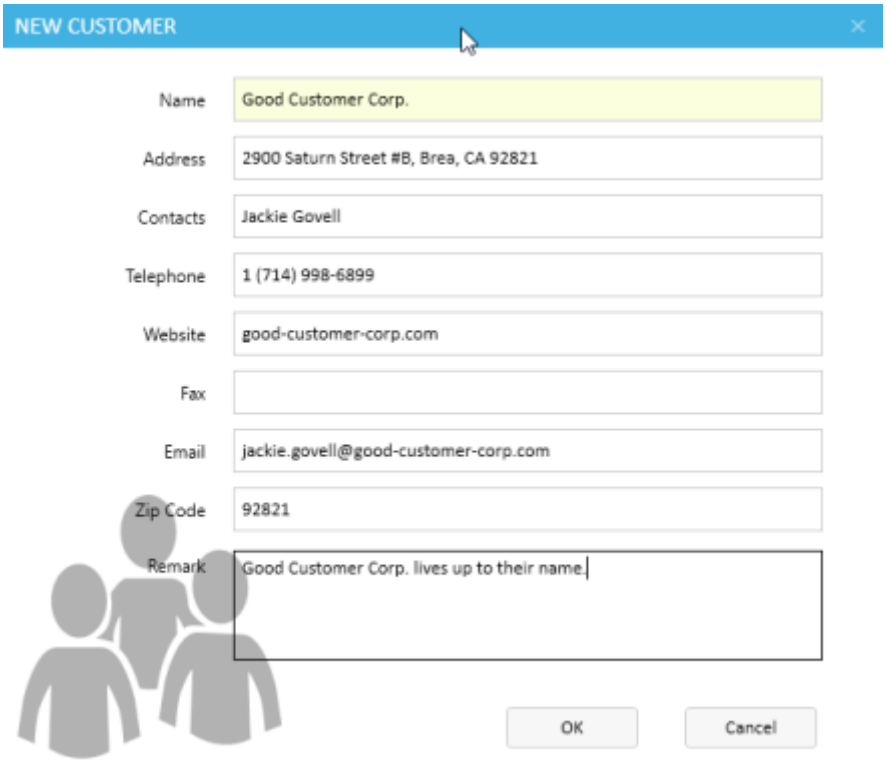
You can either lookup the DUTs from those you have in the system, add new ones directly on the spot, or select them from your list of items that need to be calibrated (which is talked about later in the manual). In this example, I will be adding a single DUT by clicking the button highlighted in blue below. You may read more about adding and managing DUTs in Chapter 5.



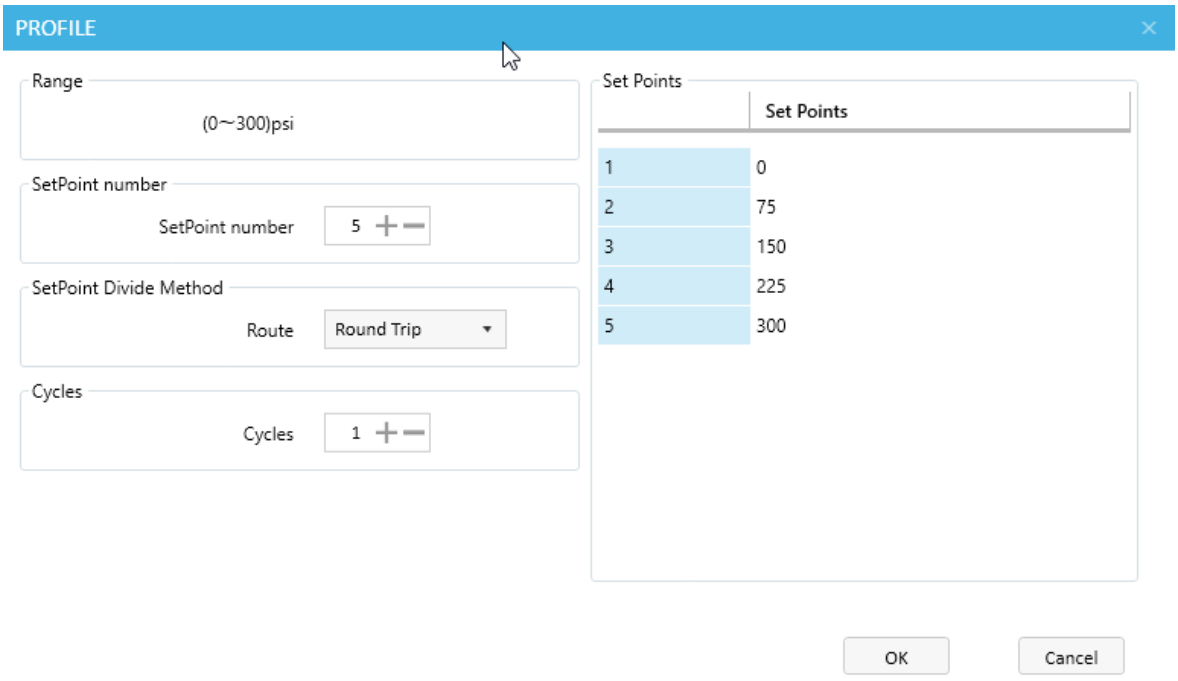
If you selected Add a DUT, you should see the screen below. Fill out as much information as you can. The DUT Index Information is very important as it affects the calibration you will perform.



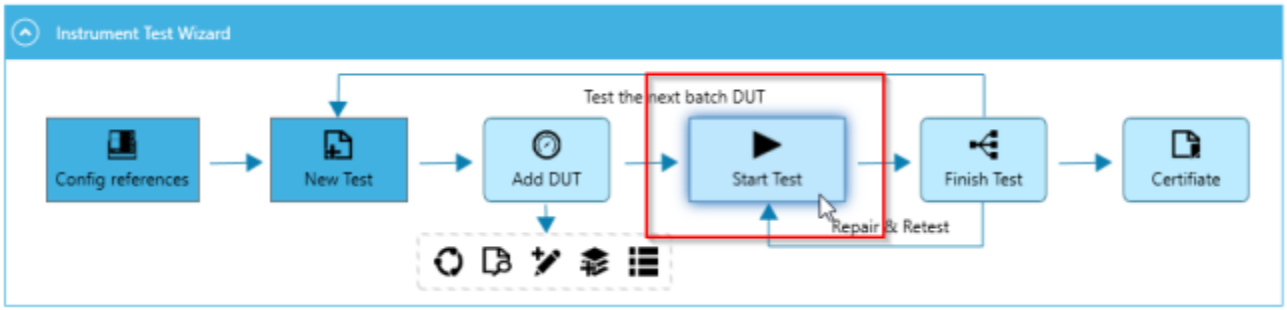
You can also assign the unit to a Customer, which can be useful when looking up the unit later.



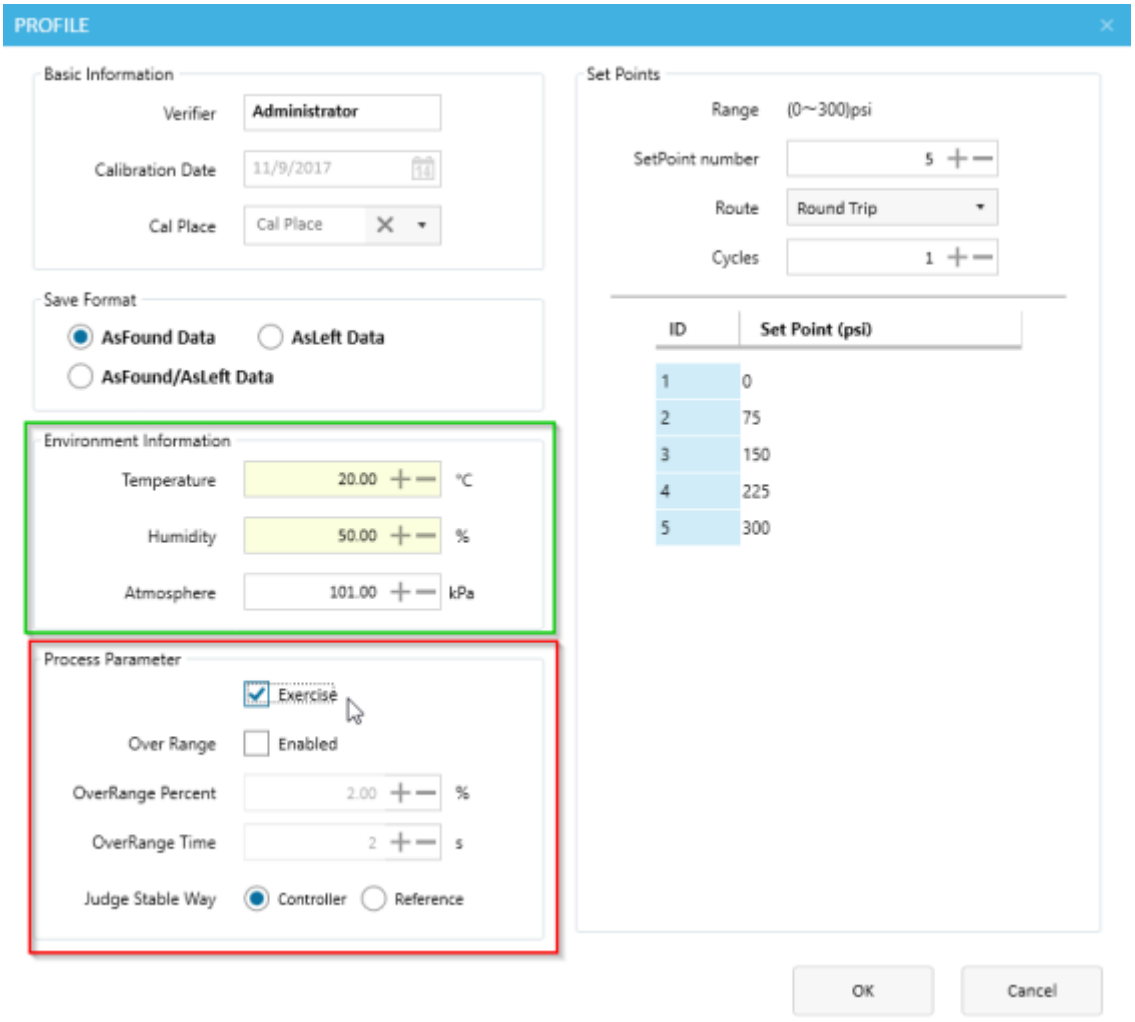
Additionally, you can also set a profile for the instrument. This allows you to set a standard set of points you'd like this instrument calibrated at, so you don't have to set them up every time. It's a good idea to set this up initially, and you can always edit it later if you decide you need to test more or less points.



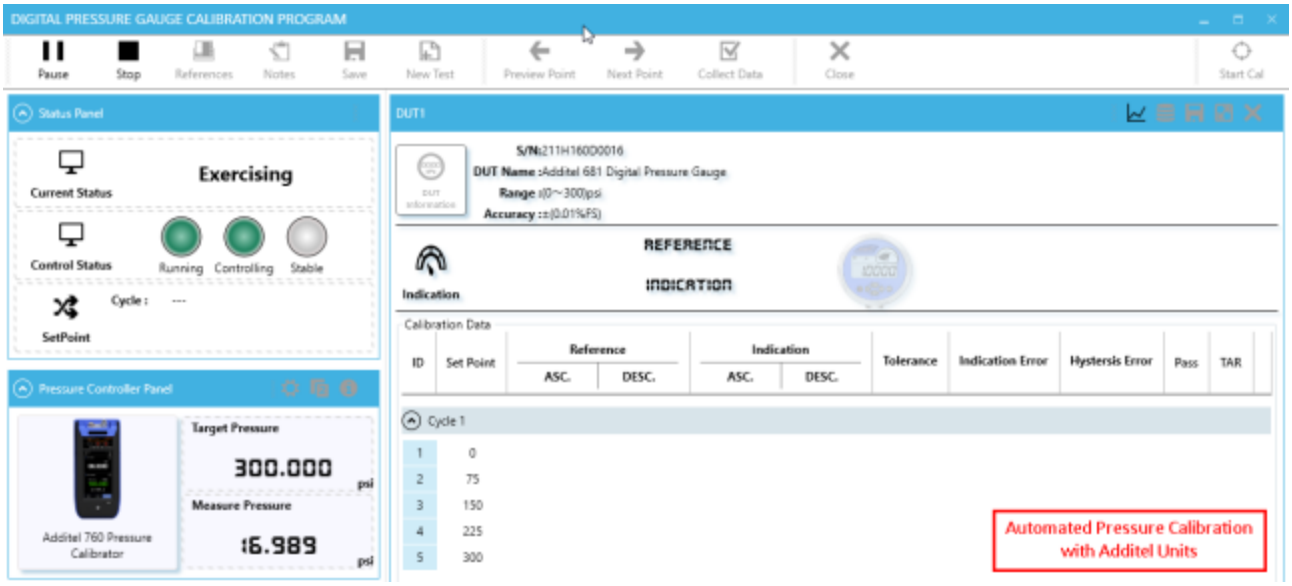
Once you are finished creating the DUT, click Save. Then click Start Test.



The profile verification screen should pop up next. If you created a calibration profile earlier when adding the instrument, those profile settings should appear on the right. Otherwise, a set of general values will appear. You will want to make sure the environment information is set correctly. In addition, you may want to set some of the process parameters, which let you control extra settings such as whether your gauge is exercised before the calibration is performed. Once you are ready to perform the calibration, click OK.

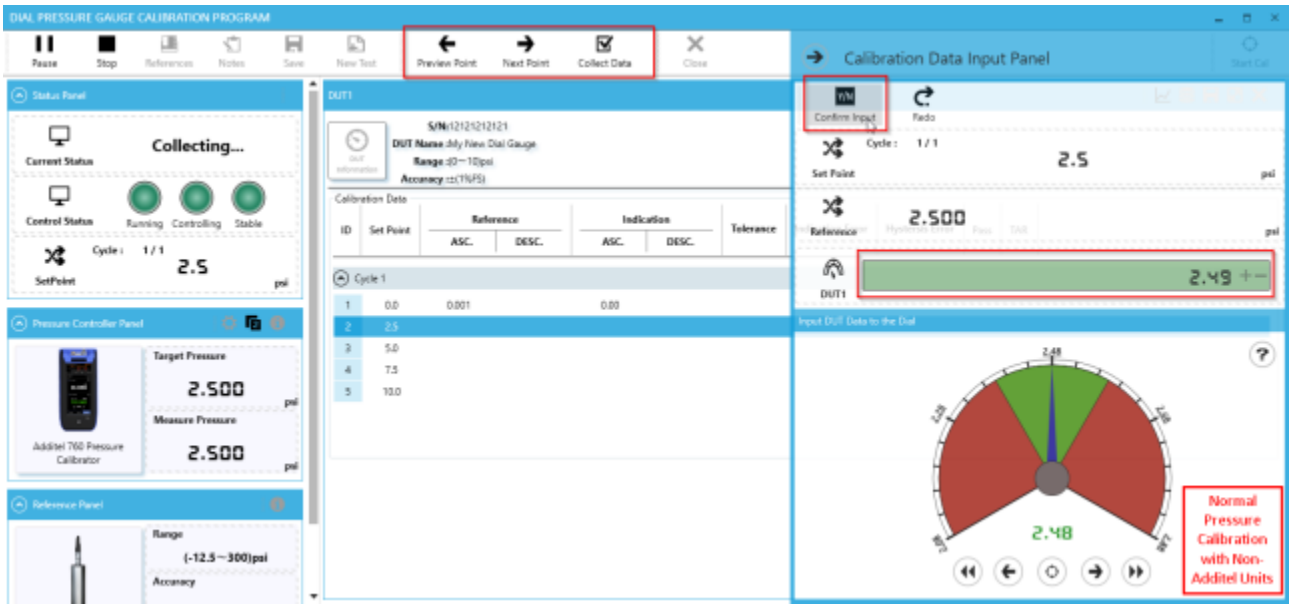


Click Start and your calibration will begin. If you are using ACal Pro, and both your pressure controller and the unit under test are Additel Units, the controlling of the pressure will be performed automatically, as the instruments work together to perform the calibration.

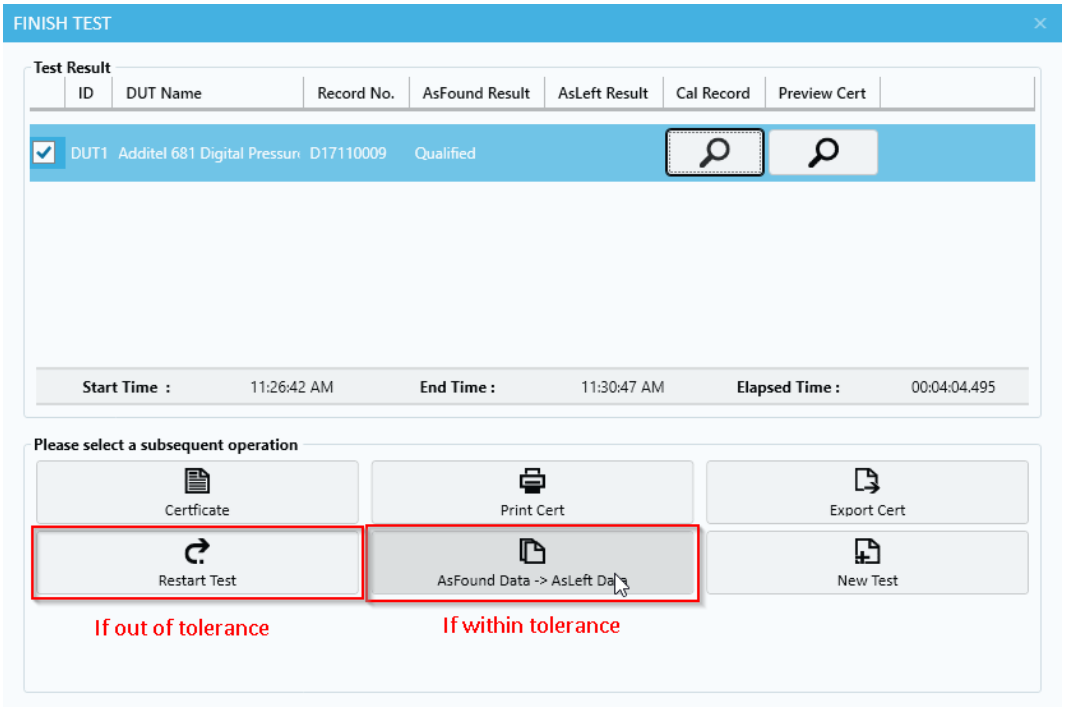


If this is not the case, the process will not be as automated. For example, if your DUT is not an Additel unit, you will need to manually record its pressure into ACal. (see Appendix D for more details on how the data input panel can help you do this) If your controller is not an Additel unit, you will need to use the previous, next, and collect data buttons to let ACal know that your system is now at the pressure you want, and you'd like to record a point. If both the DUT and the controller are not Additel units, you will need to do both of these actions.

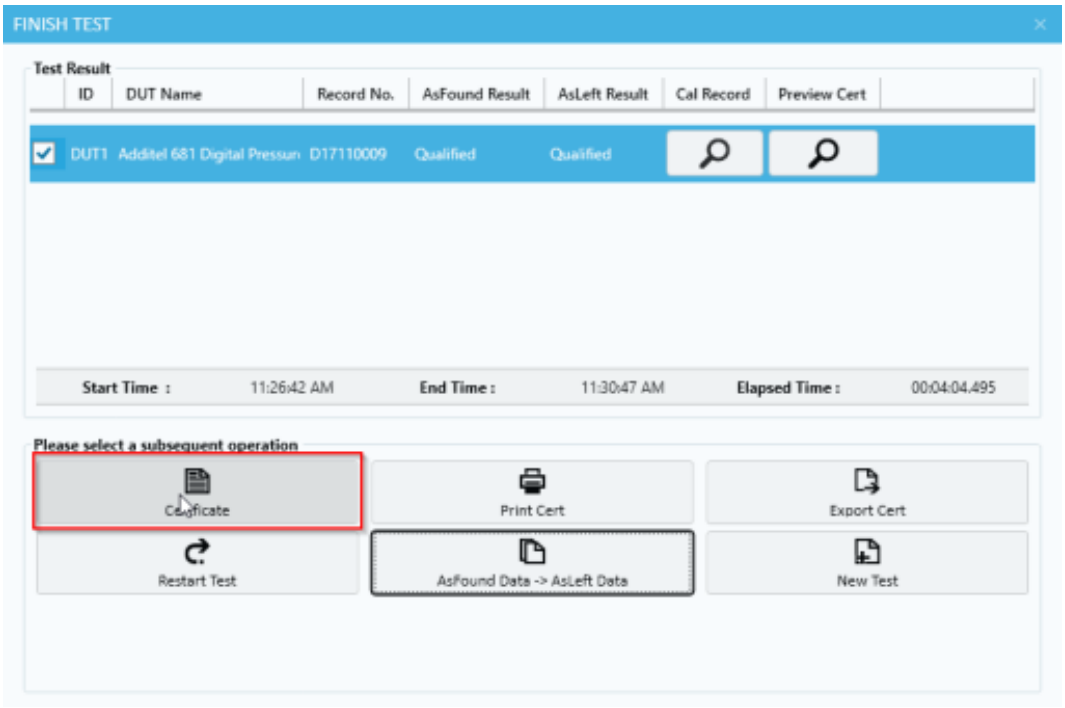
If you are using ACal Basic, your software doesn't include automated pressure control. However, you can still use the previous, next, and collect data buttons as describe above to perform your calibration.



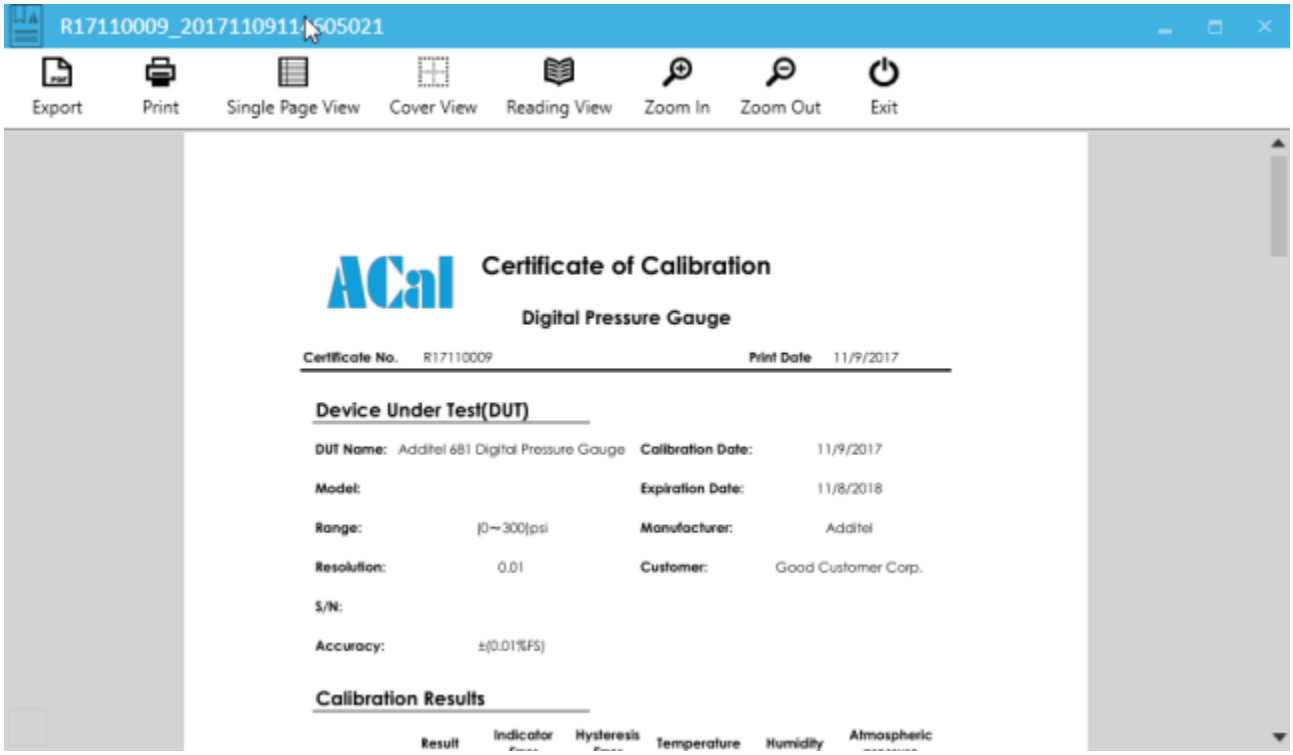
Once the calibration is finished, you will see the Finish screen. Choose what you'd like to do next. In the example below, since our gauge is within specs, we choose to use our As Found Data as our As Left Data. If your gauge is out of spec, you may want to adjust the gauge (if possible) and restart the test to record the As Left Data.



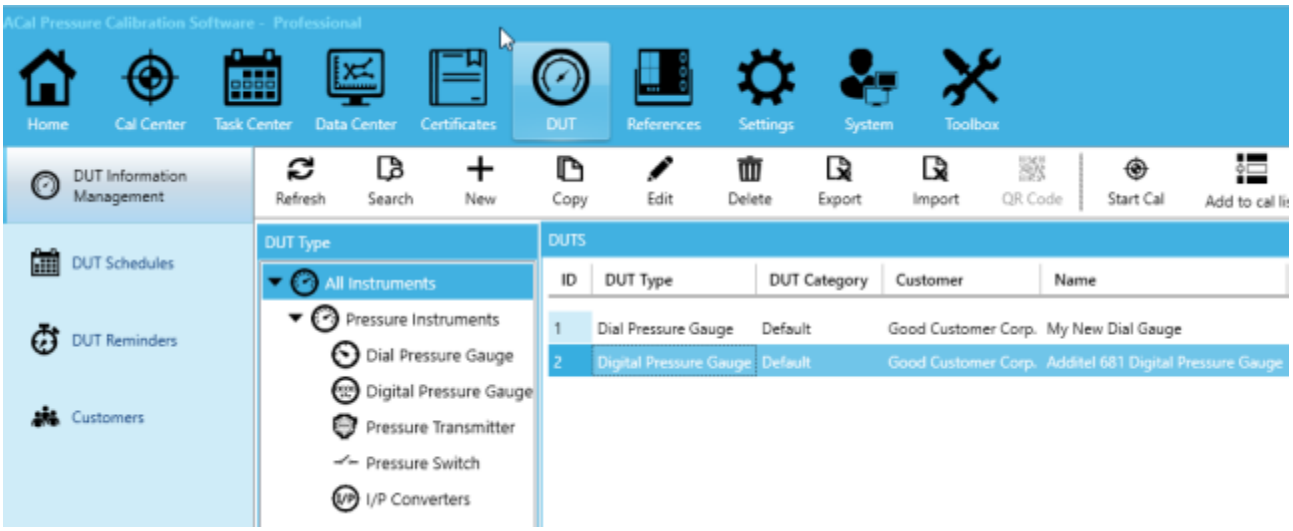
Once this is complete, you are now ready to build a certificate. You may choose to do this now or at a later time. In this case, we are going to generate the certificate now.



A screen will pop up showing the certificate. From this screen you can Export or Print the Certificate for use outside of ACal.



Chapter 5 DUTs

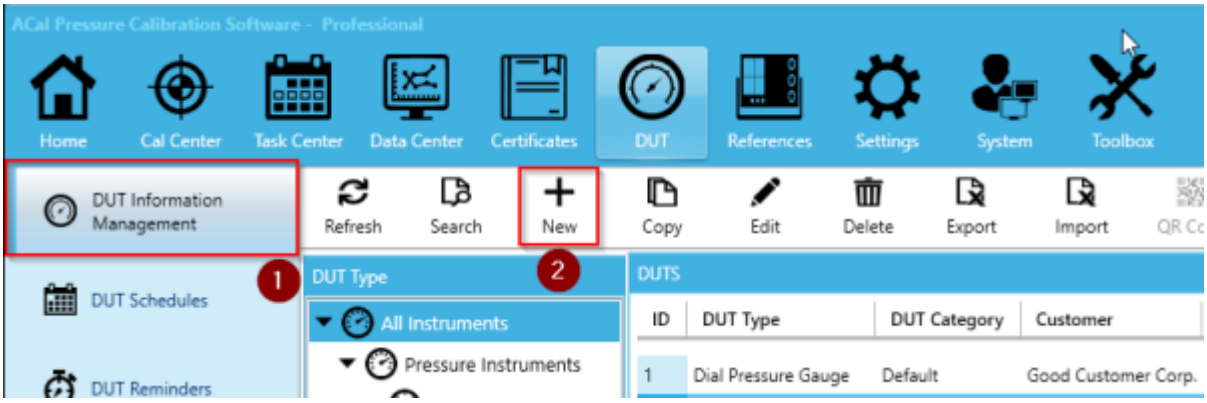


A large portion of calibration work consists of managing your Devices Under Test (or DUTs). ACal lets you set Customer Information, add reminders, and create schedules for your DUTs. It also lets you import and export them via Excel.

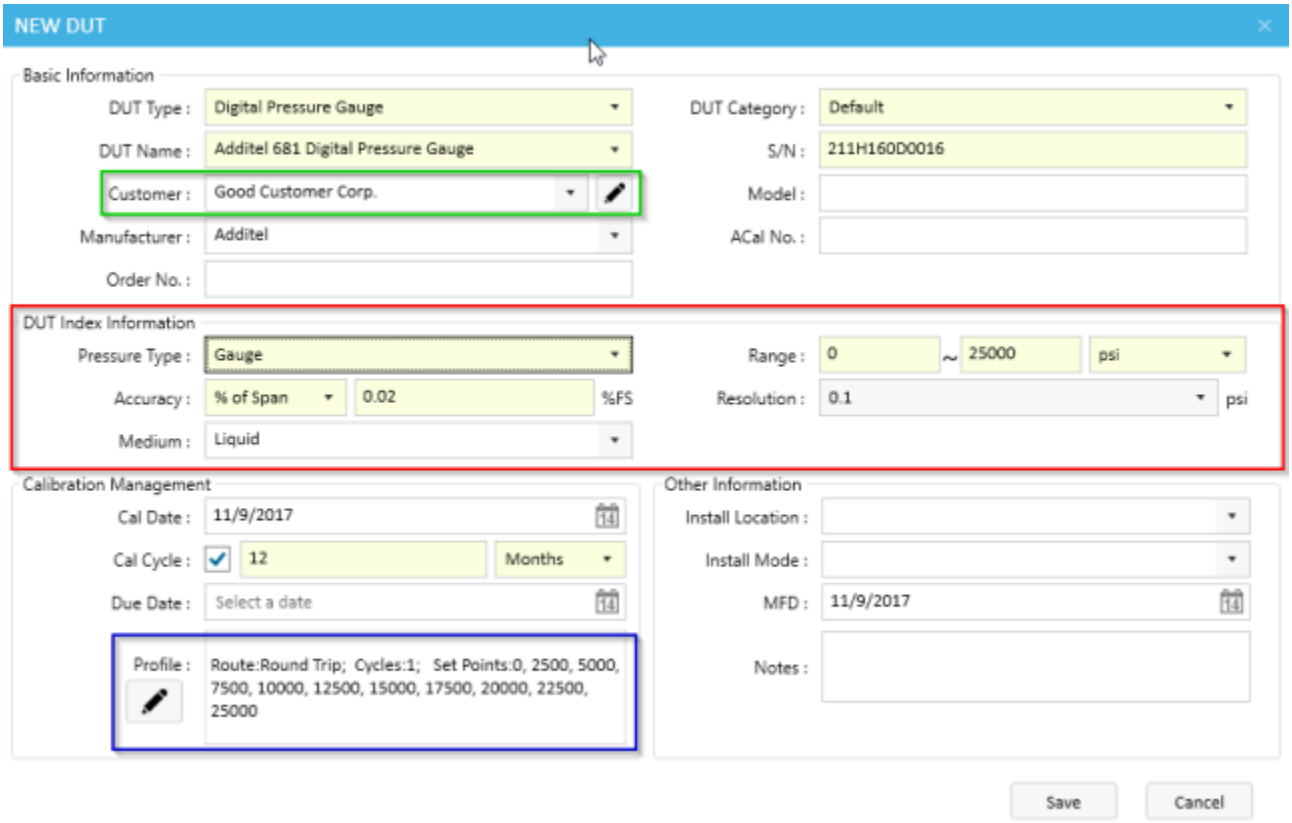
5.1 DUT Management

5.1.1 Creating or Editing a DUT

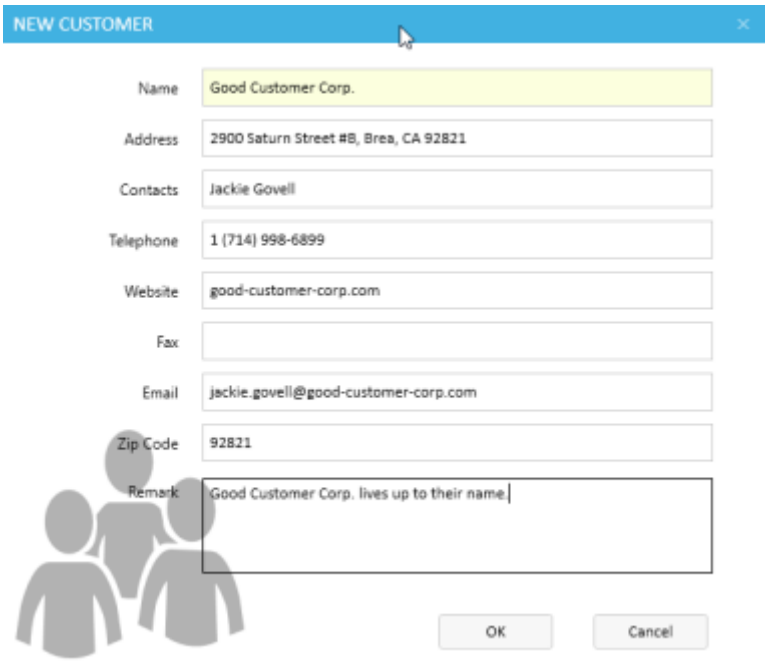
To Create a New DUT, start by clicking DUT Information Management, and then clicking New.



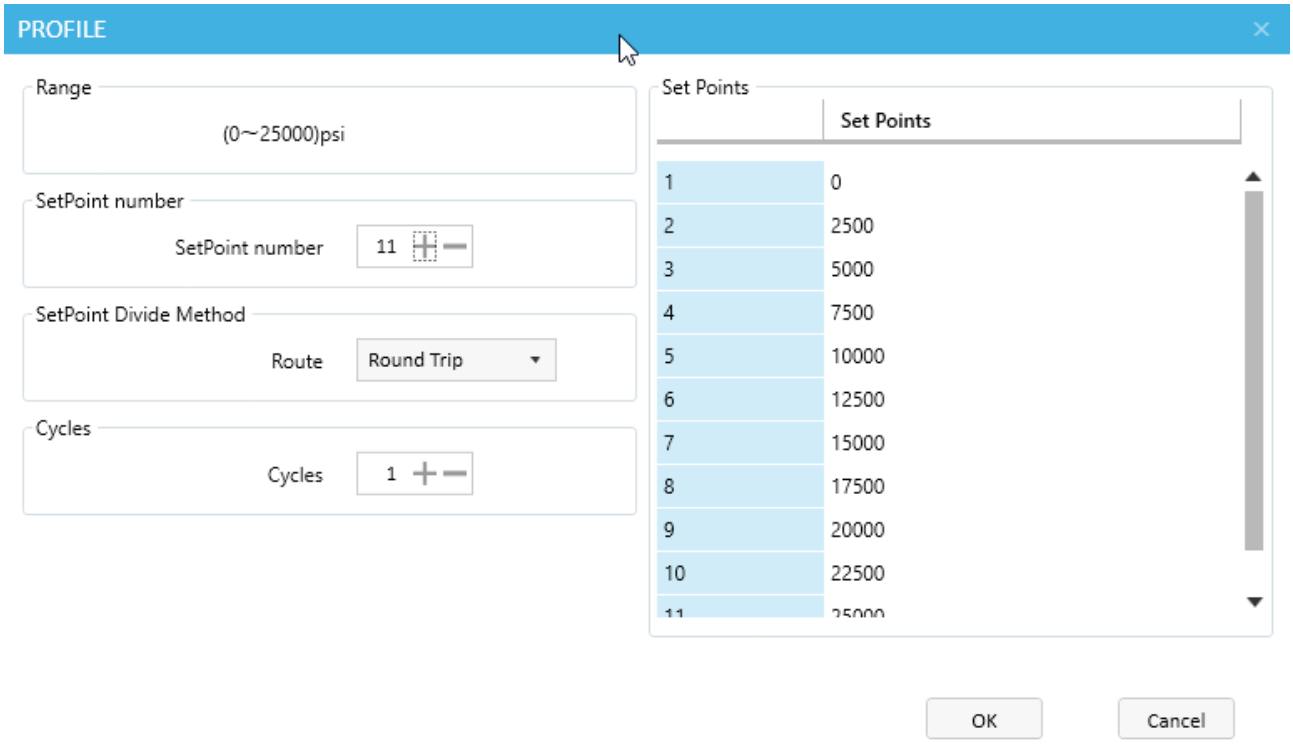
Next, fill out the information for the DUT. Especially important information includes the Information in the DUT Index Information, as that specifies the Range, Resolution, and Accuracy of the unit. In addition, you can also assign the DUT to a Customer, and give it a calibration profile (which contains standard points it will be tested at).



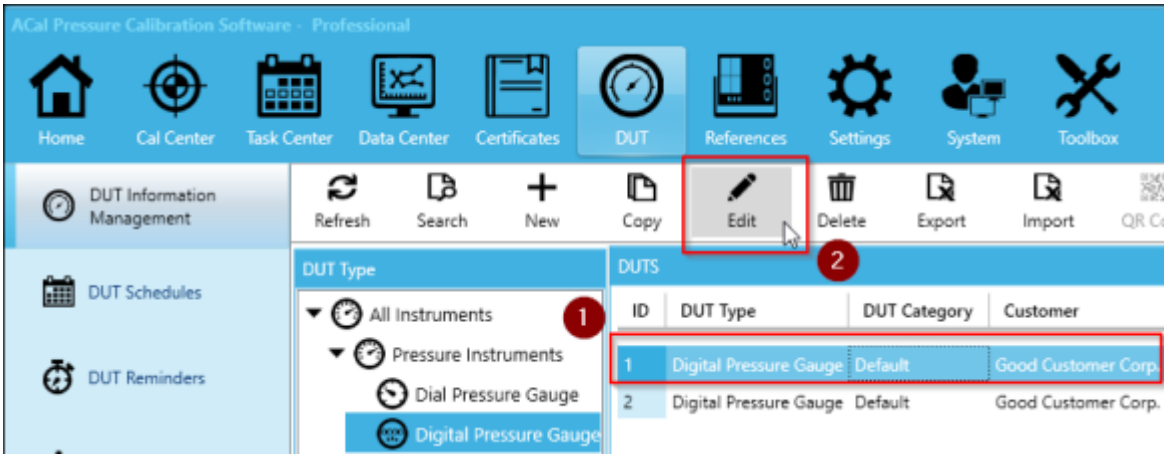
For New Customers, you can add important information such as their Address, Main Contact, and Phone Number. You can also add any extra information that doesn't fit in the other fields in the remarks section.



In the calibration profile, you can set information like the number of points you'd like the unit tested at, and how many cycles you'd like the calibration to go through.

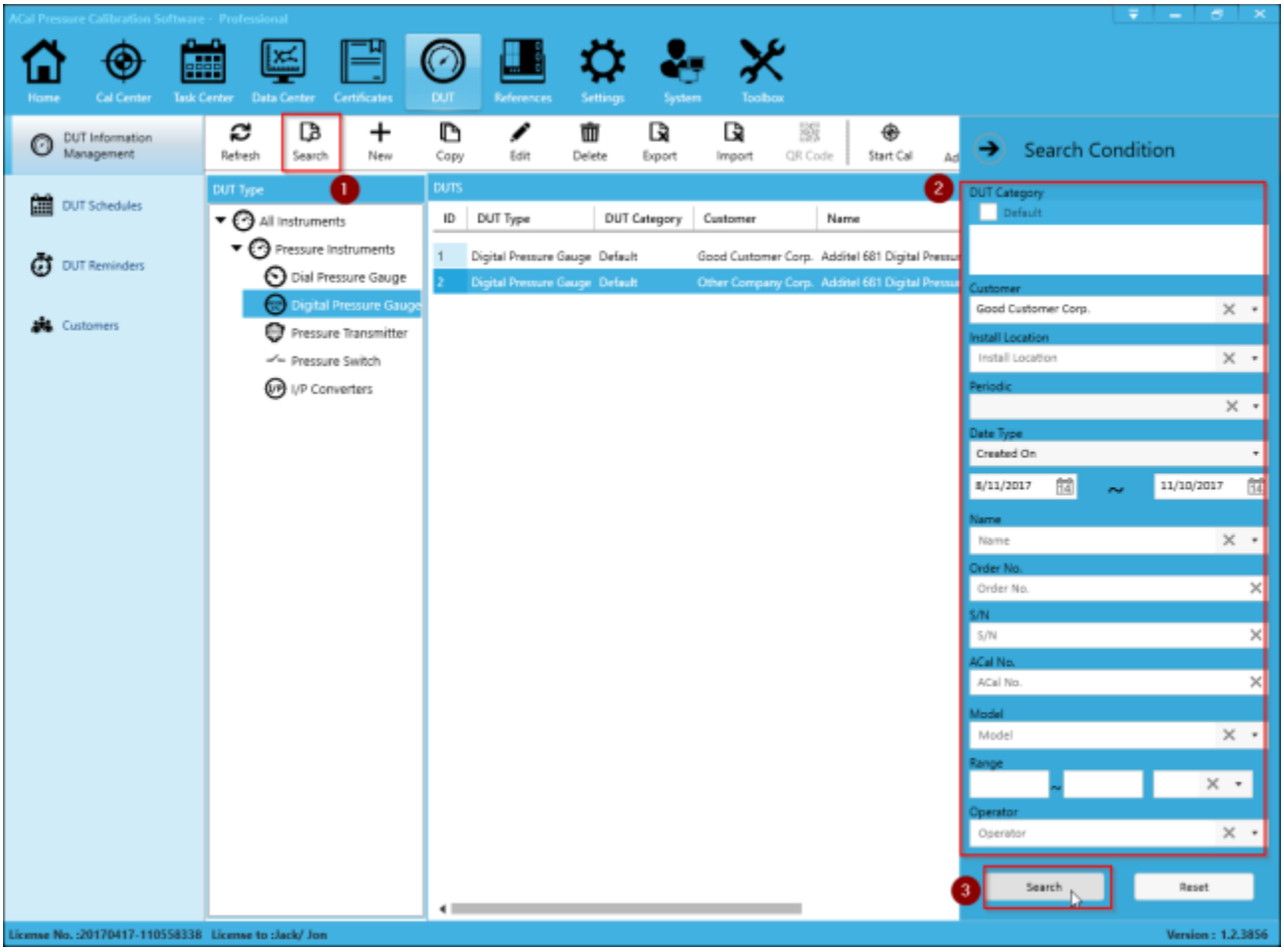


Once you are done setting all the information about your new unit, click Save. You can edit this information later by selecting the gauge in the table and clicking Edit.



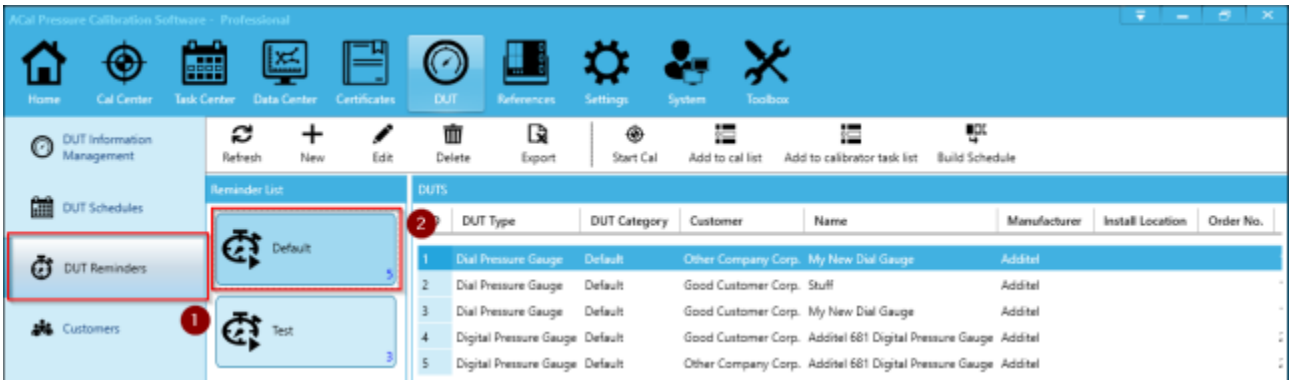
5.1.2 Searching for DUTs

In addition to creating DUTs, ACal provides a way for you to search for them. You can do this by clicking the Search button, entering in your criteria, and then clicking Search. The data in the center table will show the search results.

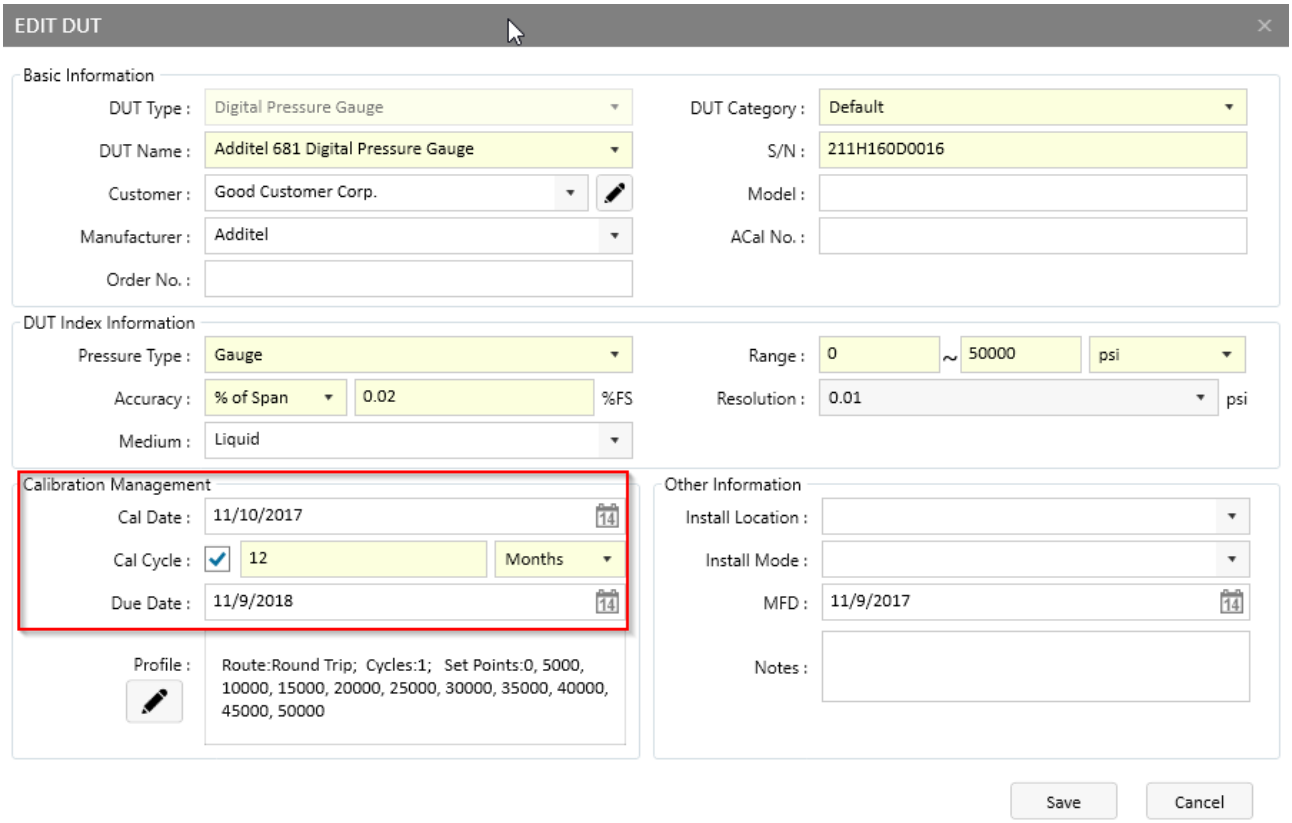


5.2 DUT Reminders

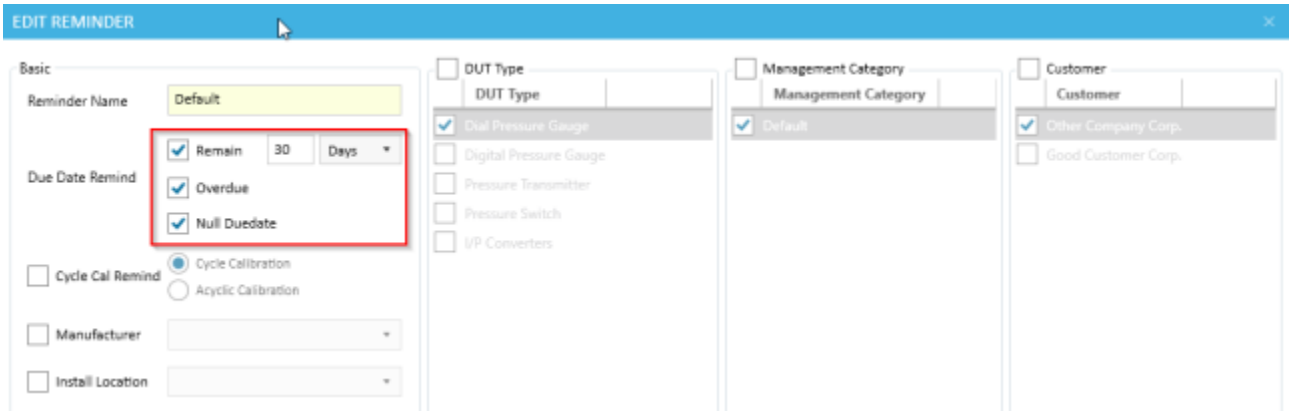
DUT Reminders help you by notifying you when a unit needs to be recalibrated. They can remind you a month ahead of when a unit needs to be calibrated, or let you know that certain of your DUTs are past due.

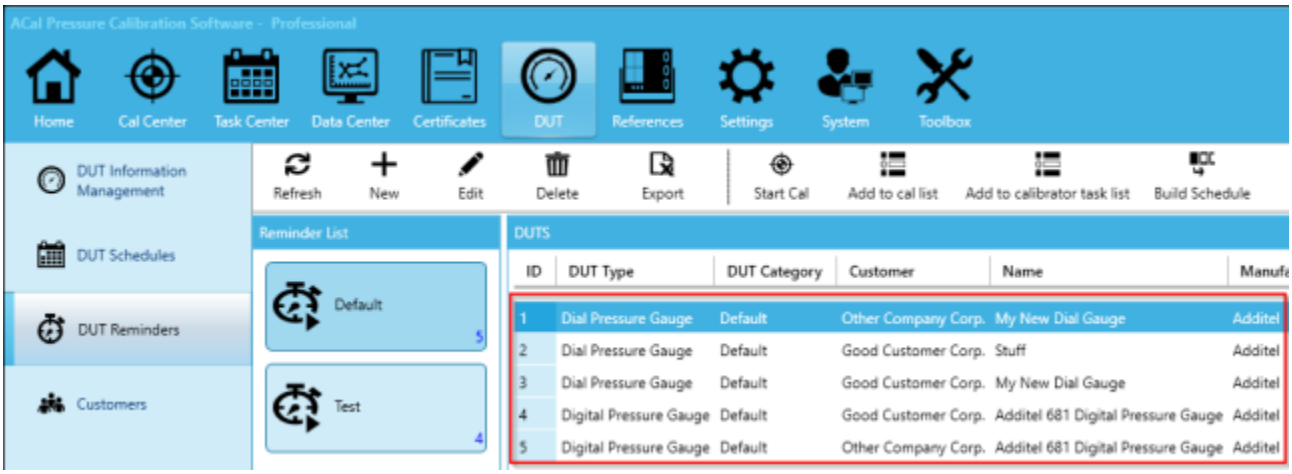


DUT Reminders work based off of the Calibration Management section of each DUT. When you create or edit a DUT, you have an option to set a Calibration Date, Cycle Period, and a Due Date. These fields are what your reminders are based off of.



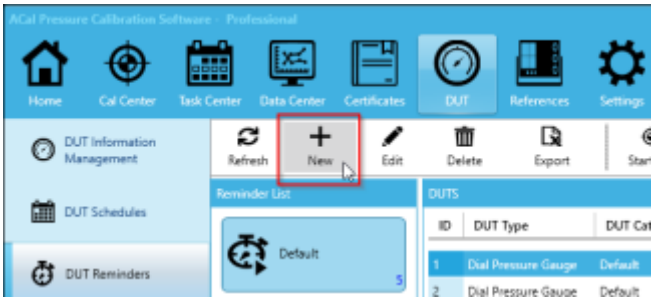
As an example, ACal comes with a 'Default' reminder. It is set to display a list of gauges that are due within 30 days, are past due, or don't have a due date. All of your DUTs are filtered according to that criteria, and the ones that match are displayed on the 'Default' reminder list.



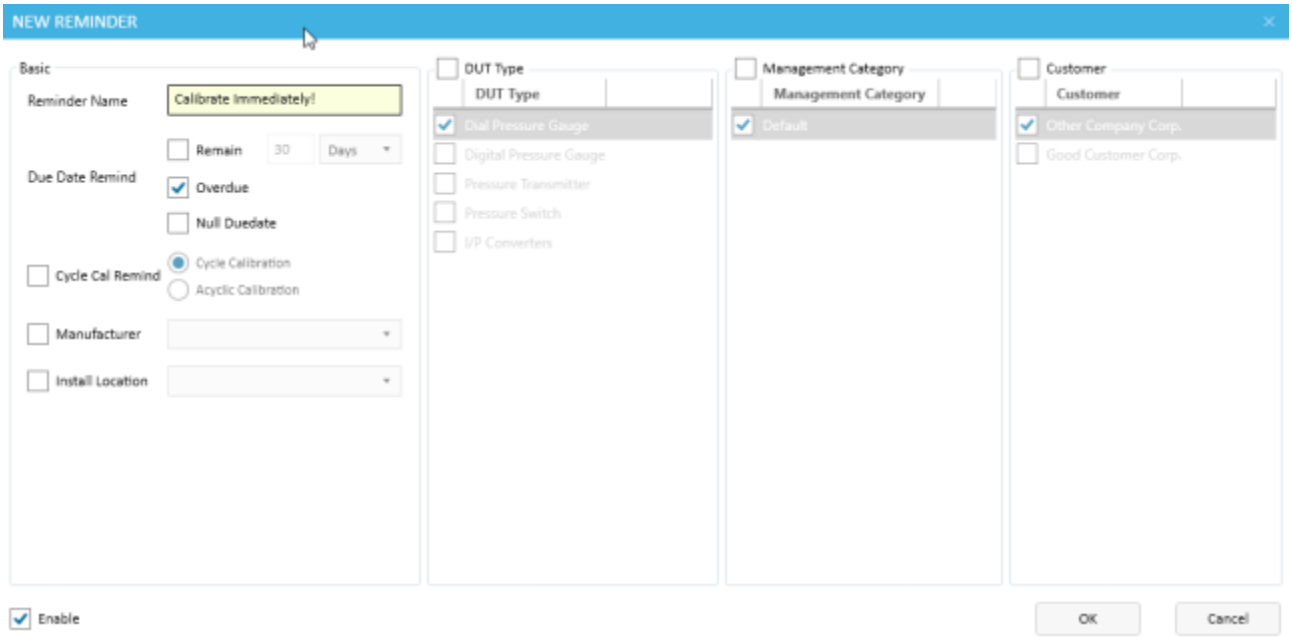


5.2.1 Creating a DUT Reminder

You can create your own custom reminders by clicking New (or edit existing ones by clicking Edit).



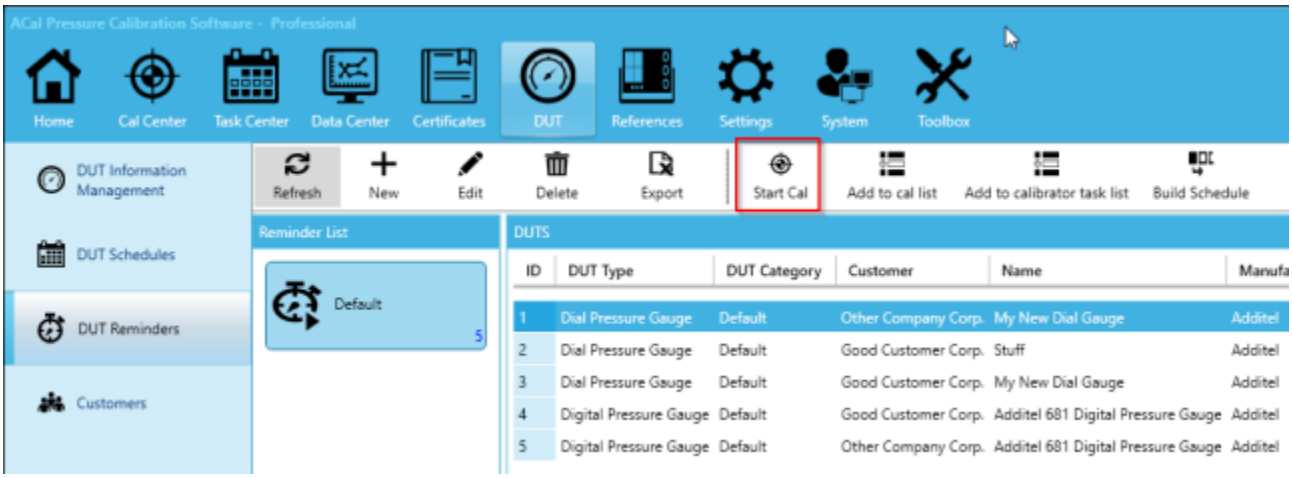
Name the reminder and select one (or more) conditions as filters for the DUTs. Then click OK.



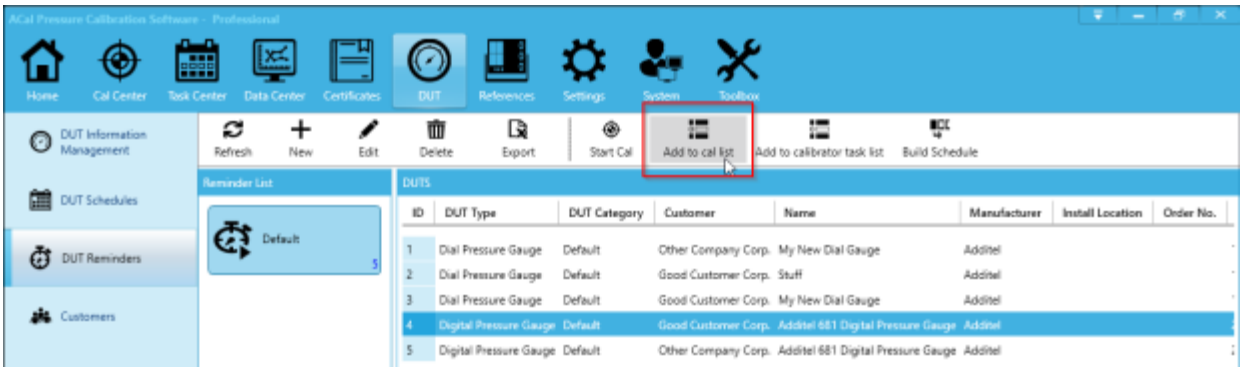
5.2.2 Using DUT Reminders

Your DUT Reminders give you a filtered list of units which meet their conditions. From there, you can do a few things to specify what you want done with those units.

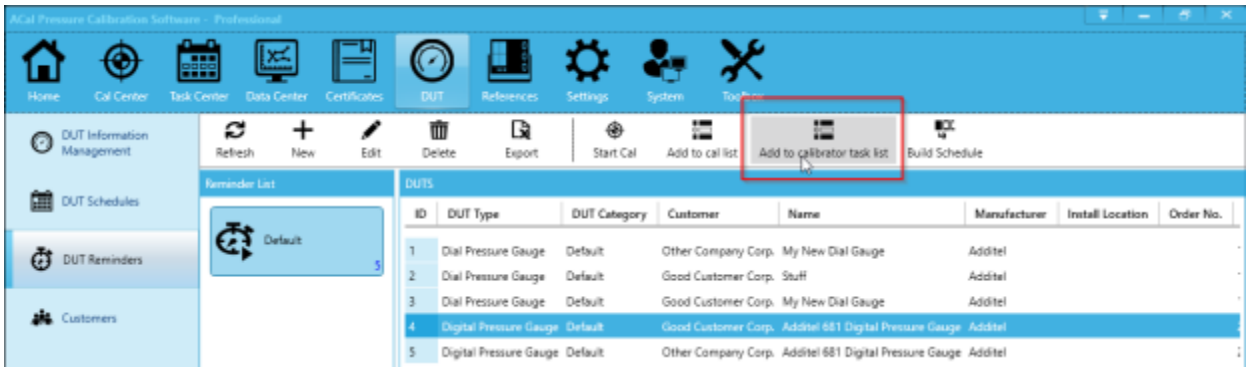
In some cases, you may want to perform their calibration immediately. In this case, you can just click ‘Start Cal’.



In other situations, you’ll want to perform the calibration soon, but not immediately. In this case, you can add the unit to your ‘To Cal’ list, which functions as a To Do list for your units. Click ‘Add to Cal List’, and you’ll see a confirmation saying that the unit was added to the list.

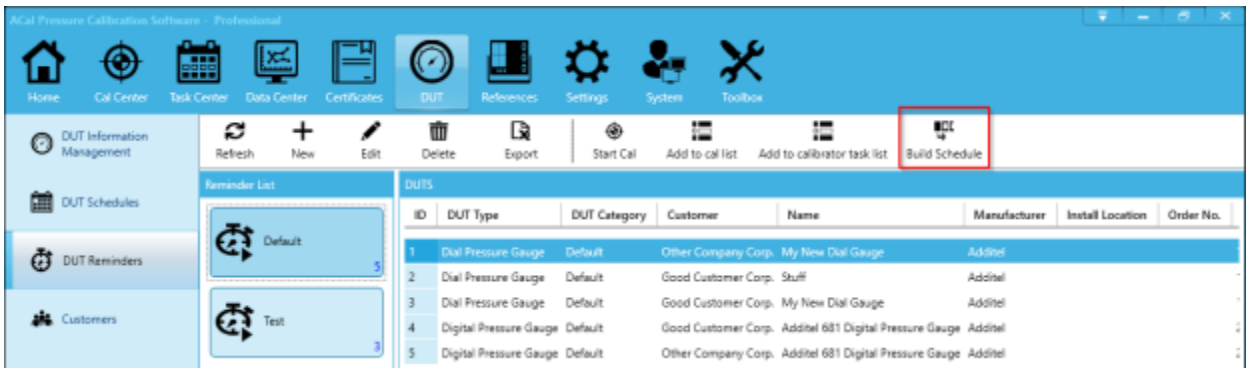


You can also assign the DUTs to Additel 760 and 761 portable calibrators. To do this, click ‘Add to Calibrator Task List’. The Unit will be available in the future when you export Tasks from the Task Center to your calibrator.

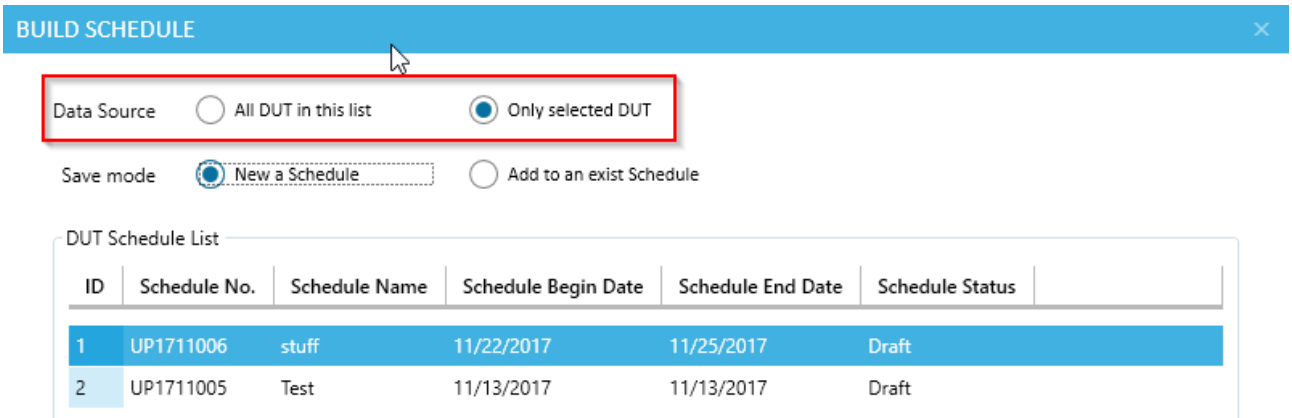


Lastly, there may be some cases where you want to perform your calibrations at a later time. In this case, you will want to use a DUT schedule. DUT Schedules hold a list of DUTs which you wish to be calibrated over a specific period of time. This allows you to better manage the flow of your units as you are performing calibrations.

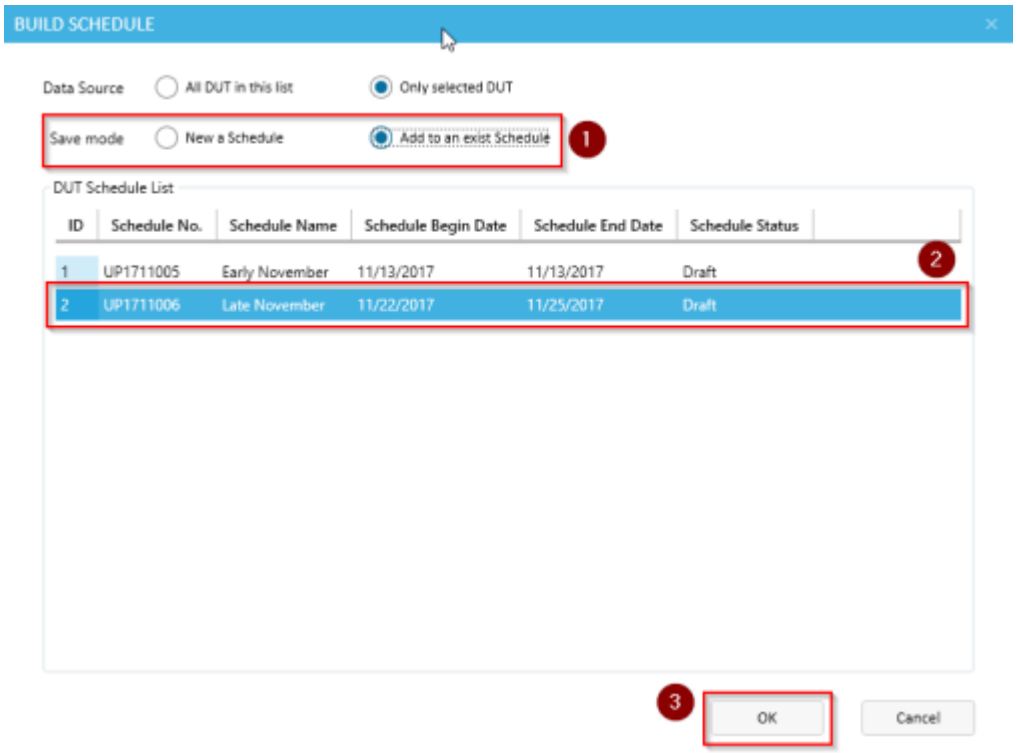
Click the 'Build Schedule button' to add a unit to a New or Existing schedule.



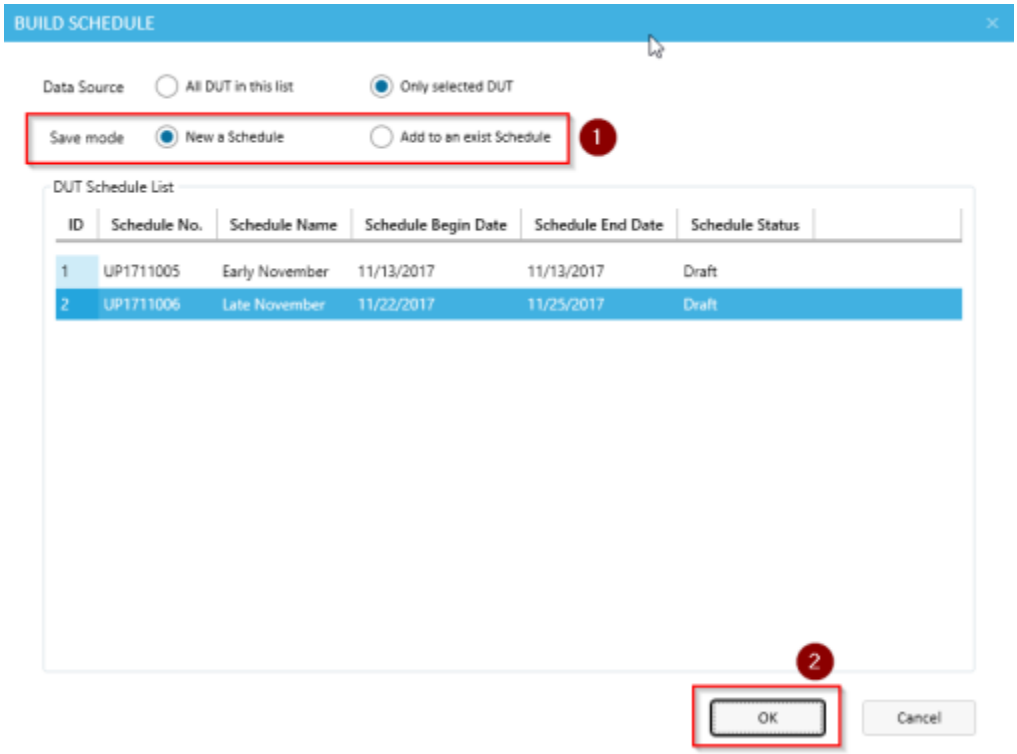
When you do so, a new window will appear. First choose whether you want to add all the DUTs in the reminder list or only the currently selected DUT to a Schedule.



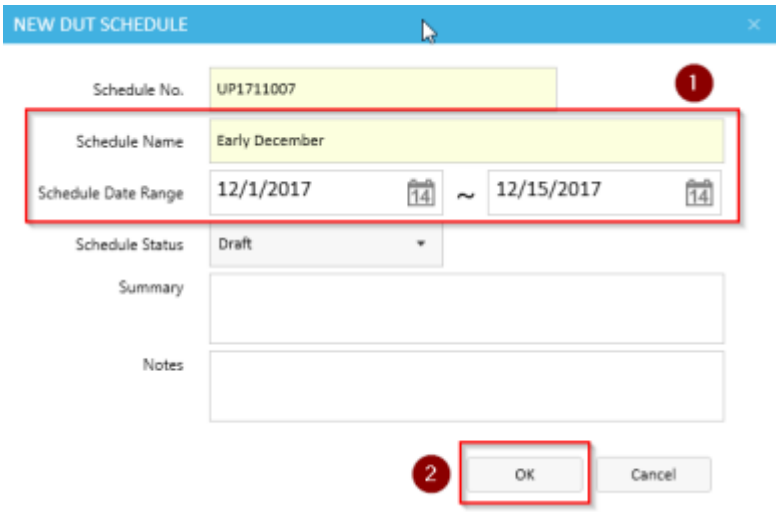
Next, select whether you want to add the unit to a New or Existing schedule. If you decide to add to an Existing Schedule, select the Schedule you want to add the DUT to in the list below. Then click OK.



If, on the other hand, you'd like to add the DUT to a New Schedule, select that option and click OK.



Once you do so, the New Schedule window will pop up, allowing you to enter information about the schedule you wish to create. The Name and Date Range are particularly important, but you can also include notes if you would like. Once you are done, click OK.



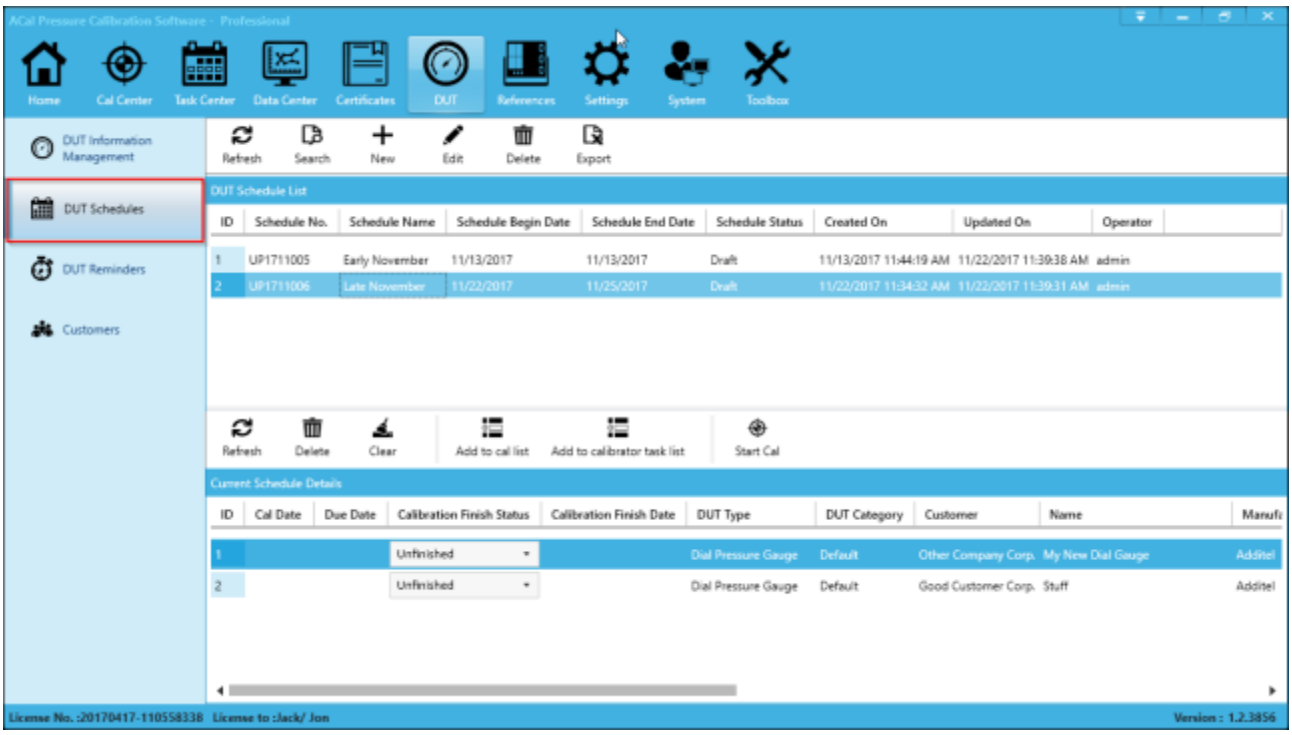
You can learn more about DUT Schedules in the next section.

5.3 DUT Schedules

Schedules, as mentioned earlier, allow you to assign a date range when you wish to calibrate a set of DUTs. It isn't meant to take the place of a unit's Calibration Due Date. Instead, Schedules allow you to budget time slots for a set of calibrations.

For instance, let's say you have schedules set up for every week. You receive a unit that needs to be calibrated within 5 days. This unit will need to be placed in the schedule for this week. Another unit arrives which needs to be calibrated within 12 days. This unit can be placed in next week's schedule, as it doesn't need to be finished as quickly.

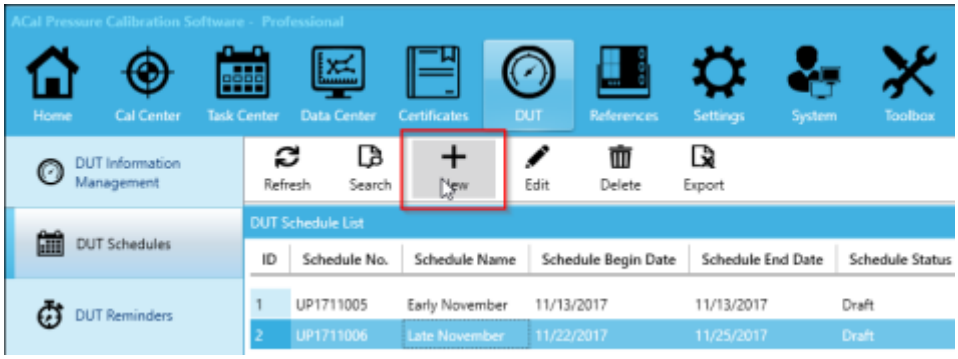
With schedules set up like this, it's easier to manage the flow of units coming in for calibration.



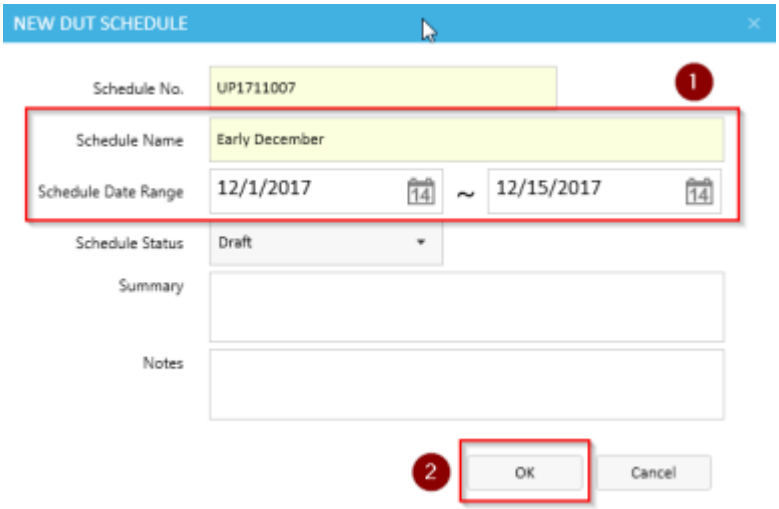
If you take a look at the image above, you'll notice two lists. In the upper list, you will see a list of existing schedules. Click on one to select it. In the lower list, you'll see the DUTs that have been assigned to that schedule, and the status of their calibration.

5.3.1 Creating a DUT Schedule

To create a New DUT Schedule, click New (or to Edit an existing one, click Edit).



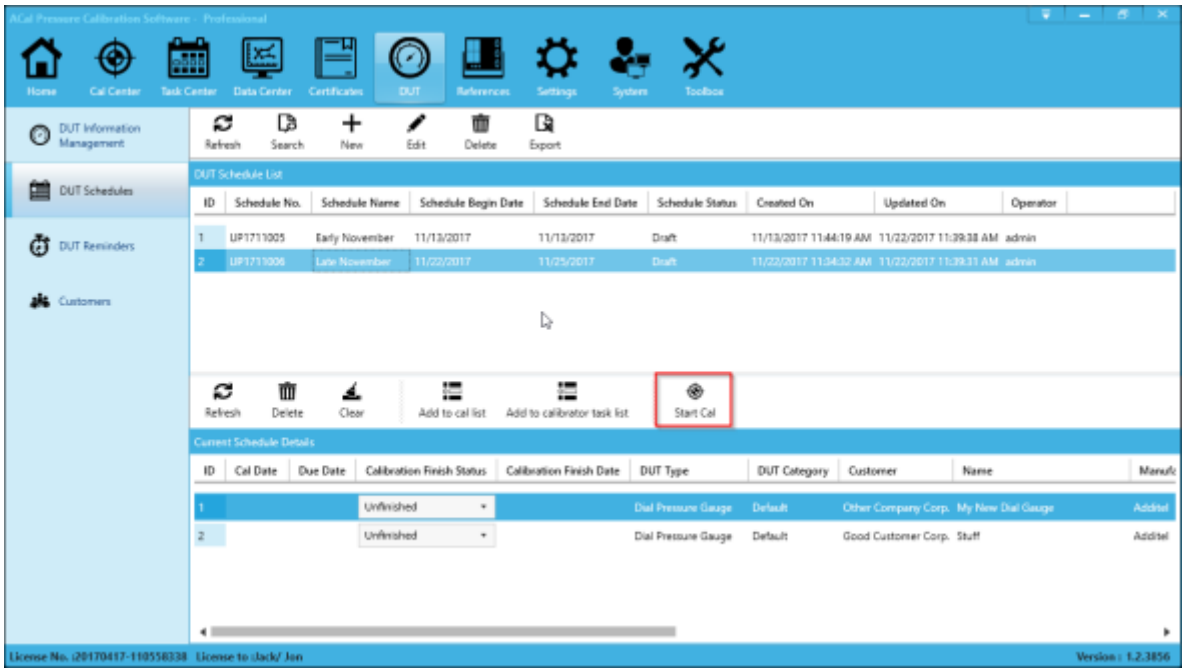
The New Schedule window will pop up. Enter the Name and Date Range, and any other information you wish to include. Once you are done, click OK.



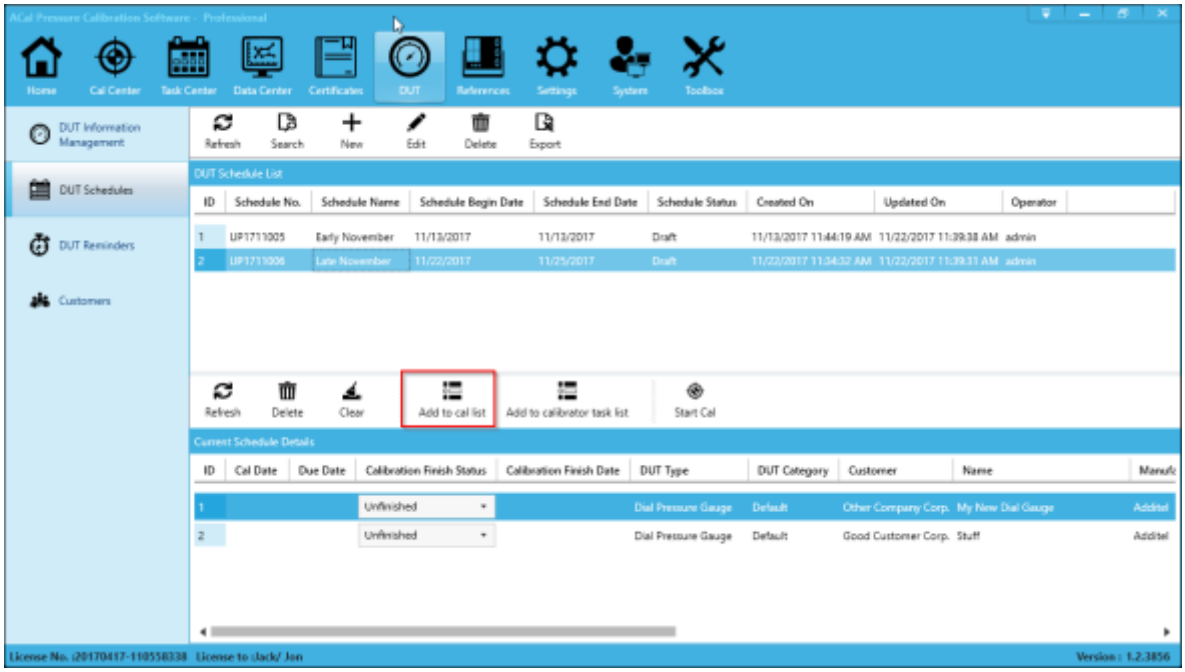
5.3.2 Using DUT Schedules

Similar to DUT Reminders, you can perform a set of actions on the DUTs in a Schedule.

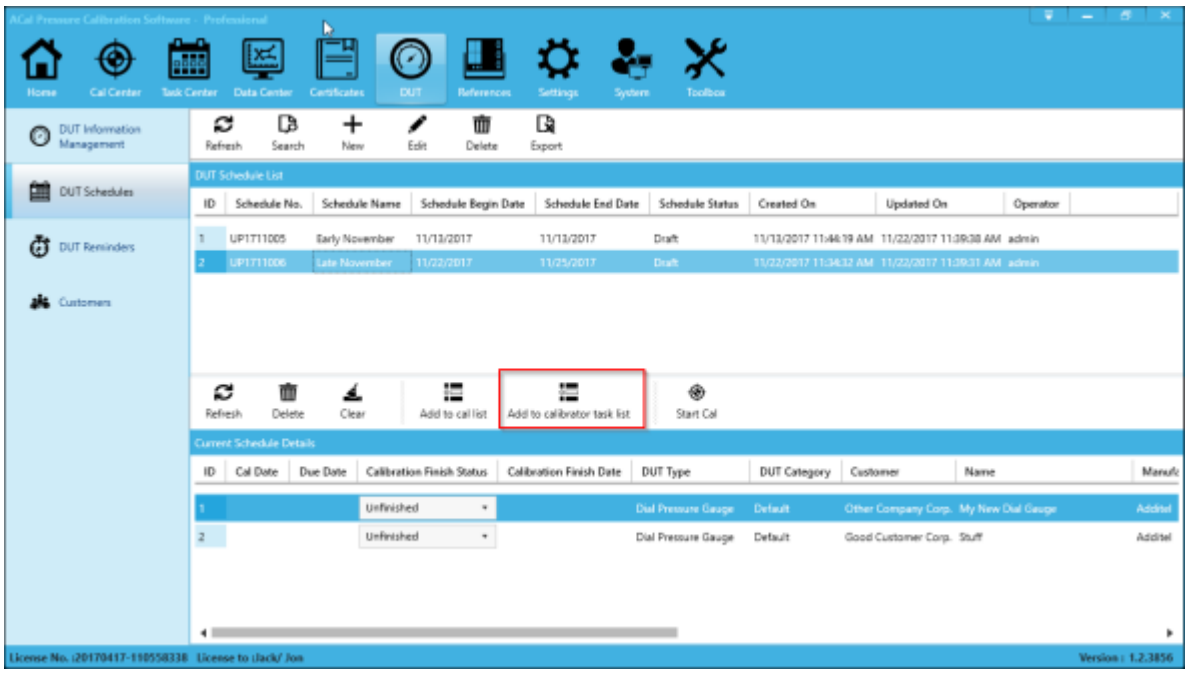
If you wish to start a calibration for the unit now, click Start Cal.



If you wish to start a calibration for the unit in the near future, add it to the 'To Cal' list, which is similar to a 'To Do' list. You can access the list at a later time, when you are ready to perform those calibrations.

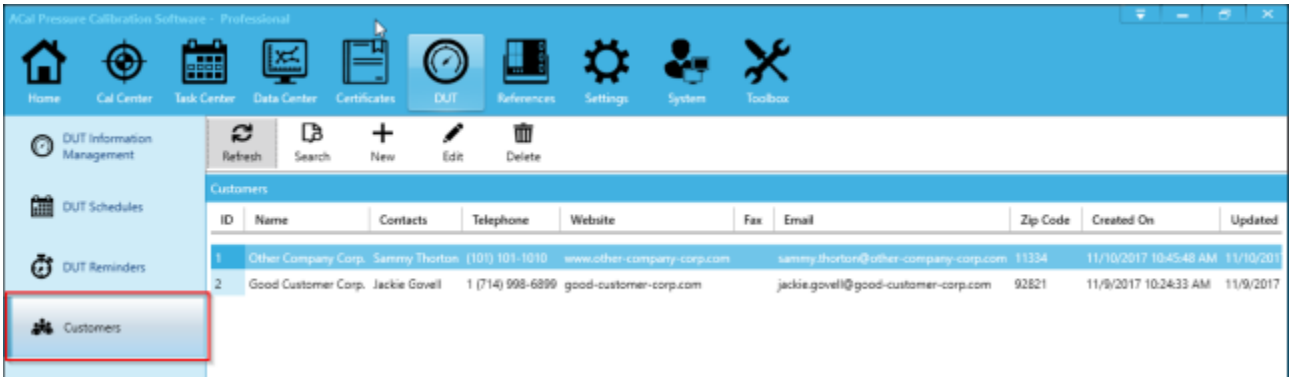


If you wish to export the unit to be calibrated on an Additel 760 or 761, click ‘Add to Calibrator Task List’. Later on, in the Task Center, you’ll be able to export the DUT to the portable calibrator.



5.4 Customers

ACal can store information about your customers and associate them with DUTs that you calibrate. When you create a new DUT, you are given the option to either associate it with an Existing Customer or add it to a New Customer. You can then manage that Customer through the Customer Tab.

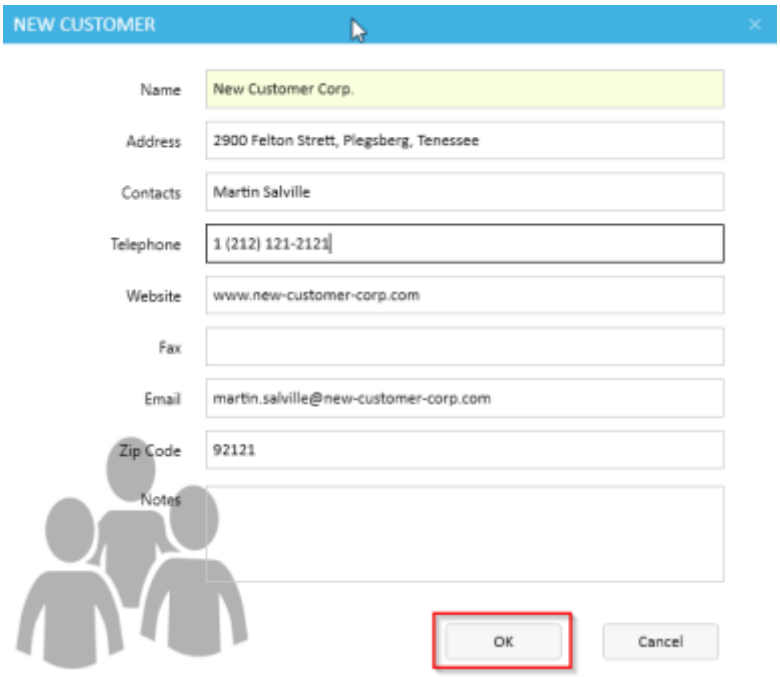


5.4.1 Creating New Customers

To create a new customer, click New.

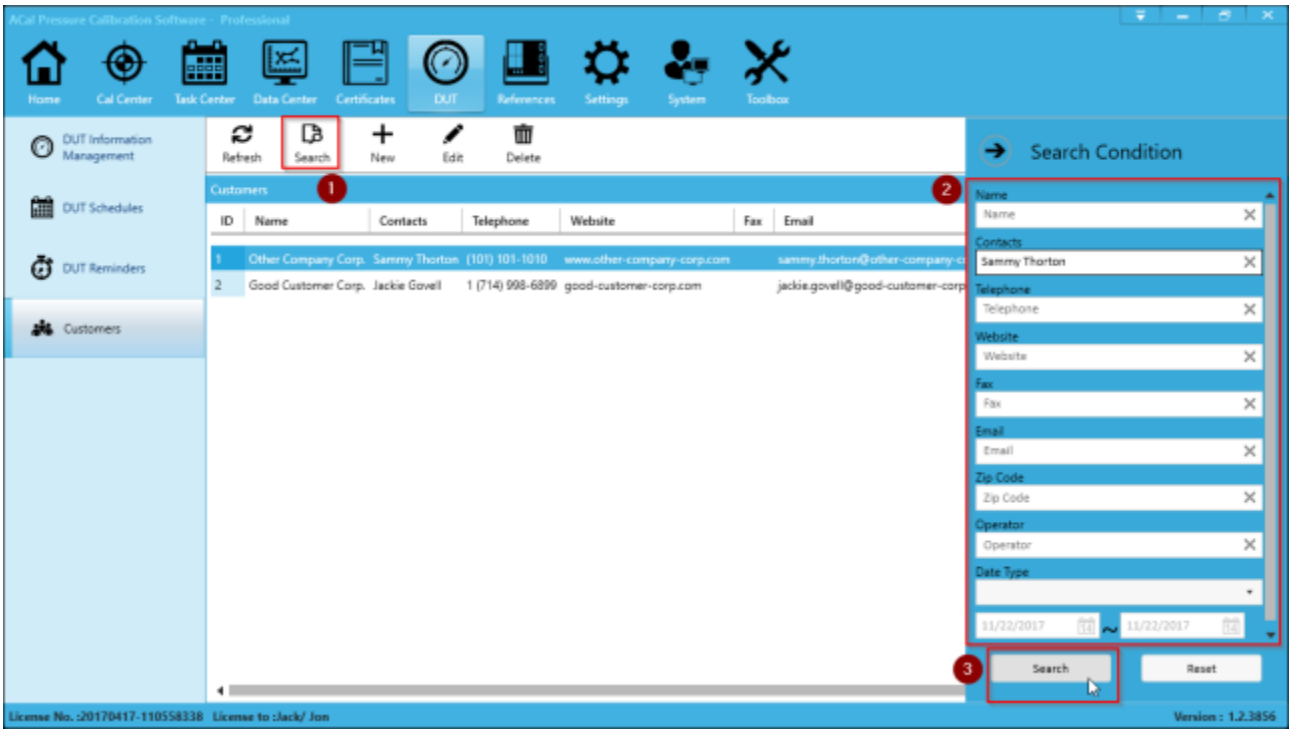


Fill in the information you need, and then click OK.

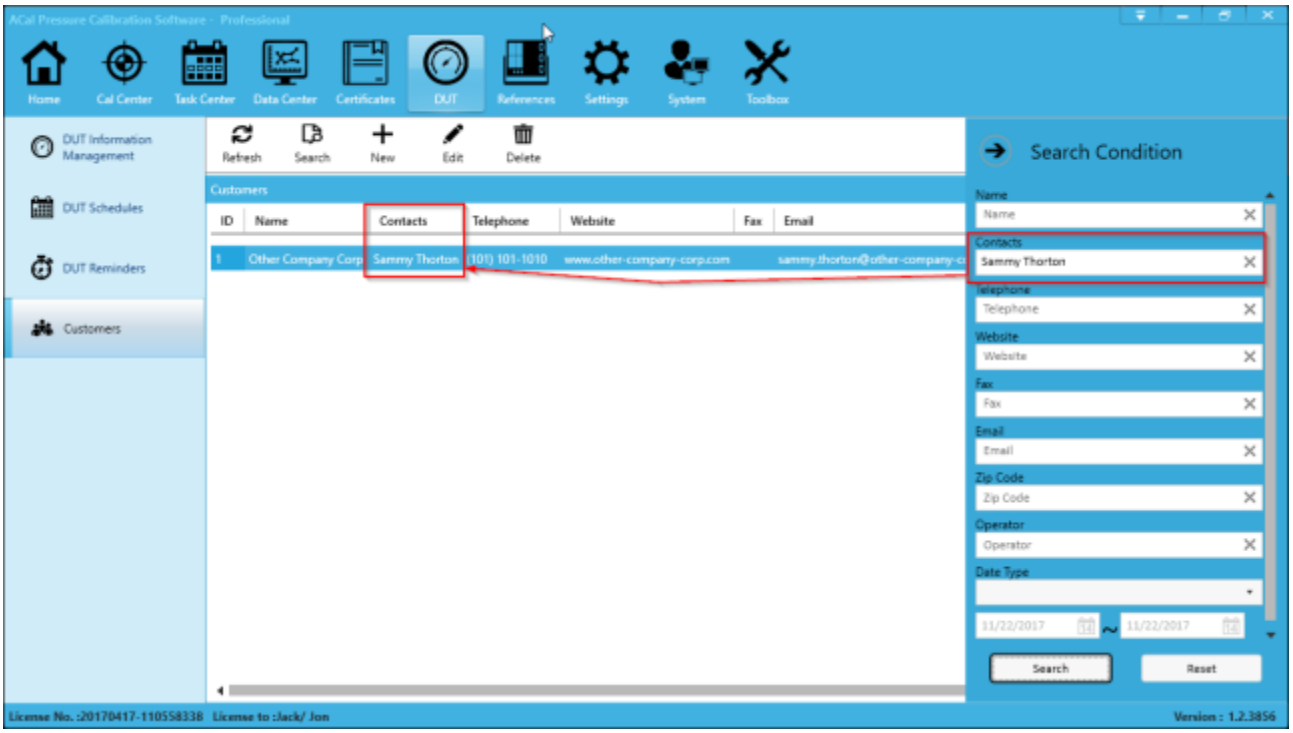


5.4.1 Searching Your Customers

To search your Customers, start by pressing Search. A Blue bar will appear to the right allowing you to type in search conditions. Once you are finished typing in the conditions, click Search.

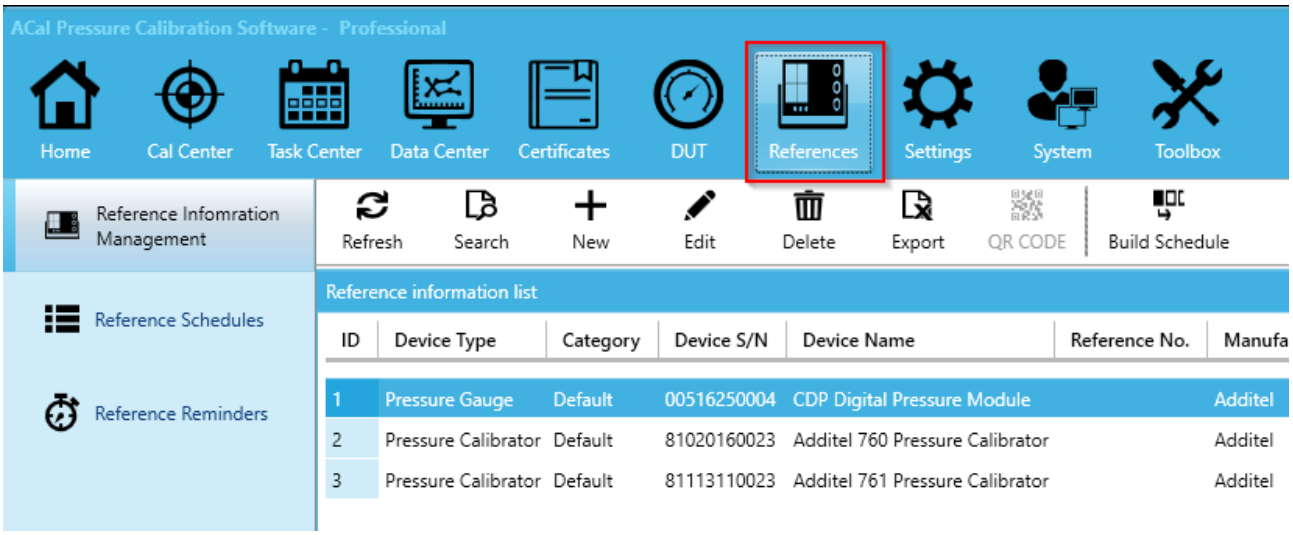


The list in the center of the screen will be filtered according to your search.



Chapter 6 References

ACal provides a way for you to easily manage your references by setting calibration reminders so you can ensure they are always ready to be used in your calibrations.



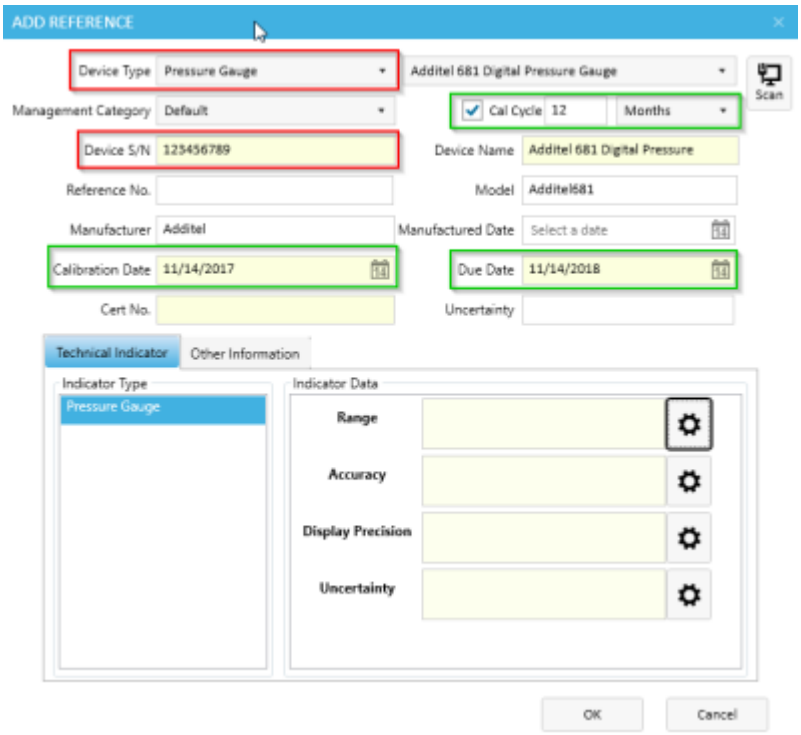
6.1 Reference Management

6.1.1 Creating or Editing a Reference.

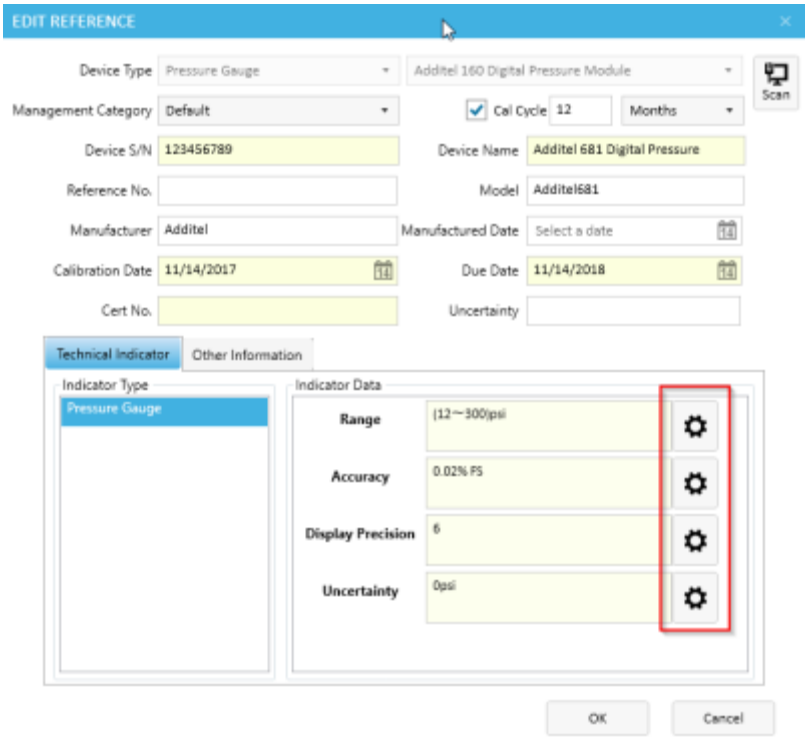
To create or edit a Reference, start by clicking the Reference Information Management tab and then click New (or Edit).



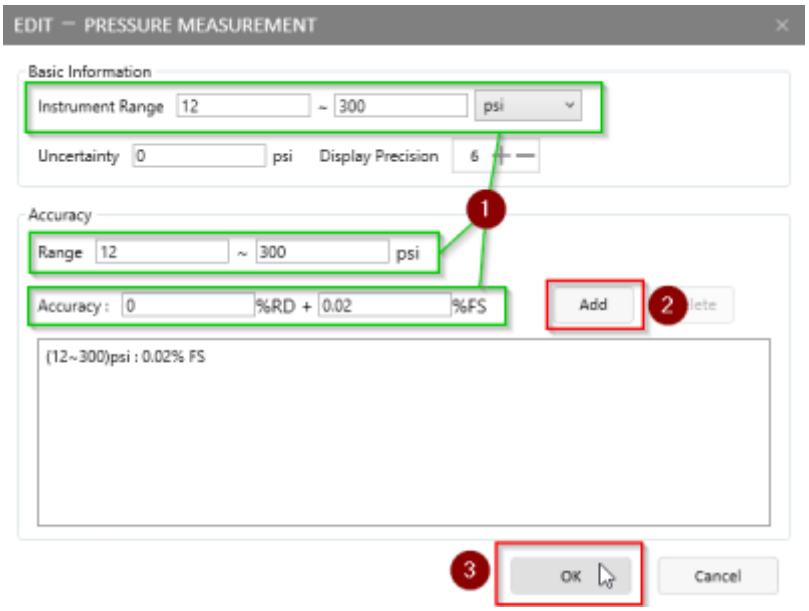
Select the Device type and enter in the Serial Number. You may also want to add a calibration date and set a cal cycle and due date. This will allow ACal to remind you when a unit that you have needs to be calibrated.



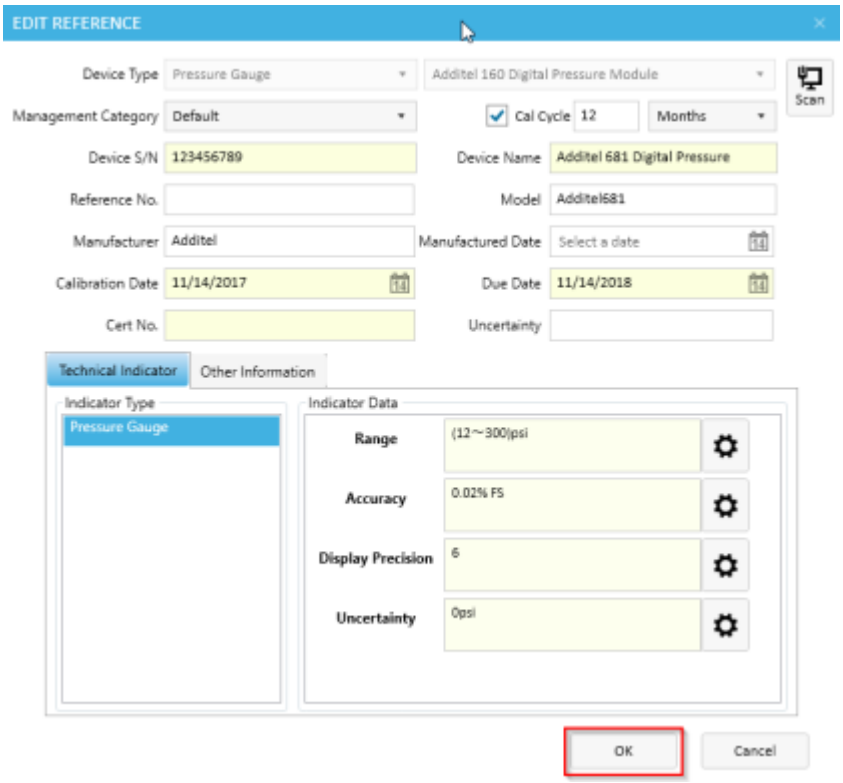
You will also need to add range and accuracy information. You can do so by clicking the gear icon next to any of the below four fields.



From there, enter in the instrument range and accuracy. Click Add to apply that specification to the unit (certain unit, such as ADT761s may have multiple specifications). Finally, click OK.

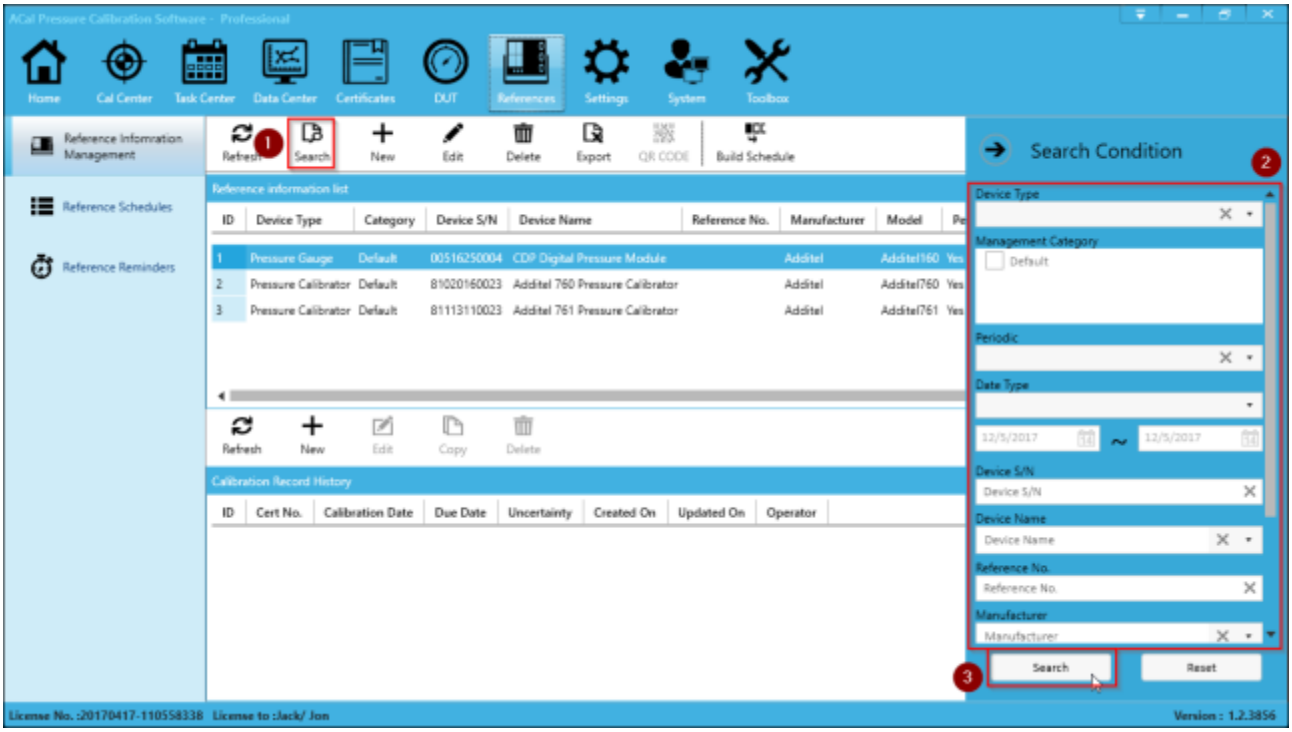


Once you are finished entering in all information you desired to for the unit, click OK to create the unit in ACal.



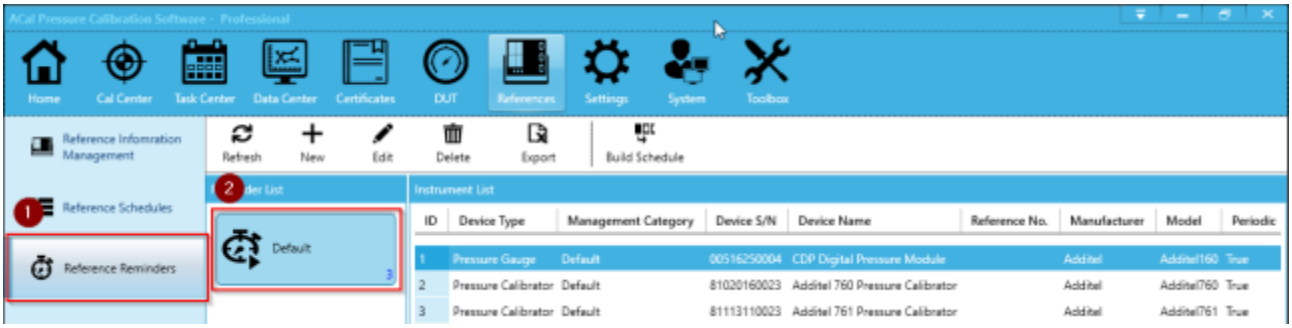
6.1.2 Searching for References

In addition to creating References, ACal provides a way for you to search for them. You can do this by clicking the Search button, entering in your criteria, and then clicking Search. The data in the center table will show the search results.

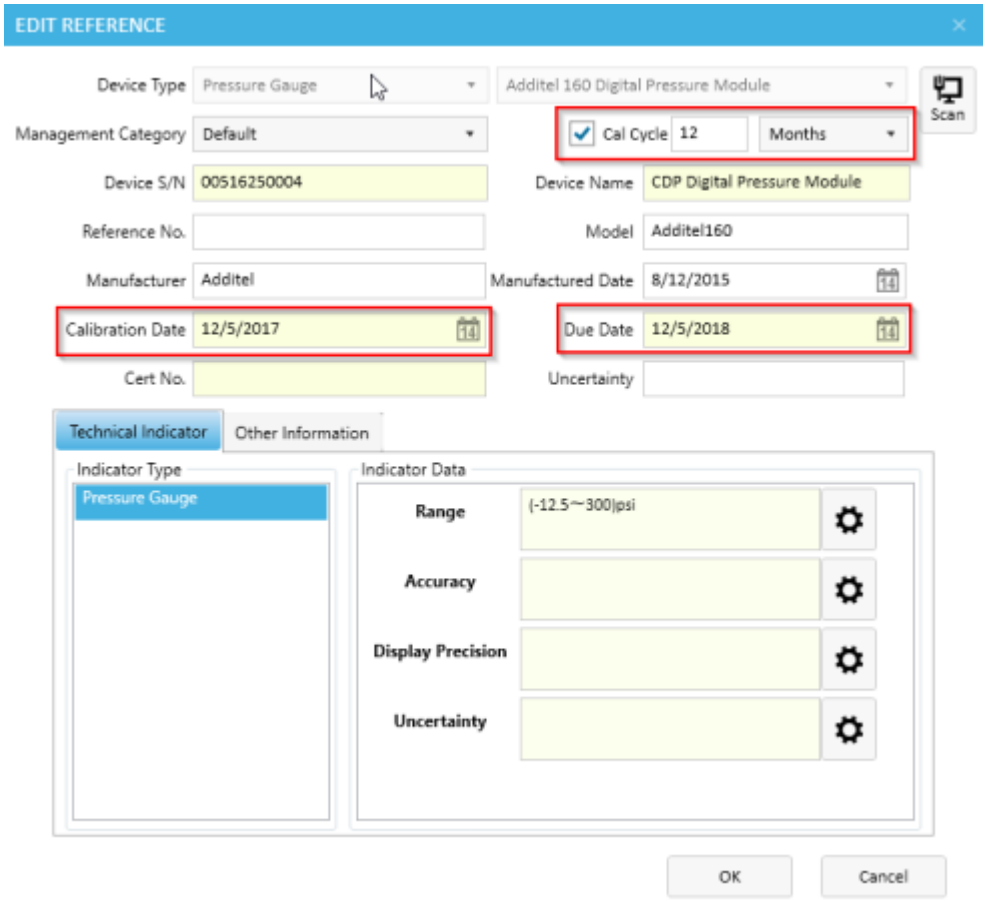


6.2 Reference Reminders

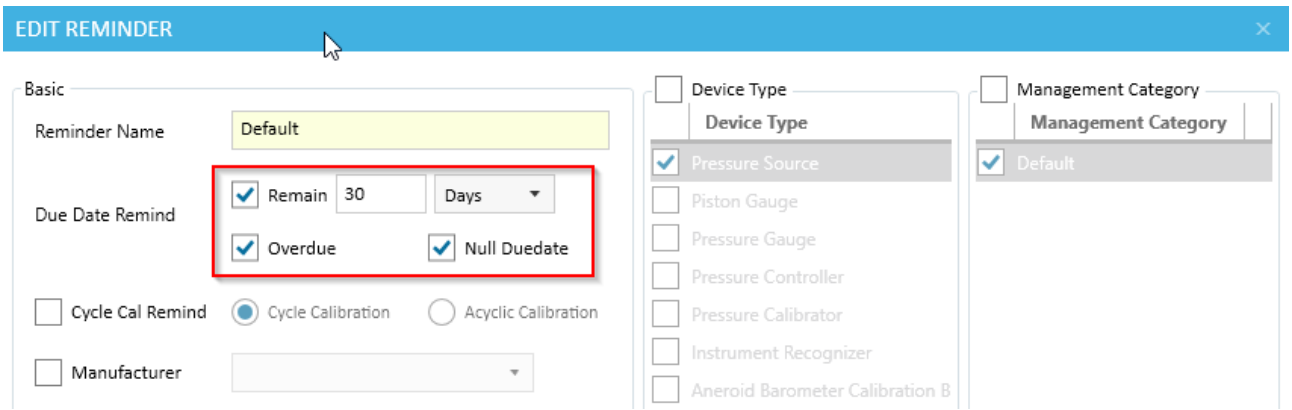
Reference Reminders help you by notifying you when a unit needs to be recalibrated. They can remind you a month ahead of when a unit needs to be calibrated, or let you know that certain of your references are past due.

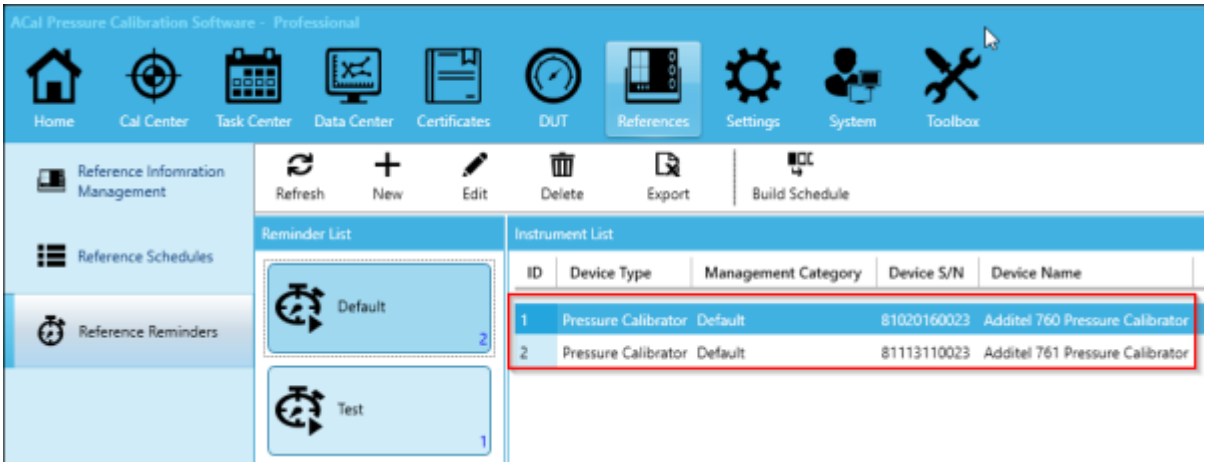


Reference Reminders work based off of the calibration fields each reference has. When you create or edit a reference, you have an option to set a Calibration Date, Cycle Period, and a Due Date.



As an example, ACal comes with a 'Default' reminder. It is set to display a list of gauges that are due within 30 days, are past due, or don't have a due date. All of your references are filtered according to that criteria, and the ones that match are displayed on the 'Default' reminder list.



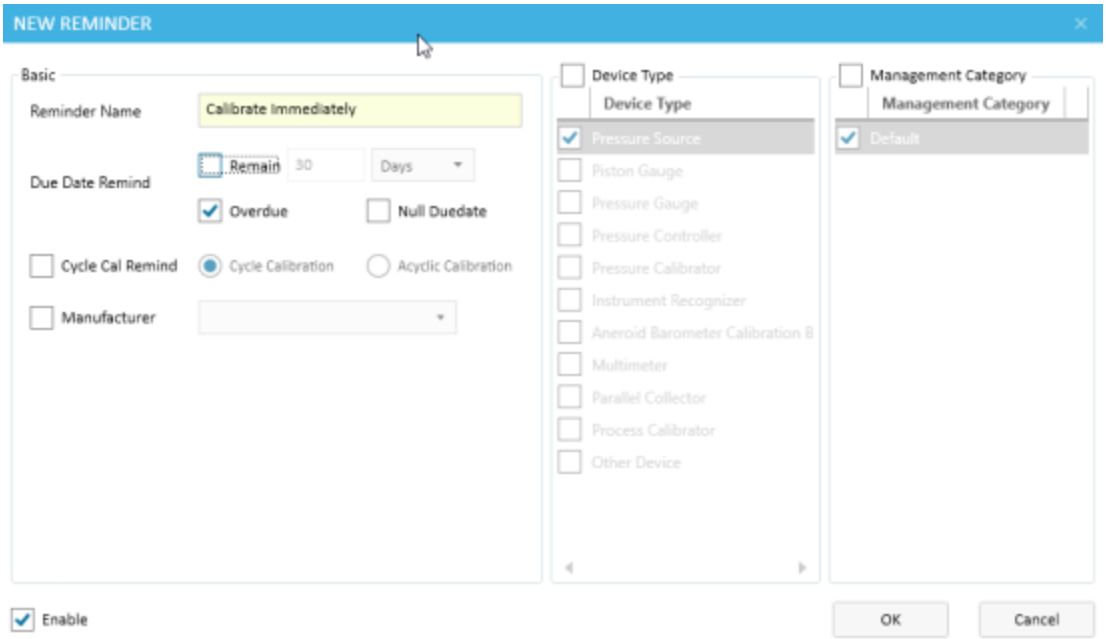


6.2.1 Creating a Reference Reminder

You can create your own custom reminders by clicking New (or edit existing ones by clicking Edit).



Name the reminder and select one (or more) conditions as filters for the references. Then click OK.

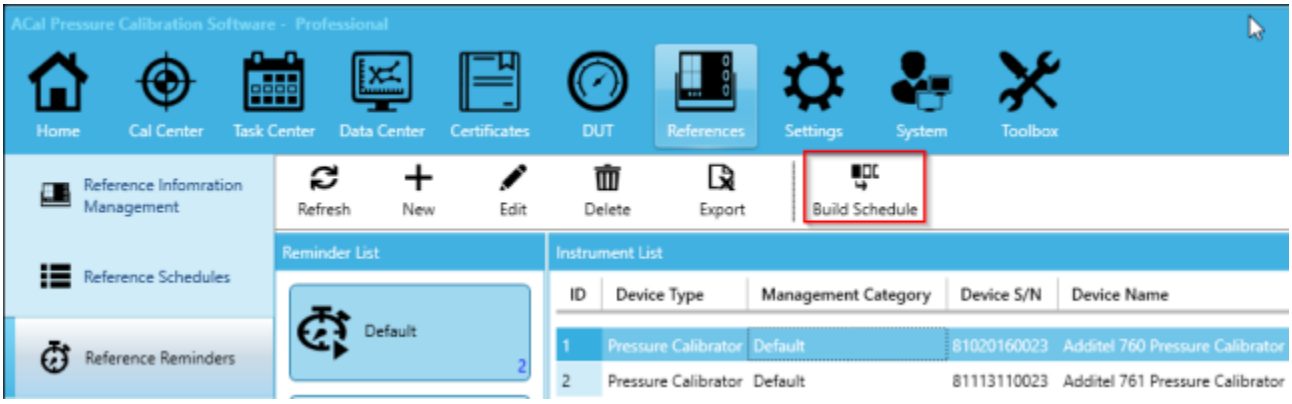


6.2.2 Using Reference Reminders

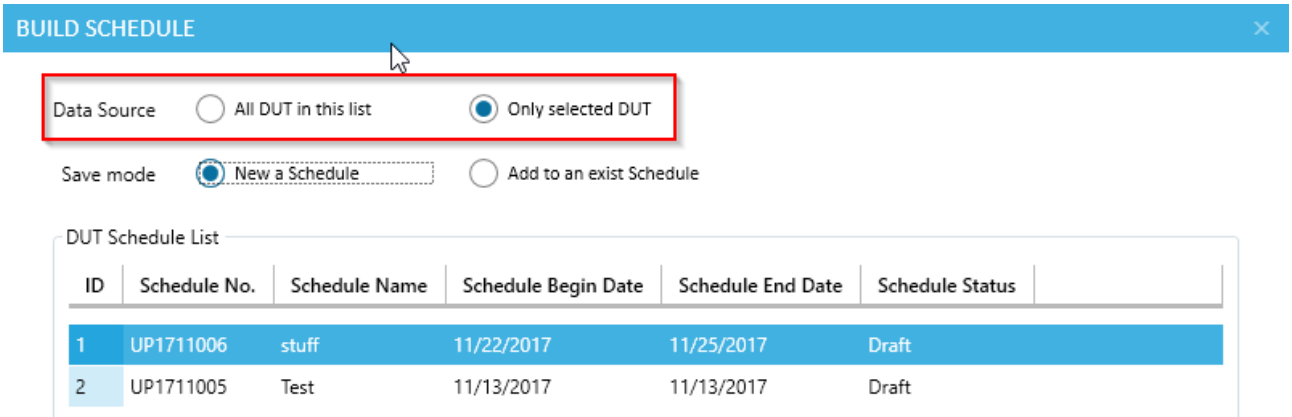
Just like DUT reminders, Reference Reminders give you a filtered list of units which meet their conditions. From there, you can do a few things to specify what you want done with those units. The choice you have for references is a bit more limited than it is for DUTS. This is because the calibration of references should be planned in advance.

You can do this advanced planning by using a Reference Schedule. Reference Schedules hold a list of References which you wish to be calibrated over a specific period of time. This allows you to better manage when your references will be away so they don't interrupt the flow of your calibrations.

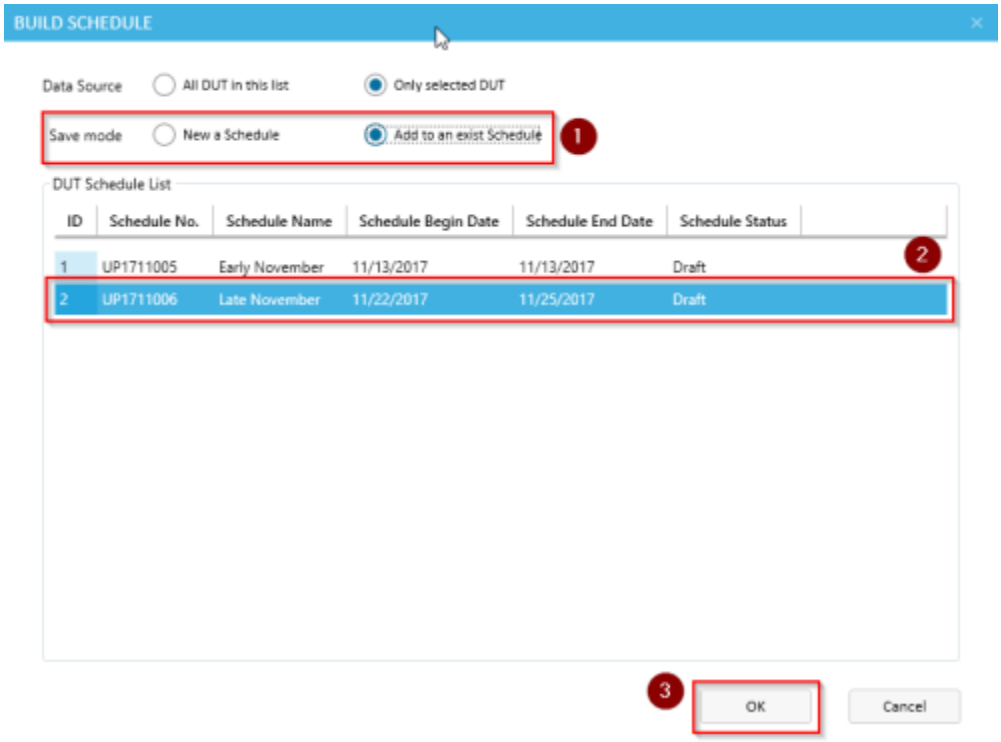
Click the 'Build Schedule button' to add a unit to a New or Existing schedule.



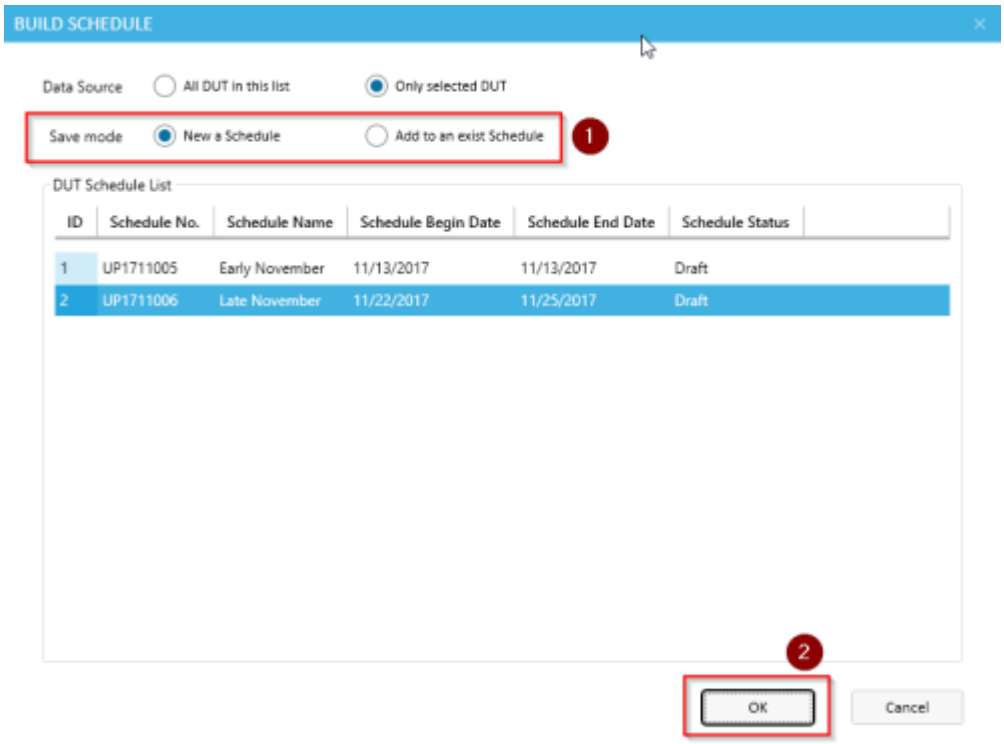
When you do so, a new window will appear. First choose whether you want to add all the references in the reminder list or only the currently selected reference to a Schedule.



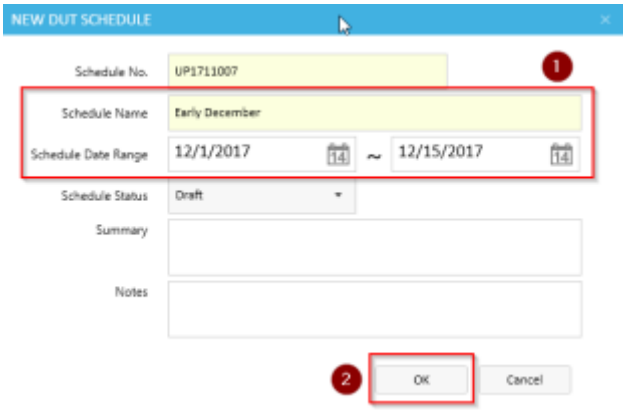
Next, select whether you want to add the unit to a New or Existing schedule. If you decide to add to an Existing Schedule, select the Schedule you want to add the reference to in the list below. Then click OK.



If, on the other hand, you'd like to add the reference to a New Schedule, select that option and click OK.



Once you do so, the New Schedule window will pop up, allowing you to enter information about the schedule you wish to create. The Name and Date Range are particularly important, but you can also include notes if you would like. Once you are done, click OK.



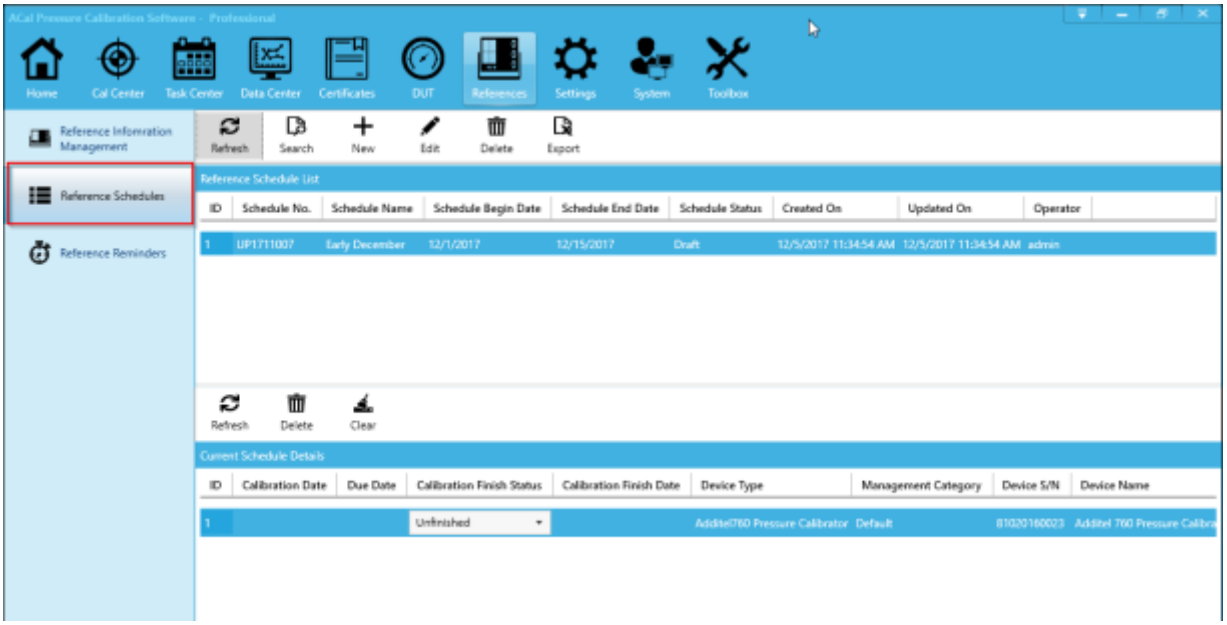
You can learn more about Reference Schedules in the next section.

6.3 Reference Schedules

Schedules, as mentioned earlier, allow you to assign a date range when you wish to calibrate a set of references. It isn't meant to take the place of a unit's Calibration Due Date. Instead, Schedules allow you to budget time slots for a set of calibrations.

For instance, let's say you have schedules set up for every month. You have three references you use for calibration, which all need to be calibrated themselves. You can schedule two of them to be calibrated this month, and the last one to be calibrated the month after.

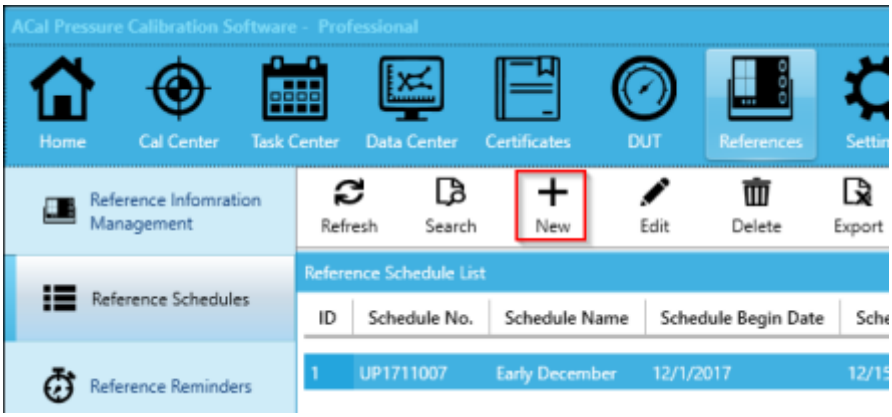
Setting up schedules will make it easier for you to plan when references should be calibrated.



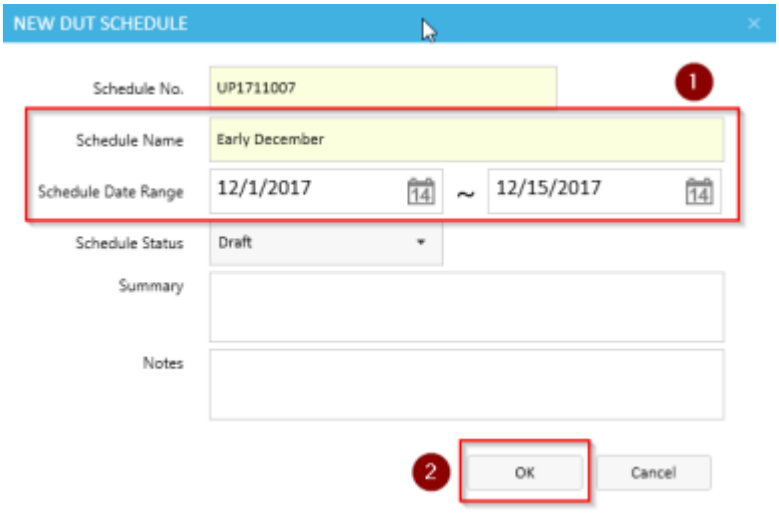
If you take a look at the image above, you'll notice two lists. In the upper list, you will see a list of existing schedules. Click on one to select it. In the lower list, you'll see the references that have been assigned to that schedule, and the status of their calibration.

6.3.1 Creating a Reference Schedule

To create a New Reference Schedule, click New (or to Edit an existing one, click Edit).

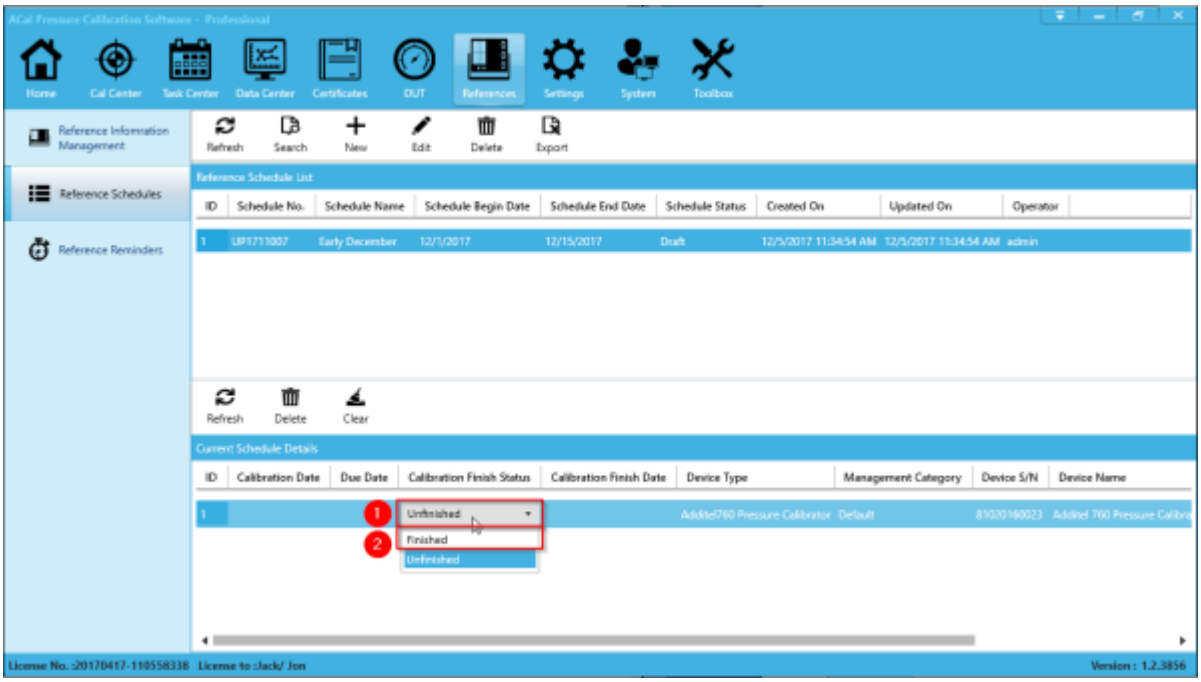


The New Schedule window will pop up. Enter the Name and Date Range, and any other information you wish to include. Once you are done, click OK.

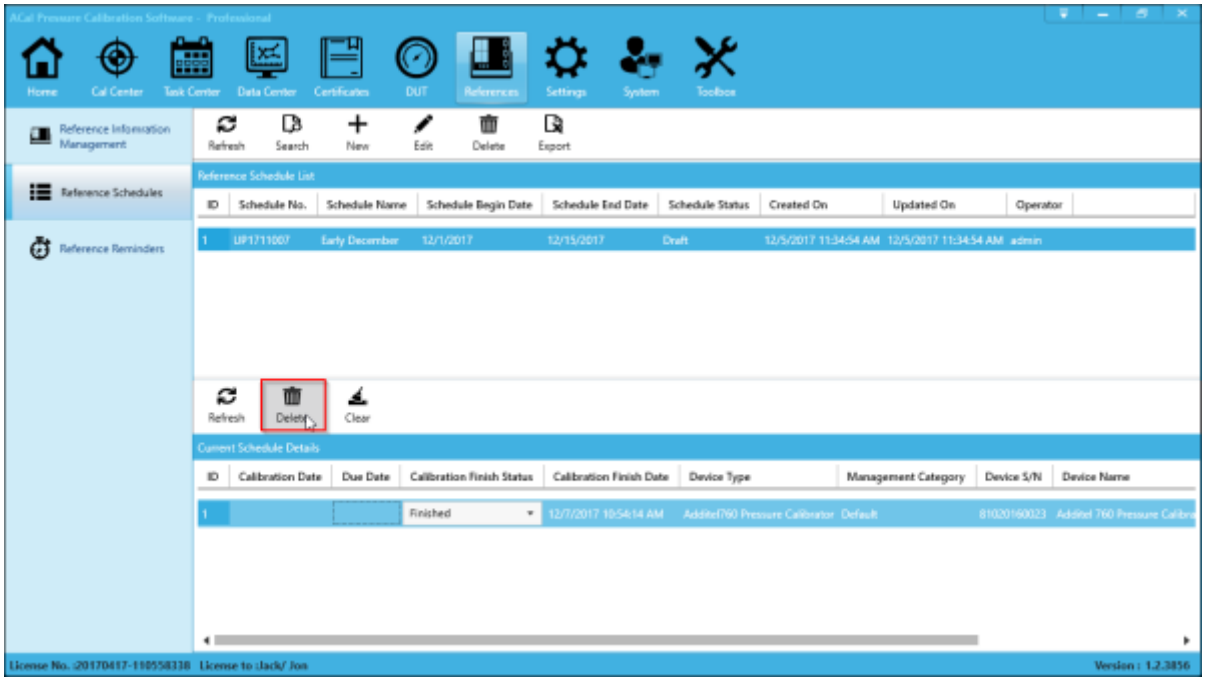


6.3.2 Using Reference Schedules

At some point, you will send out your reference for calibration. Once the reference has returned, you can mark the calibration as finished. You can do this by clicking Unfinished in the Calibration Finish Status column, and changing it to Finished.

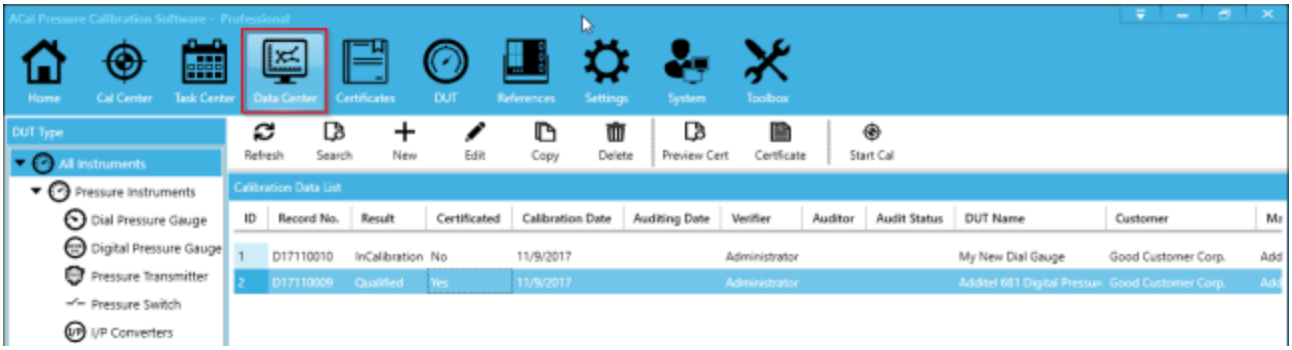


You can also delete the reference from the schedule if you so desire.



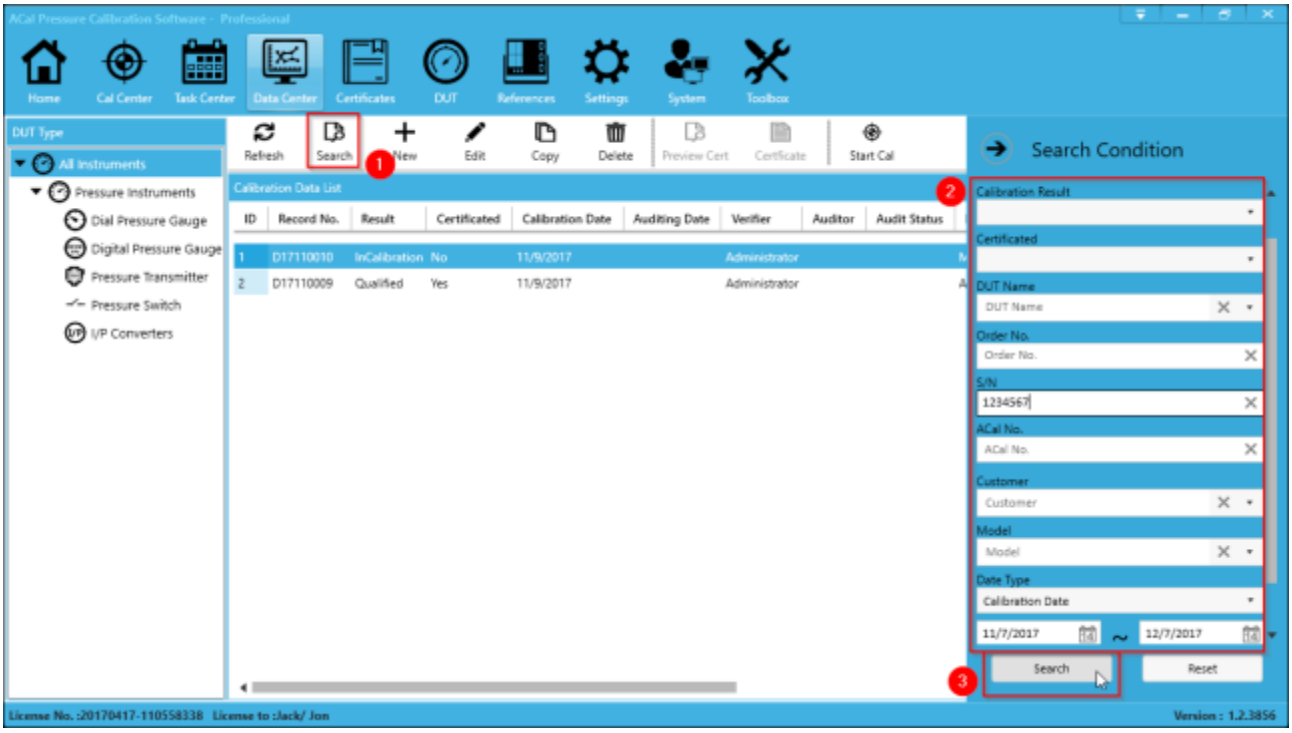
Chapter 8 Data Center

The Data Center stores all of the data from your calibrations, and allows you to easily manage and search through it. In addition, the data center allows you to generate certificates for the data that you have collected. You can reach the Data Center by clicking the Data Center tab at the top of the screen.



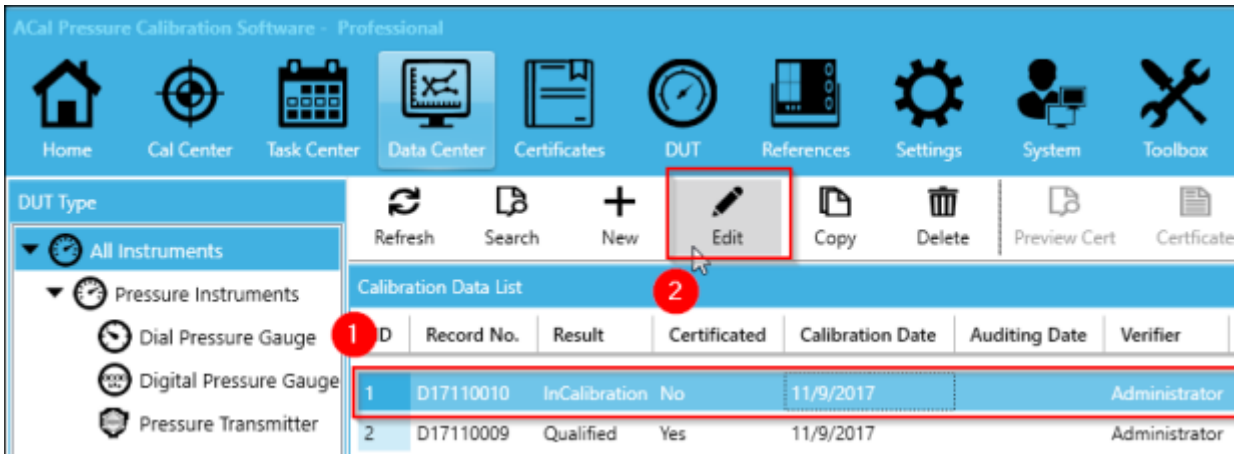
8.1 Searching for Calibration Data

ACal provides a way for you to search for specific data records. To do so, click the Search button and a popup panel will appear. Enter your Search Conditions and click Search. The calibration data that appears will be filtered according to the criteria you gave.

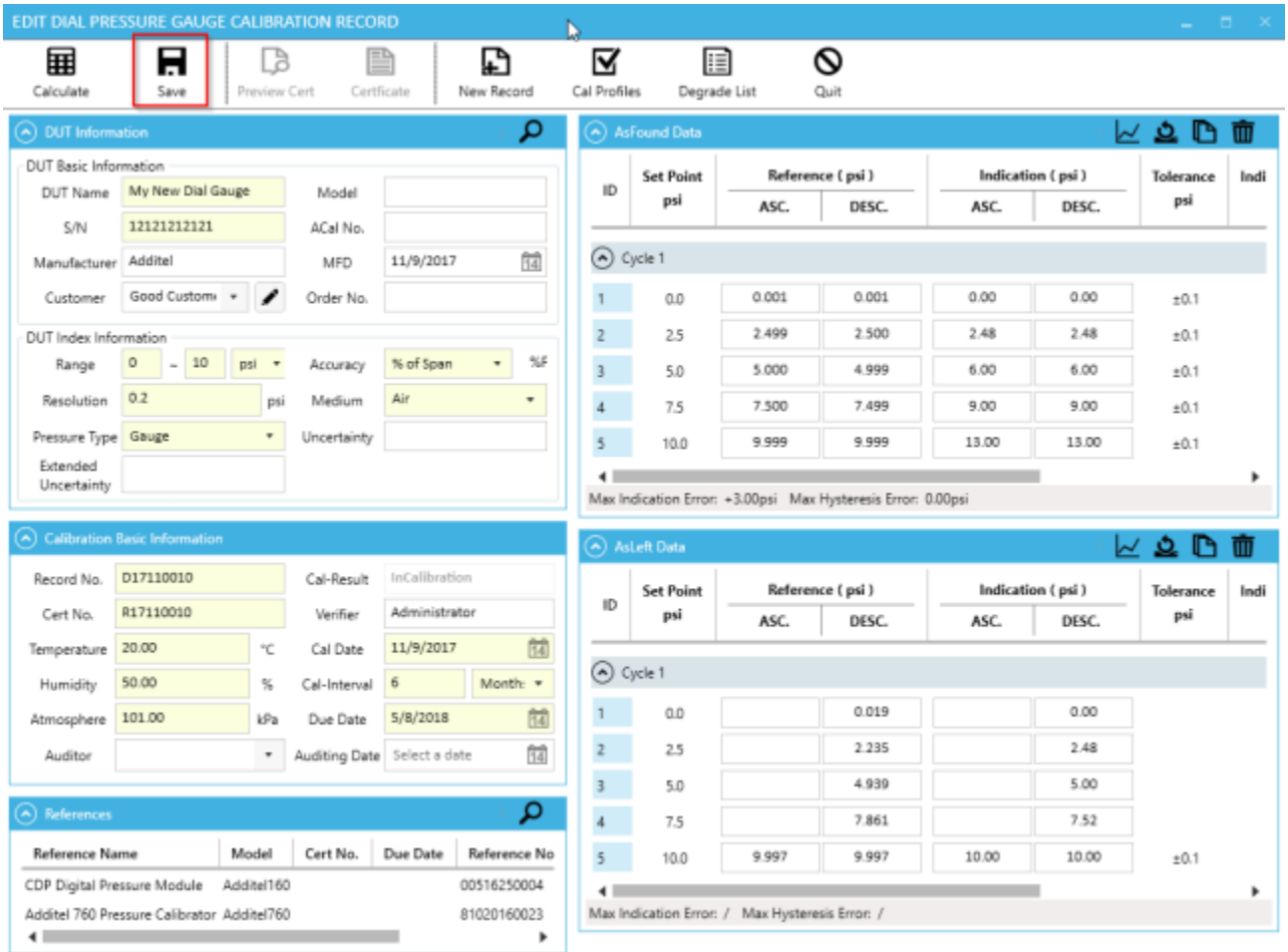


8.2 Editing Calibration Data

Occasionally, you may need to go back and edit data you have recorded from a calibration. To do so, select a data record and click Edit.

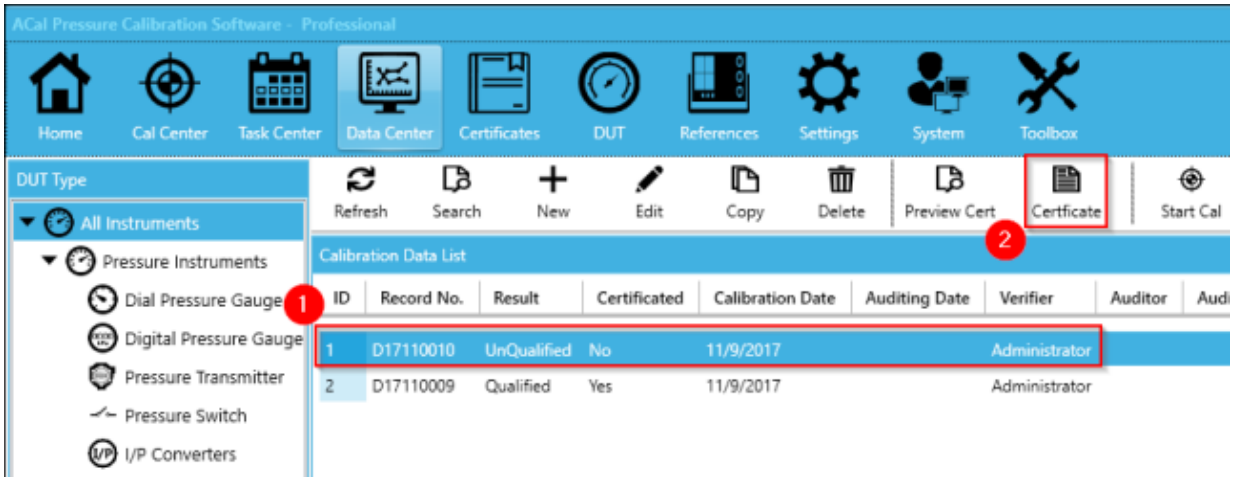


From there, you can edit any of the calibration data you previously recorded. Once you are done, click Save and the record will be changed.



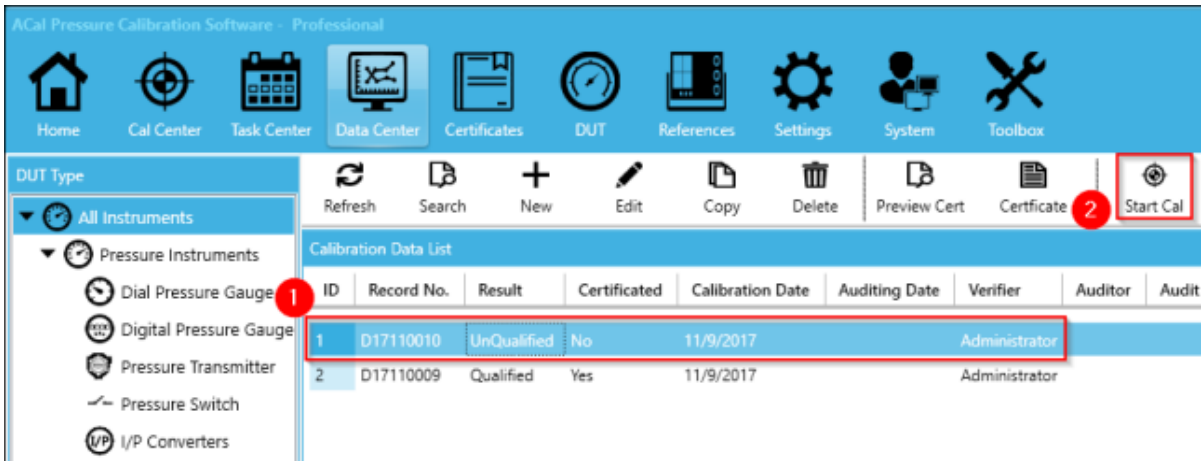
8.3 Generating Certificates

If the calibration data is ready to be put on a certificate, you can generate one by selecting a line and clicking Certificate. Please keep in mind that certificates cannot be edited (but they can be deleted).



8.4 Continuing or Re-Performing Calibrations

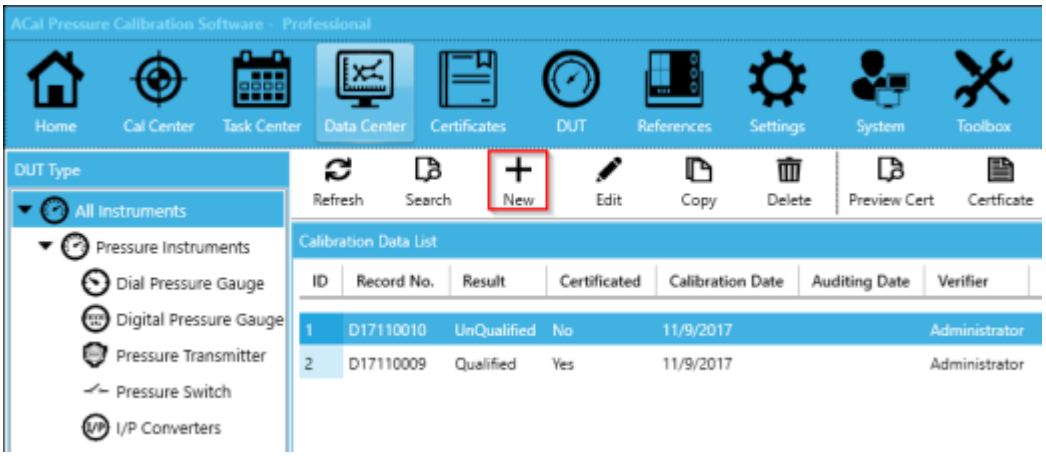
If you have calibration data that only contains as-found data, or you wish to re-perform an as-left calibration, you can do so by selecting on the data record and clicking Start Cal. This will bring you to the main calibration screen as discussed in Chapter 4.



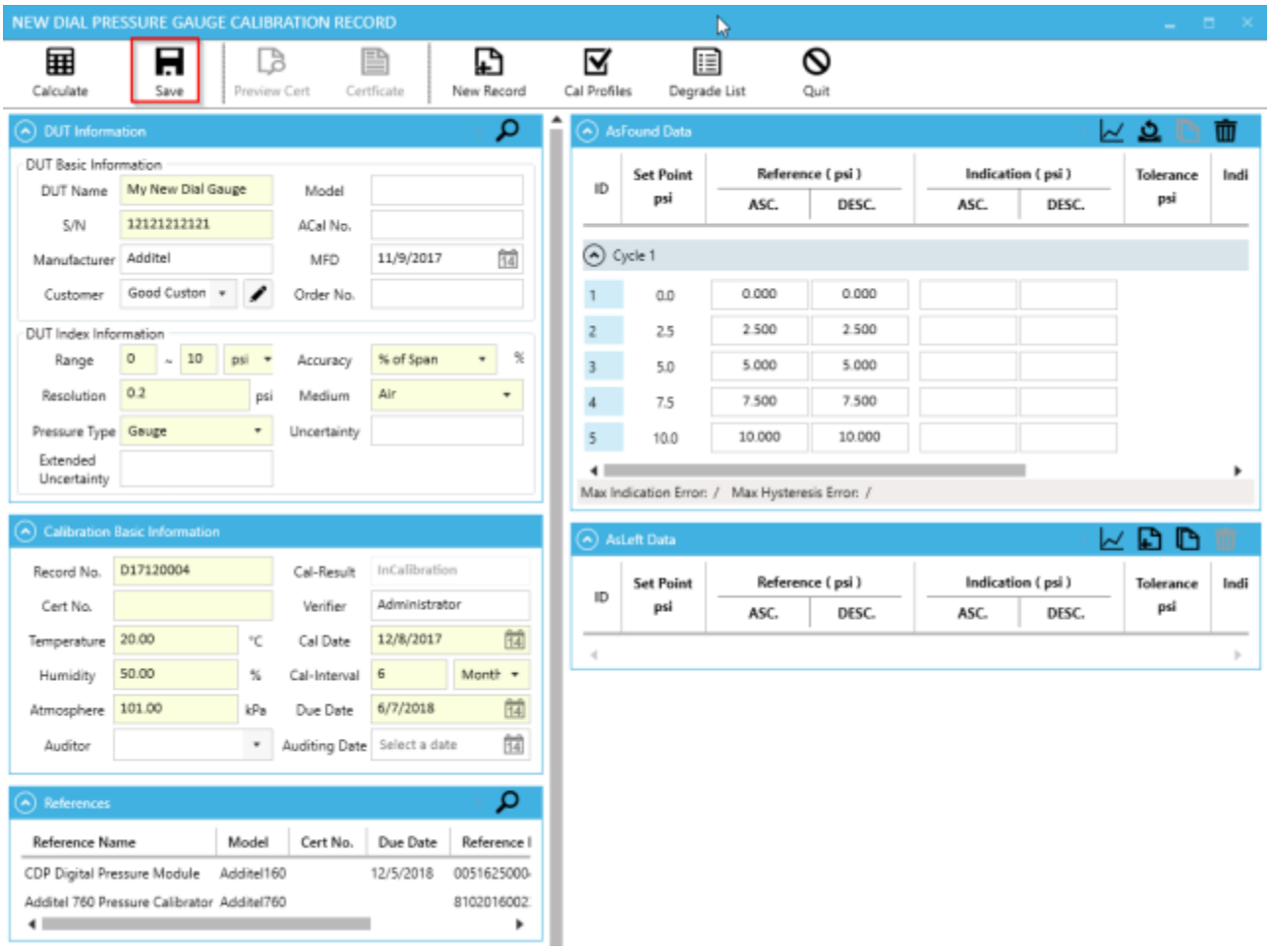
8.5 Adding External Data

Normally Calibration Data is generated directly in ACal. Sometimes though, you will want to enter in calibration data that was not recorded by ACal. ACal provides a way for you to do this. (If you are looking to mass migrate data from Additel Cal, please see the chapter on the Toolbox tab instead).

To start entering in an external calibration, click New.

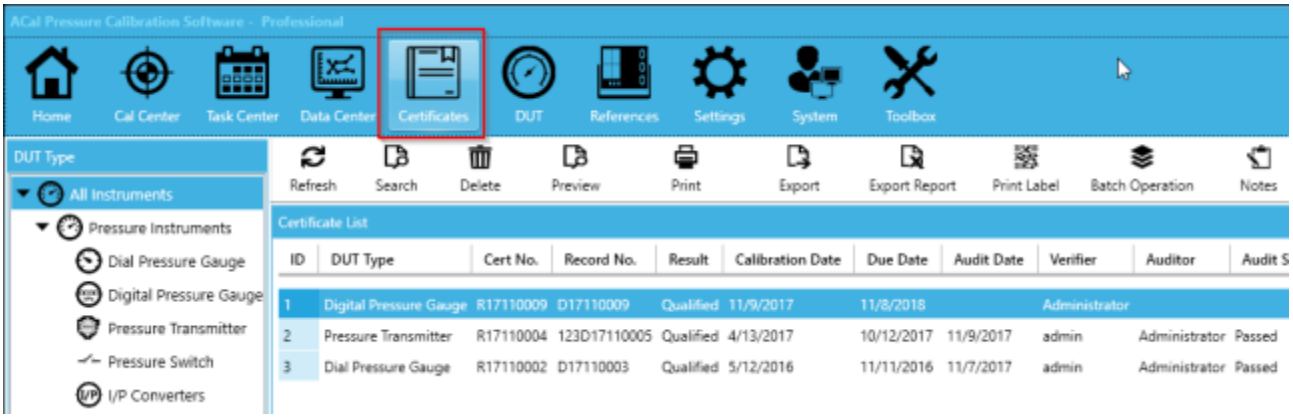


Fill out the information about the external calibration. Make sure to fill in the DUT, Basic Calibration Information, References, and AsFound Data. If you have AsLeft Data as well, you can add that too. Once you are done, click Save.



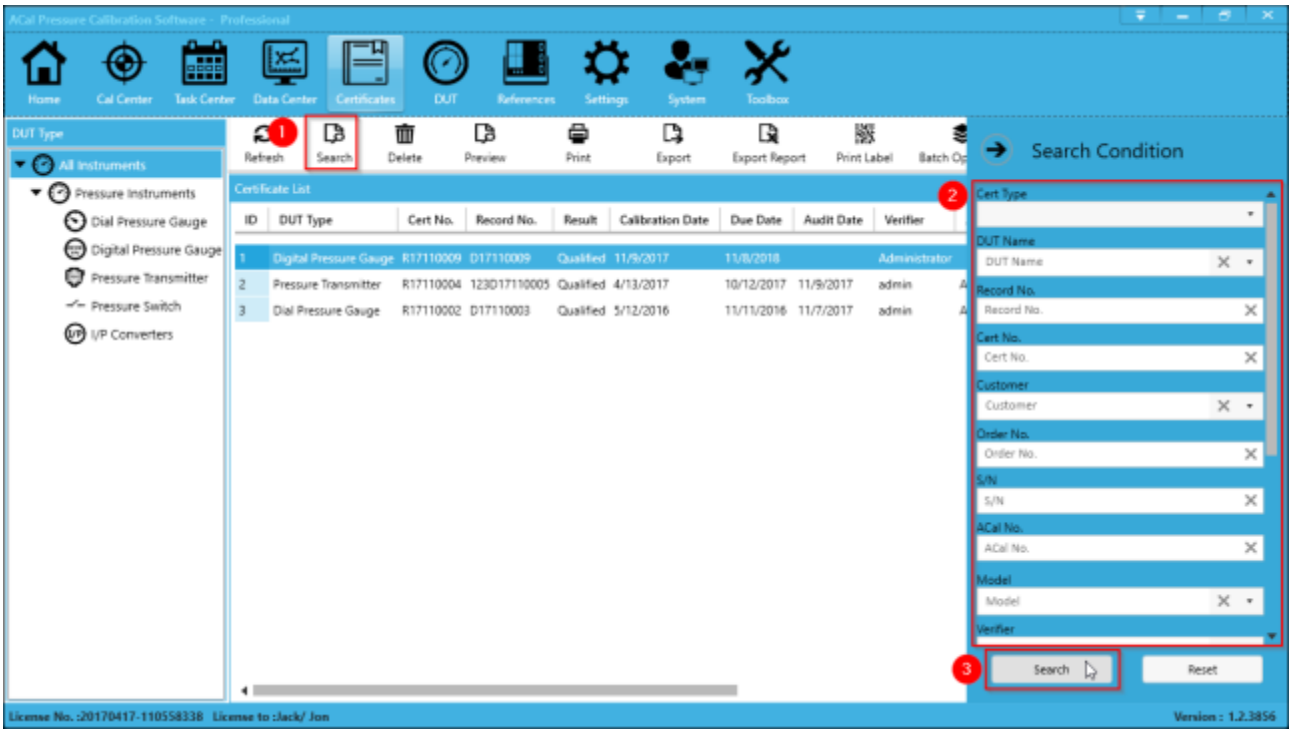
Chapter 9 Certificates

The Certificate Tab holds a list of all your certificates, and allows you to easily manage and search through them. In addition, it allows you to print or export them, either singly, or in a batch operation.



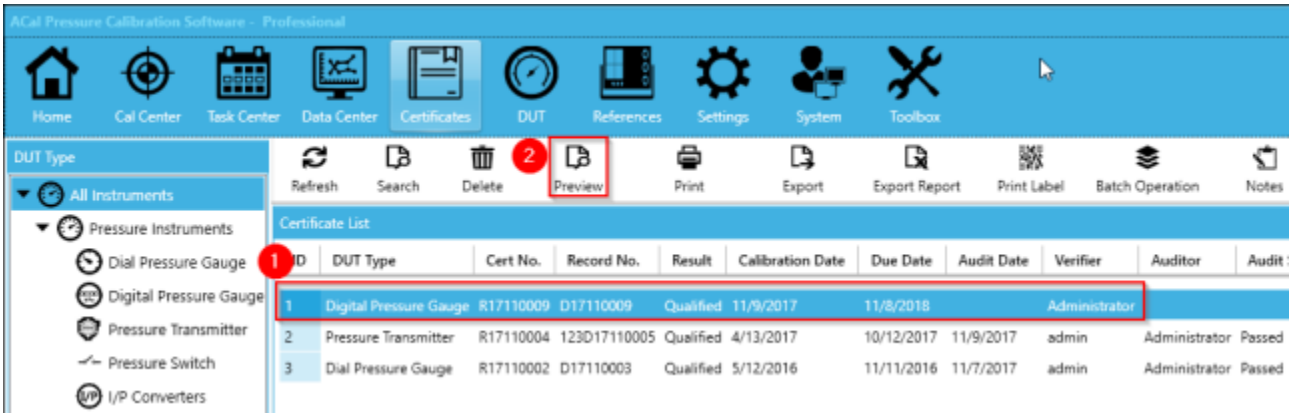
9.1 Searching for Calibration Data

ACal provides a way for you to search for specific certificates. To do so, click the Search button and a popup panel will appear. Enter your Search Conditions and click Search. The certificates that appear will be filtered according to the criteria you gave.

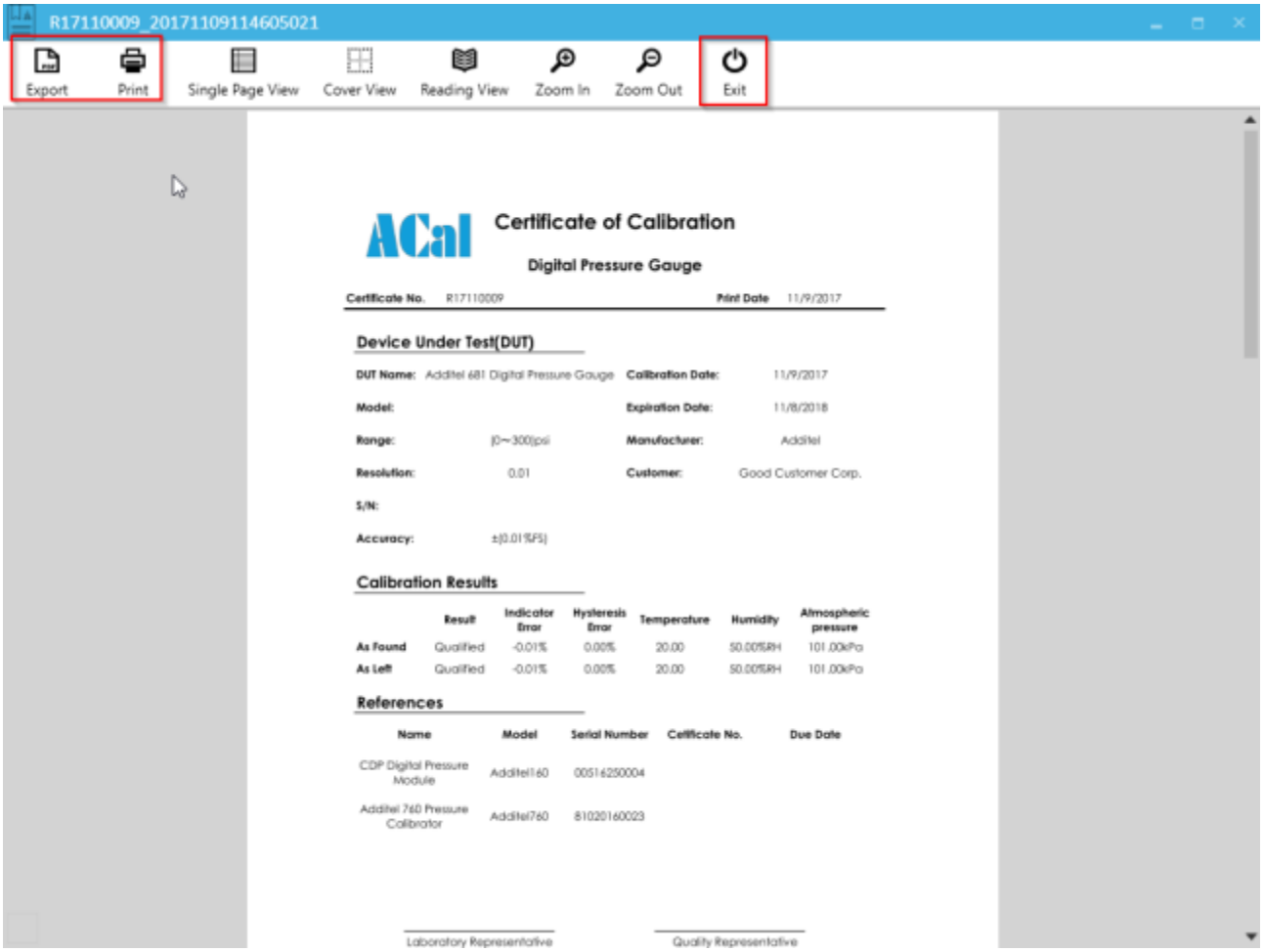


9.2 Viewing a Certificate

To view a certificate you have created, select the certificate and click Preview.

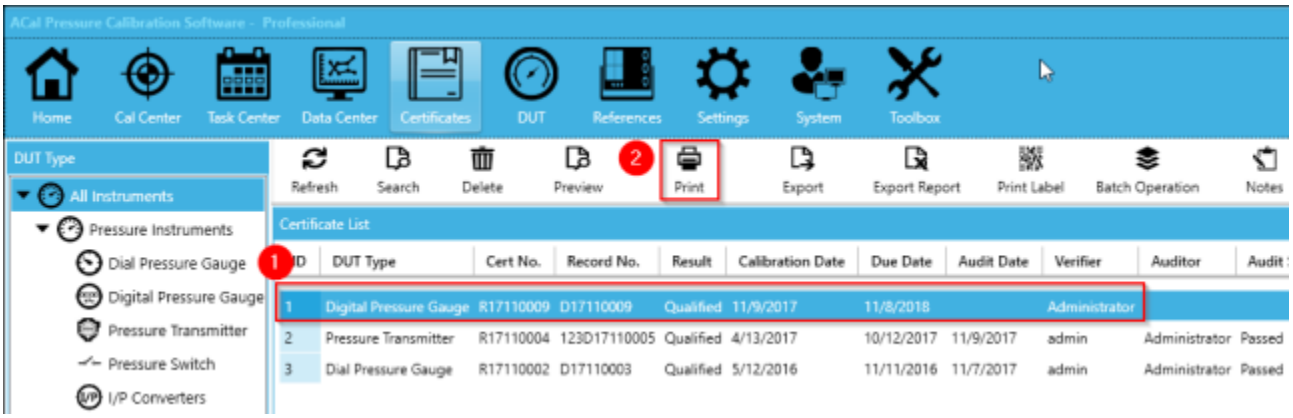


From there, you can see the Preview of the certificate, and choose to print or export it. Once you are done, click Exit.



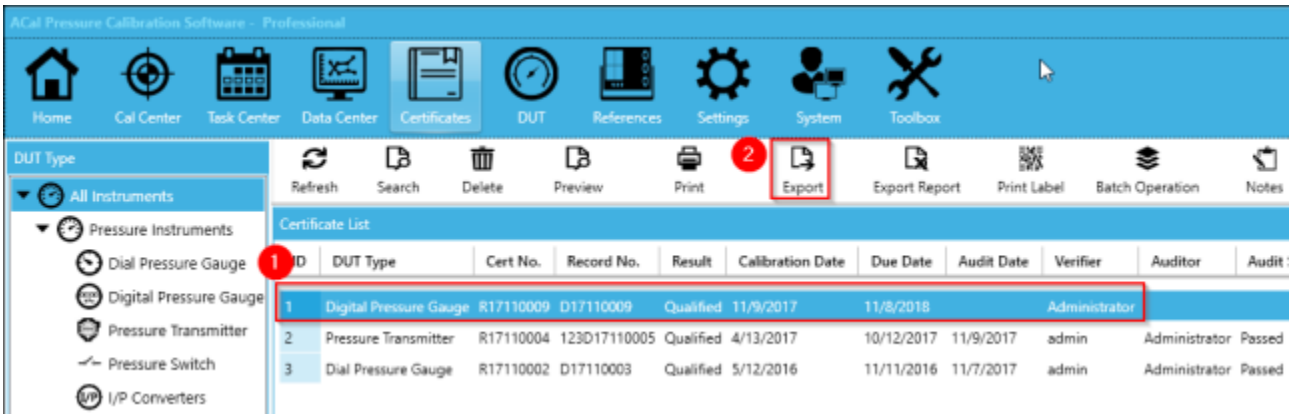
9.3 Printing a Certificate

To print a certificate you have created, select the certificate and click Print. This will print to your computer's default printer, and won't prompt you with any windows.

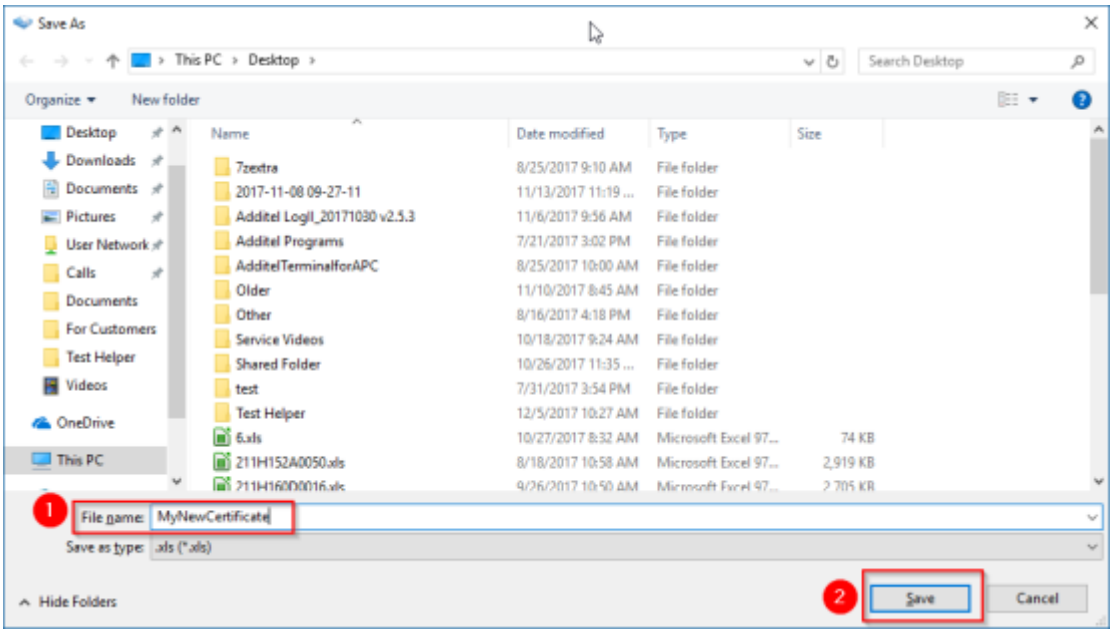


9.4 Exporting a Certificate

Sometimes rather than printing a certificate, you want an electronic copy. To export a certificate you have created to an Excel File, select the certificate and click Export.

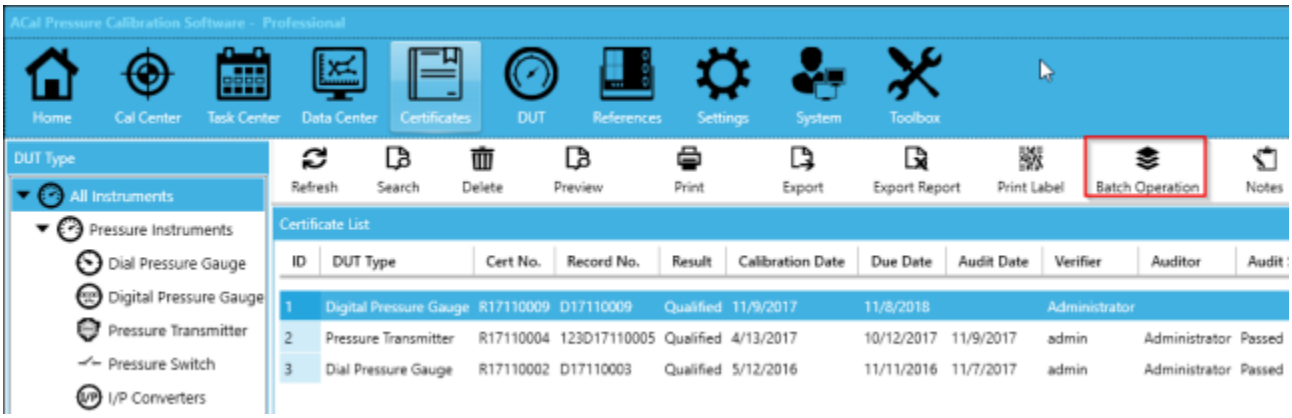


You will be prompted with a window asking you where you wish to save the file. Select where you want to save it, give it a name, and click Save. The excel file will be saved to that location.



9.5 Batch Printing and Exporting

You can print or export multiple certificates at once. To do so, start by clicking Batch Operation.



Next, select the type or types of operation you'd like to perform. Then click the arrow in the upper left hand corner.



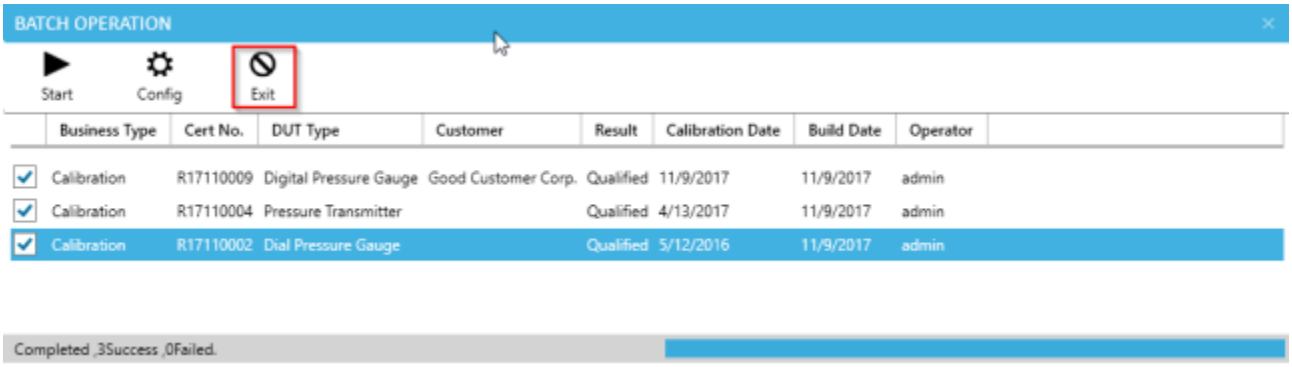
Select the units you'd like to batch export or print. Then click Start.



The batch operation will begin.



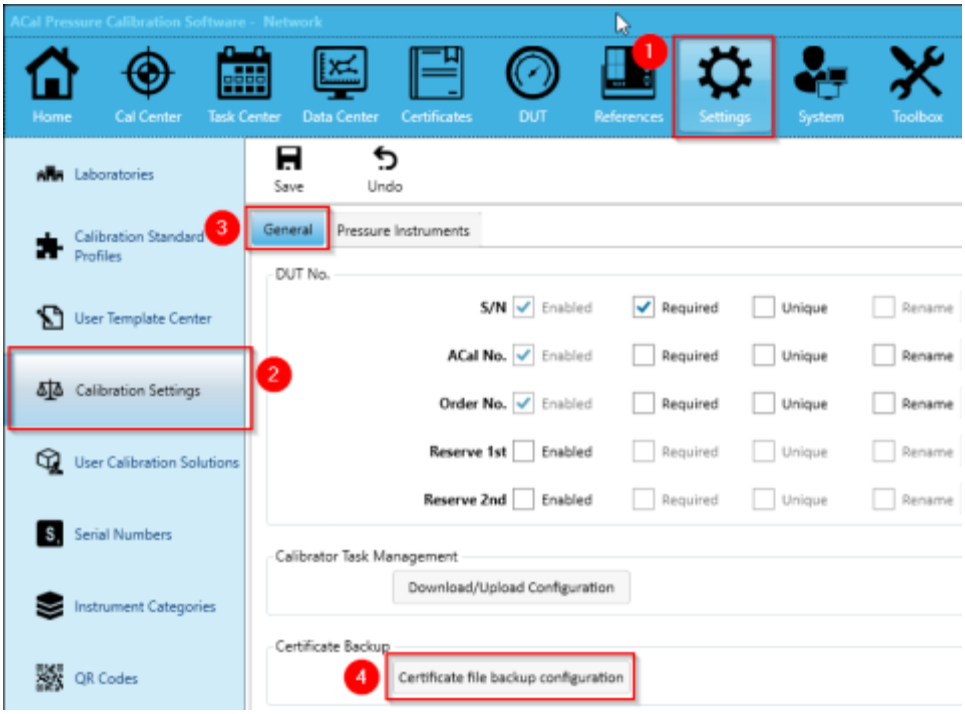
When the operation is finished, click Exit to return to the main certificate list.



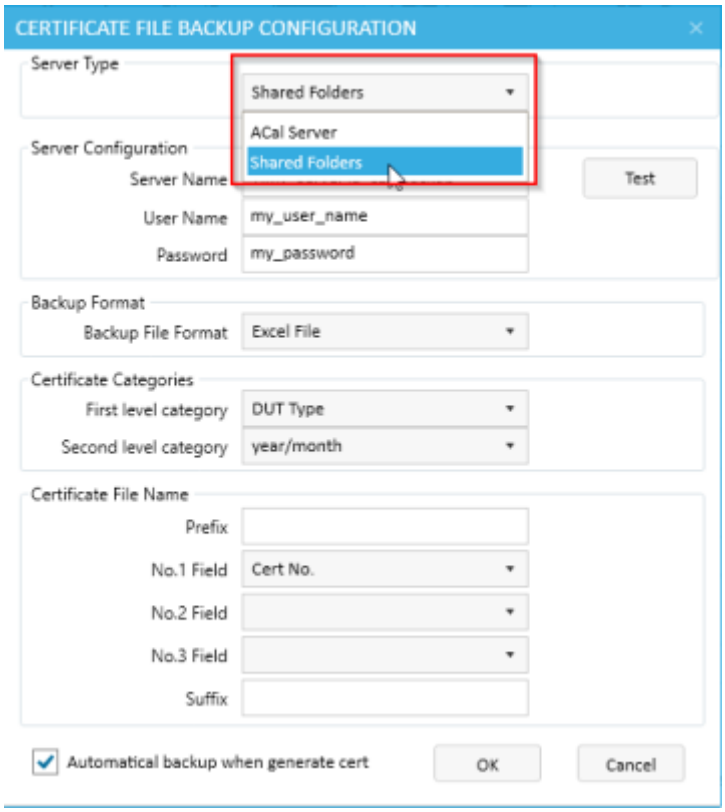
9.6 Certificate Backup Settings

ACal has the capability to backup your calibration certificates to another computer. This is important, because sometimes hard drive failures or other computer issues prevent you from accessing the computer ACal is installed on. You can backup to any Network Shared Folder, or, in the case of ACal Network, you can also backup to the ACal Server Software. We suggest you turn this feature on immediately.

Start by going to the Settings Menu. Go the Calibration Settings section and click on the General sub-tab. Then click Certificate File Backup Configuration.

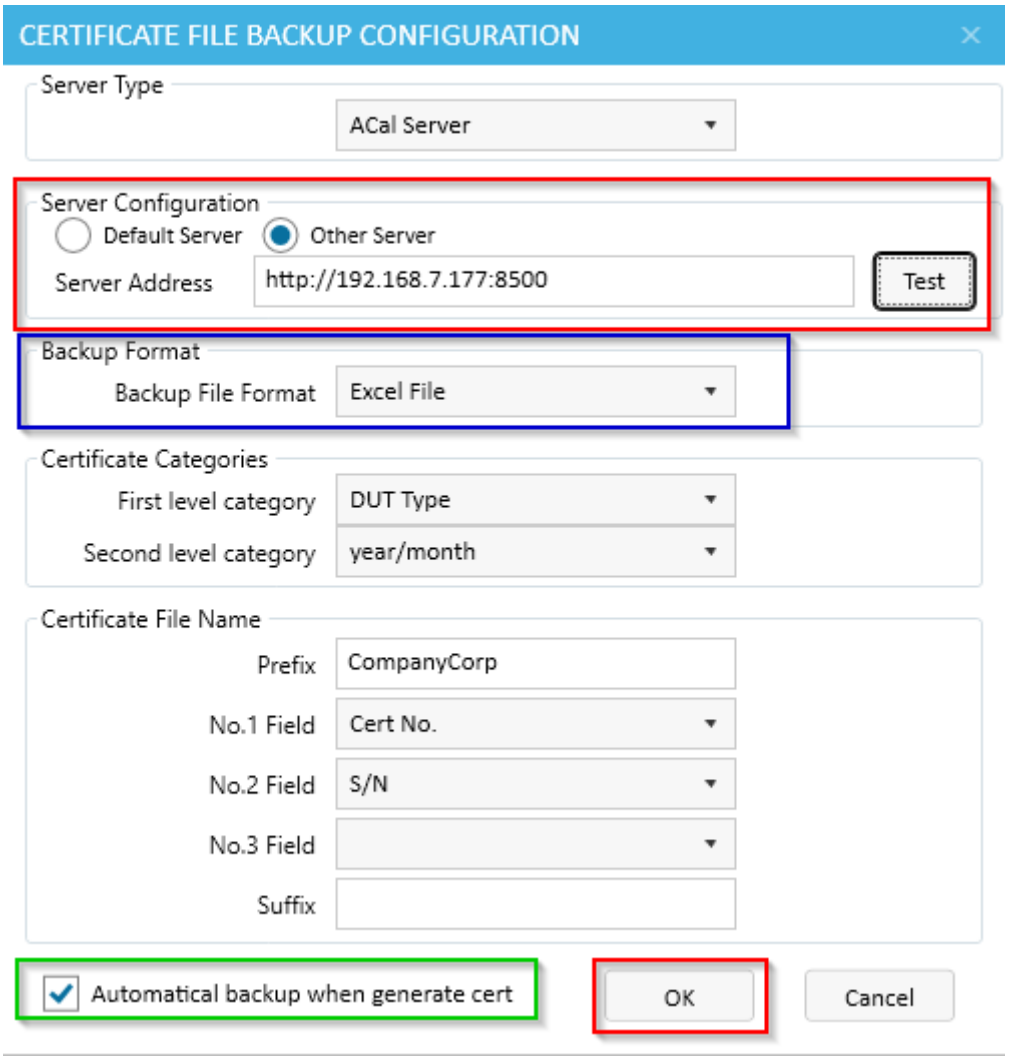


If you have the ACal-NET software version, choose whether you'd like to use an ACal Server backup (recommended) or the Shared Folder backup. If you don't have ACal-NET, you'll need to change the setting to Shared Folders.



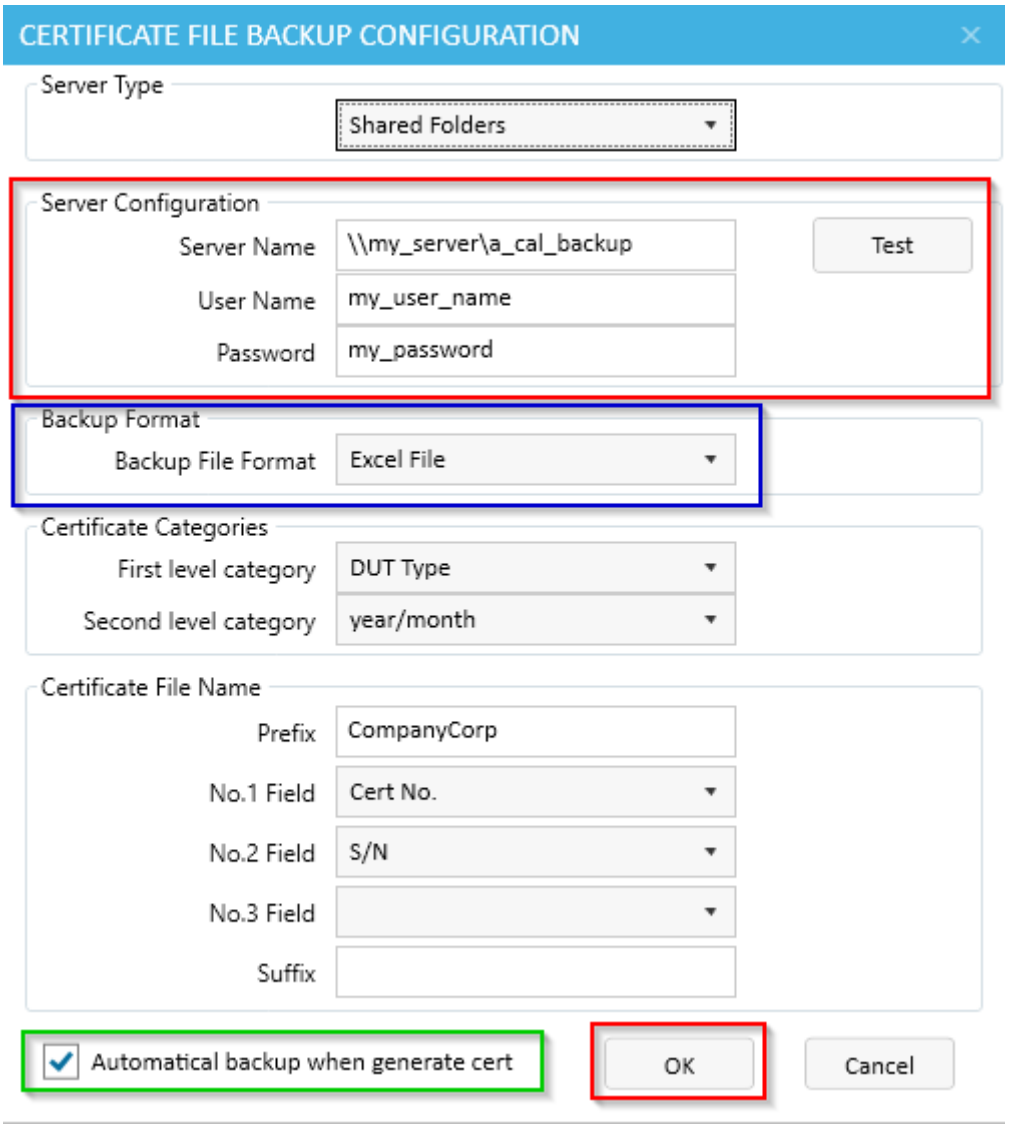
9.6.1 ACal Server Backup

If you have ACal Network and choose to use the ACal Server backup, you'll have a few options. You can choose to backup to an external server or to the server you are currently connected to. You can also specify how you want the certificate backup files named and whether you want them saved as an Excel file or a PDF. Before you're done, check the checkbox so that your certificates are backed up when they are created. Then click OK.



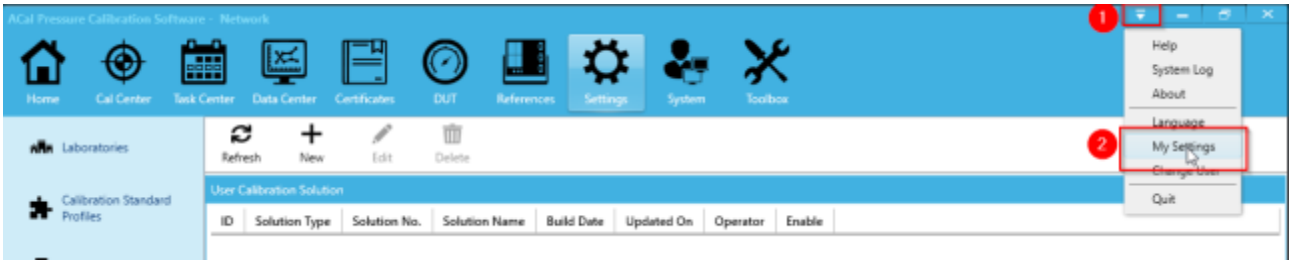
9.6.1 ACal Server Backup

If you use Shared Folders for your backup, you'll also have a few options. You'll need to specify a shared folder address (in lower case) as well as a username and a password. You can also choose how you want the certificate backup files named and whether you want them saved as an Excel file or a PDF. Before you're done, check the checkbox so that your certificates are backed up when they are created. Then click OK.

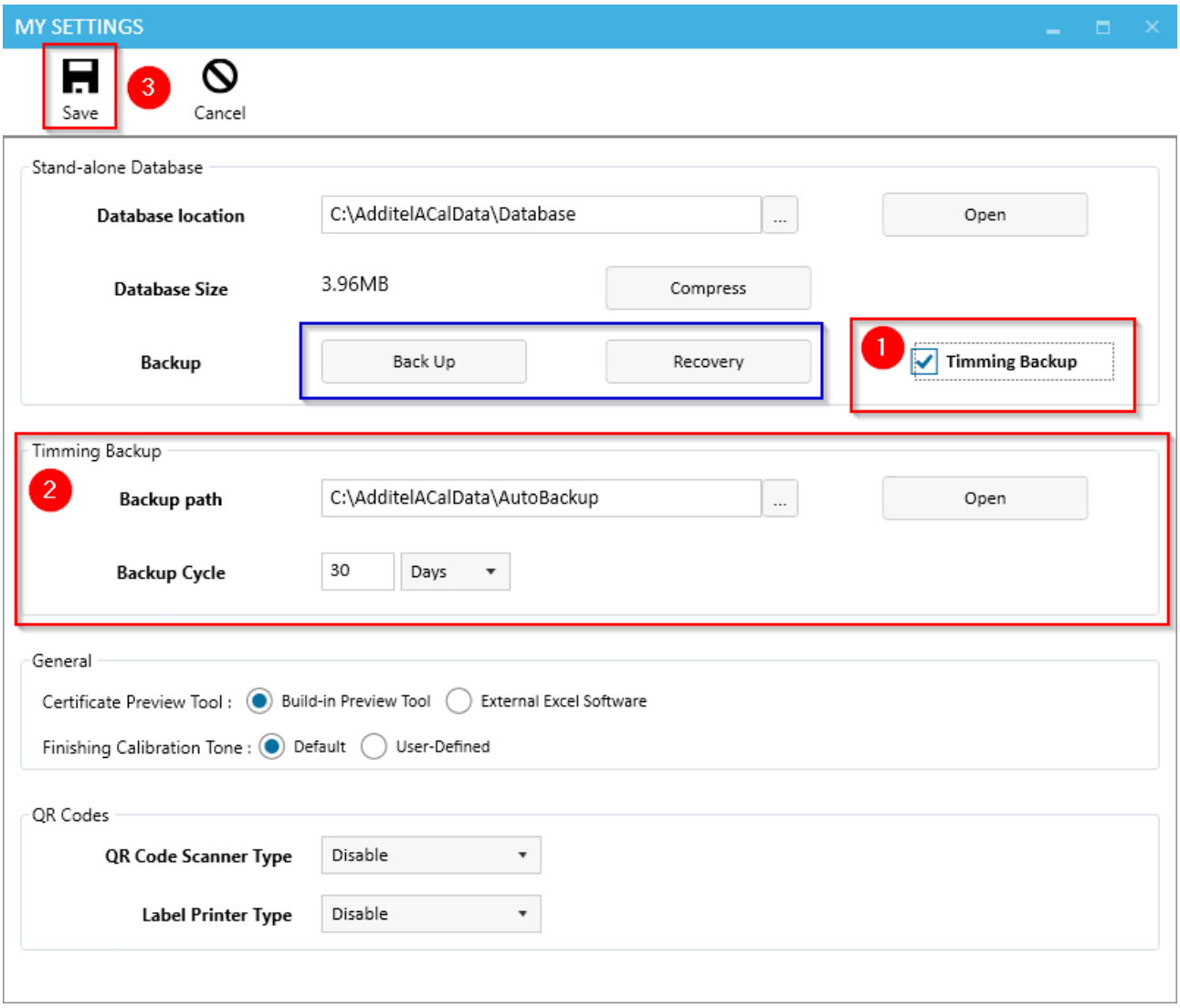


9.7 Database Backup Settings

In addition to backing up the individual certificates, you can also back up the entire ACal database. To do this, start by clicking on the dropdown in the upper right hand corner of the screen and clicking My Settings.

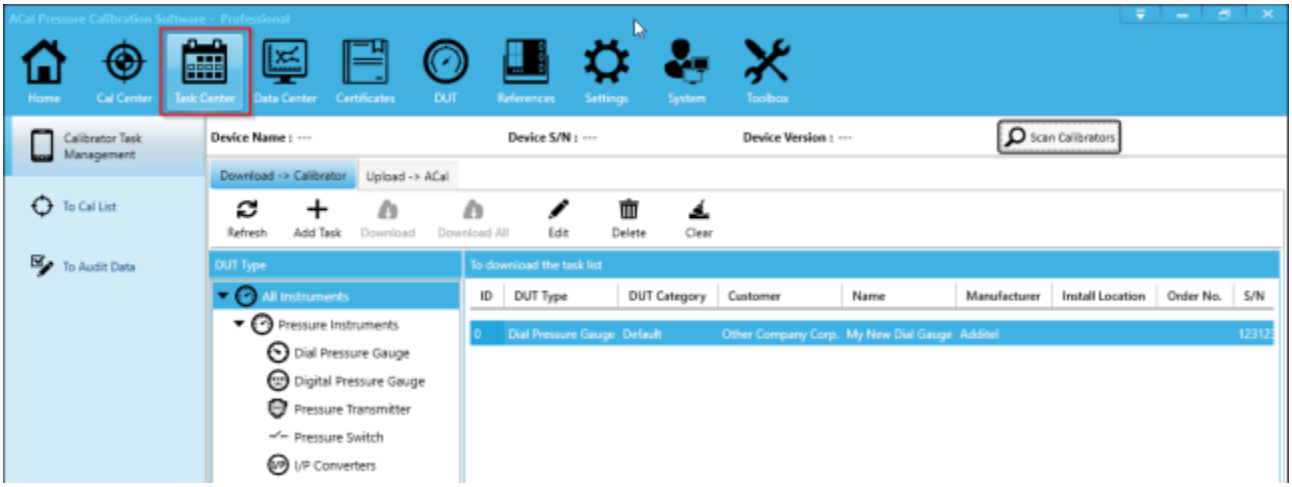


From there, you can backup the database, or recover from an old one. It's a good idea to set a backup schedule as well. Once you are finished, click Save.



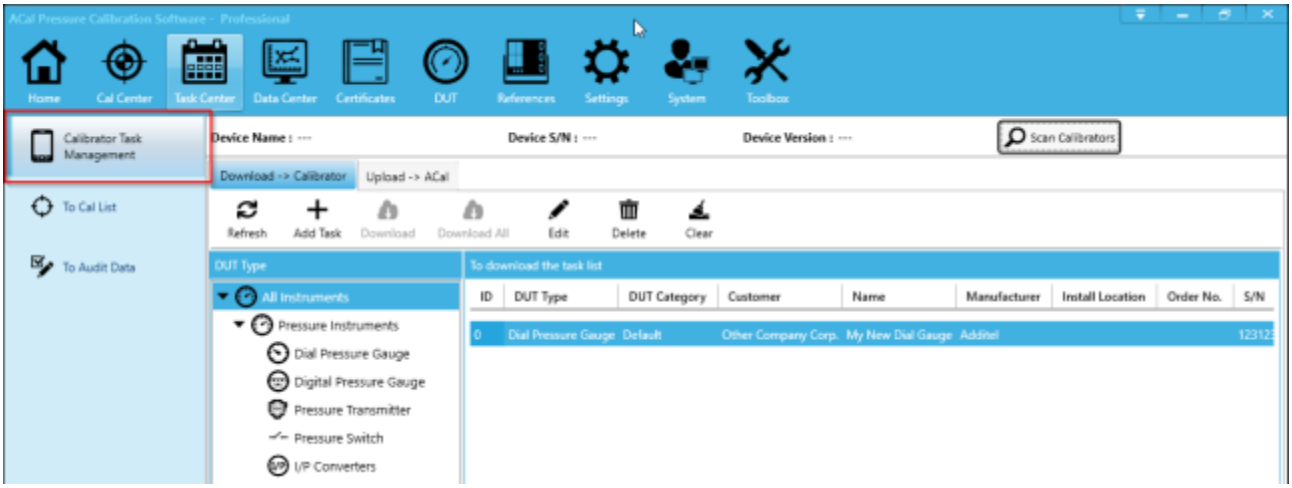
Chapter 10 Task Center

The Task Center provides you with many capabilities, all of which are somewhat different. From the Task Center, you can upload or download tasks from your ADT760 and ADT761 calibrators, manage your To Cal List, and Audit your calibration data.



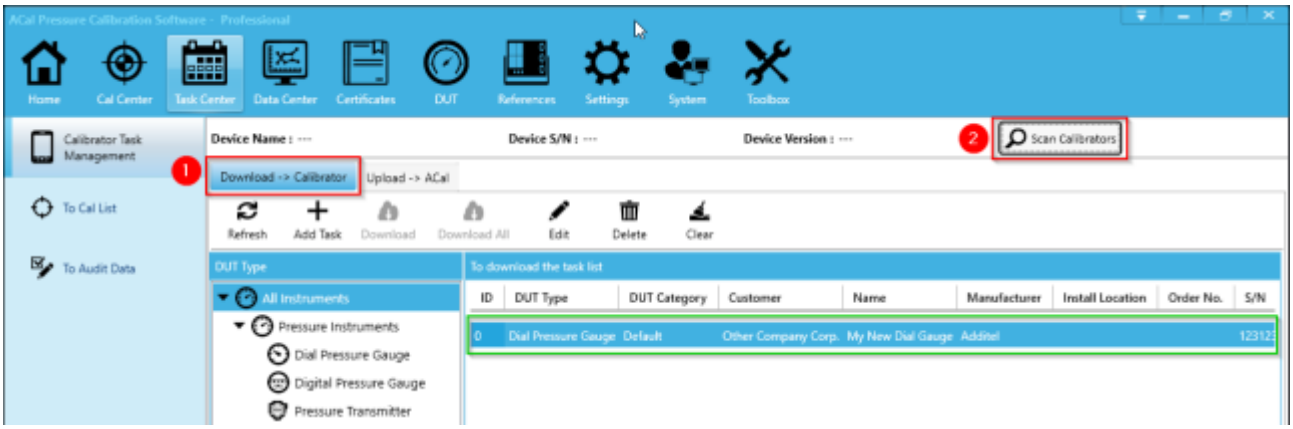
10.1 Uploading and Downloading from the ADT760 or ADT761

The Calibrator Management section provides two utilities. One helps you to put DUTs which you wish to be calibrated on to your ADT760 or ADT761. The other helps you upload the calibration data you recorded on the ADT760 or ADT761 into ACal.

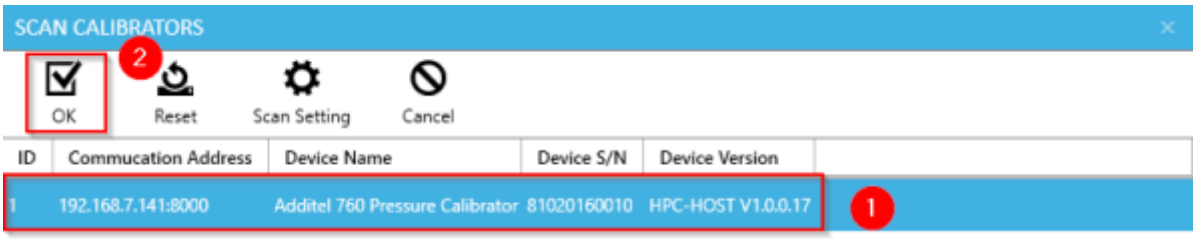


10.1.1 Assigning DUTs to a Calibrator

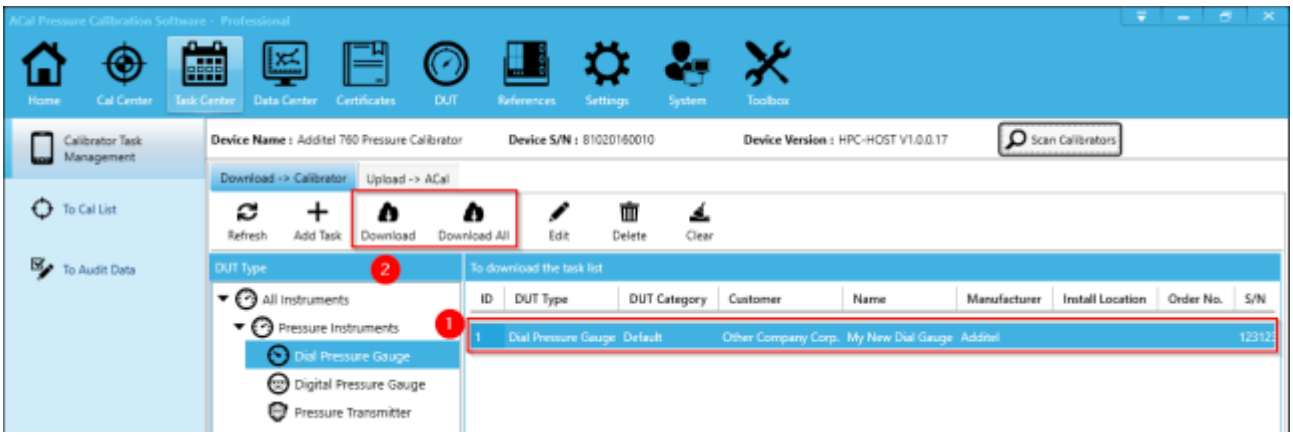
Click the Download -> Calibrator tab. You'll see a list of DUTs which you have previously assigned to your Calibrator Task List. Once we hook up the calibrator to ACal, we can properly move over these assignments to the calibrator. You can do this by clicking Scan Calibrators in the upper right section of the screen.



ACal will attempt to find any calibrators according to the settings you provided. Once it has found the correct calibrator, select it and click OK.

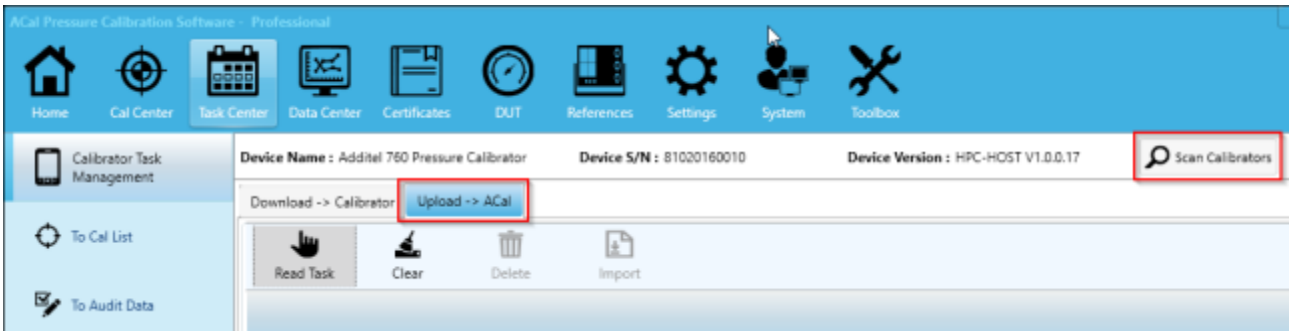


Now that the calibrator is connected, select the tasks you wish to Export and click Download (you can also use Download All). The tasks will appear on your calibrator under its Task section and are ready to be used in calibrations.

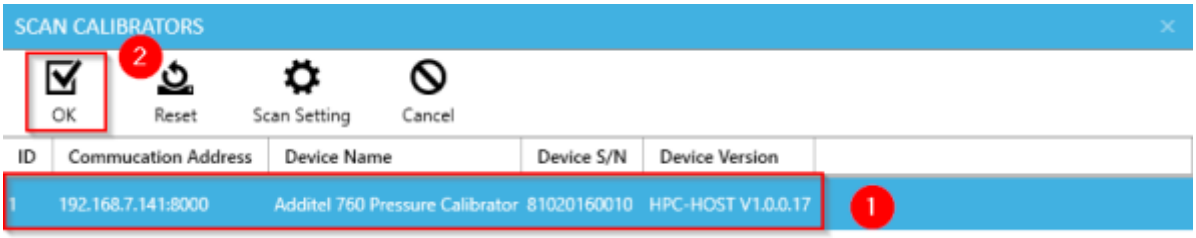


10.1.2 Importing Calibration Data from a Calibrator into ACal

Click the Upload -> ACal tab. Next, we need to connect your calibrator to ACal. You can do this by clicking Scan Calibrators in the upper right section of the screen.



ACal will attempt to find any calibrators according to the settings you provided. Once it has found the correct calibrator, select it and click OK.

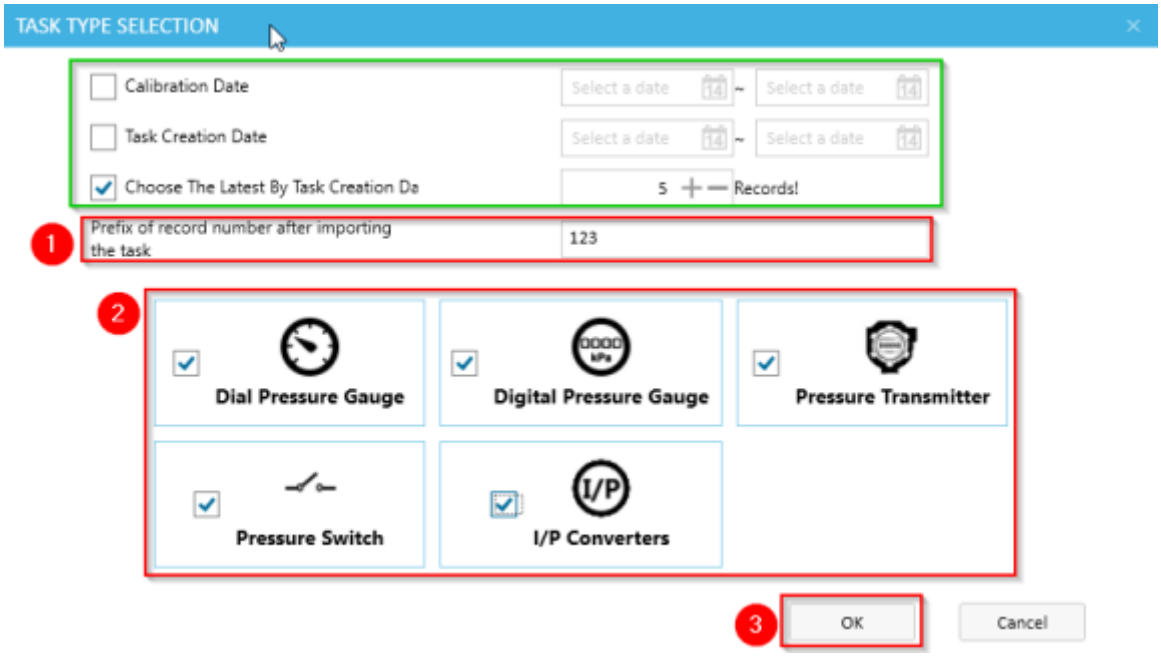


Next click Read Task.

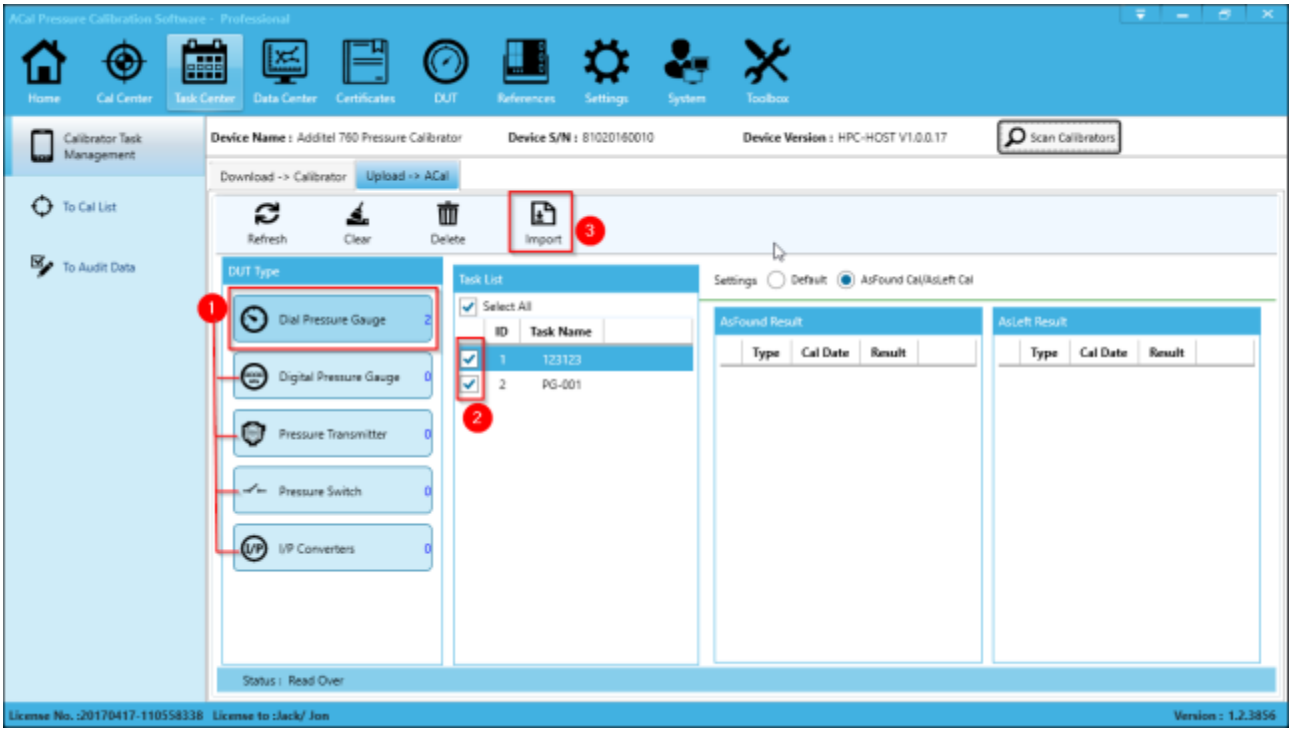


A window will pop up asking you which types of records you wish to import. You can specify a calibration date, task creation date, or even how many of the latest records you want to import.

Make sure that you specify what you want the prefix to be for the calibration records you will be importing – this will be used as the identification number for the record in ACal. You will also want to make sure that you select which types of units you wish to import calibrations for. When you are ready to import, click OK.



ACal will read in the calibration records from the calibrator. In the left column, you will see the different types of units. In the column just to the right of that, you will see the individual calibrations that occurred. Select which calibrations you wish to import from each of the different types of units. Then click Import, and the calibrations will be brought into ACal.

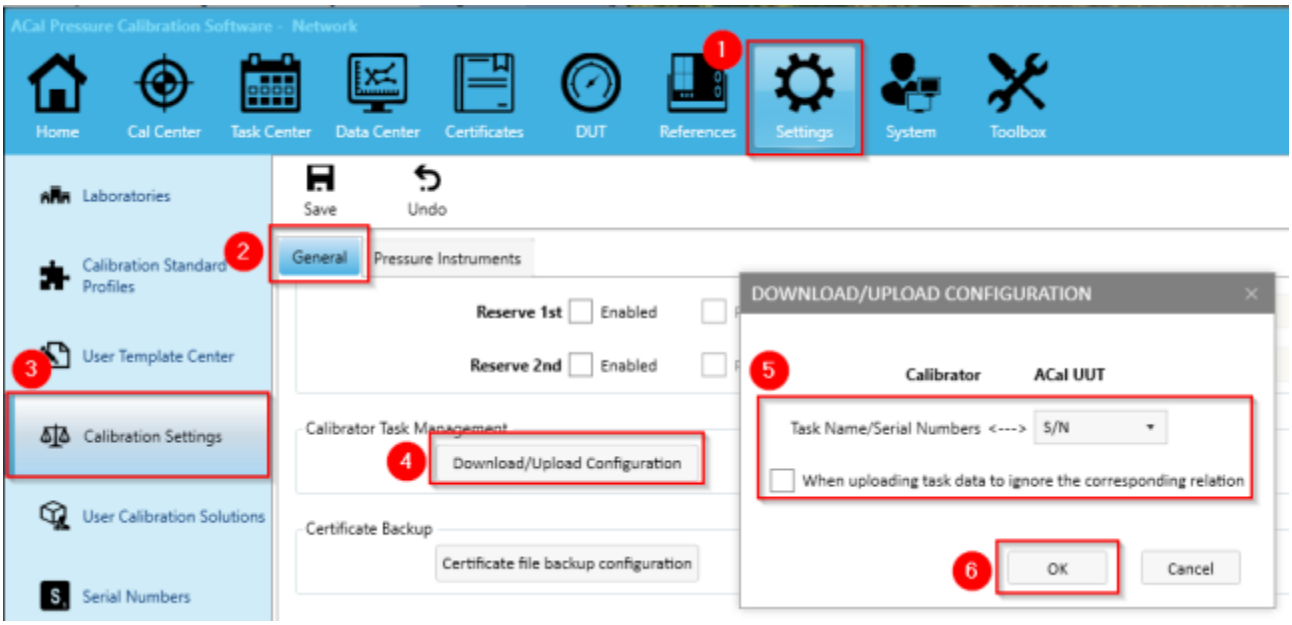


If you have any issues during the import, you may have selected a task for which there isn't any data recorded yet. Please double check to make sure that you have selected tasks which you have completed.

10.2 Changing the Calibrator Task Configuration

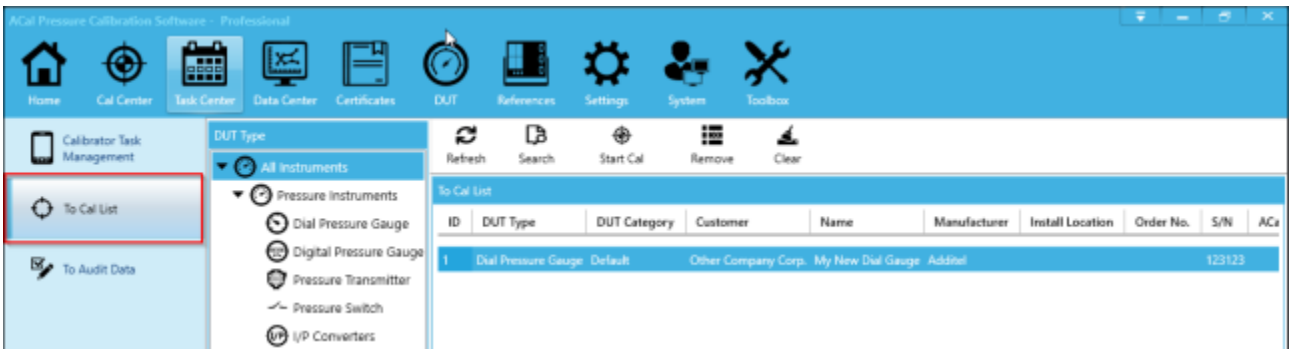
ACal uses a slightly different numbering system than the Additel 760 and Additel 761s do. Because of this, when you import and export, you'll need to map the numbers to their associated fields. By default, ACal imports and exports the Task Name as the S/N (Serial Number) field. This can be changed if desired.

You can make these changes in the ACal Settings Menu. Go to the Calibration Settings section, and click the General sub-tab. Then click Download/Upload Configuration. From there you can edit the Calibrator Task Configuration. Once you are finished, click OK to save the configuration. From there, you can head back to the Task Center Menu.



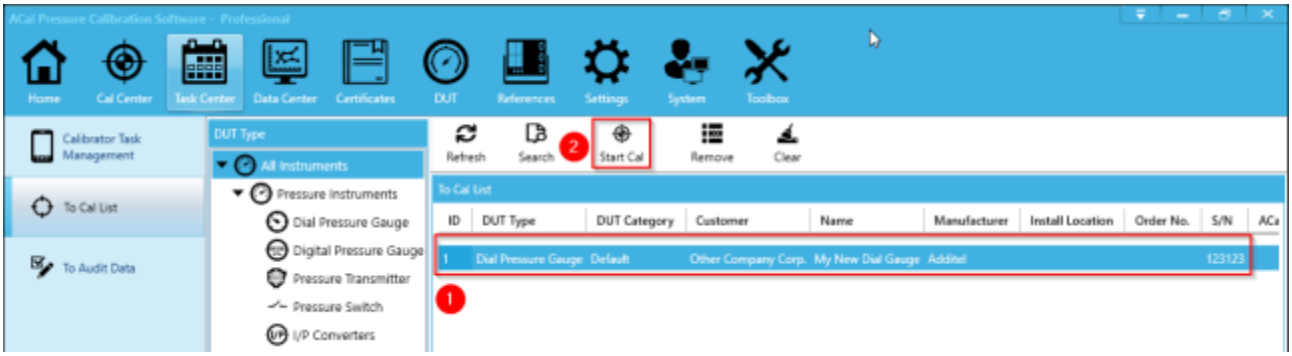
10.3 Using the To Cal List

The To Cal List is a list of DUTs that need to be calibrated in the near future.



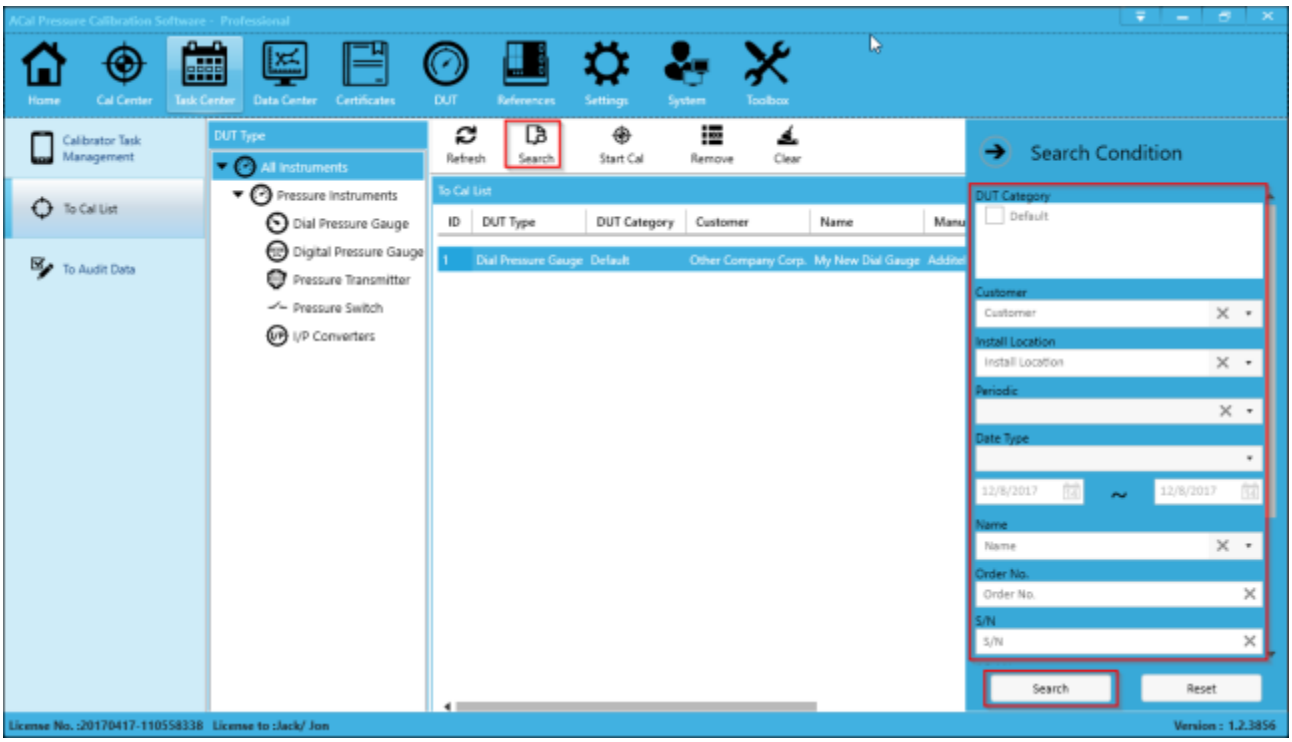
10.3.1 Starting a Calibration

To start a calibration from the To Cal List, simply select the unit you want to calibrate and click Start Cal. To read more about calibrations, see Chapter 4.



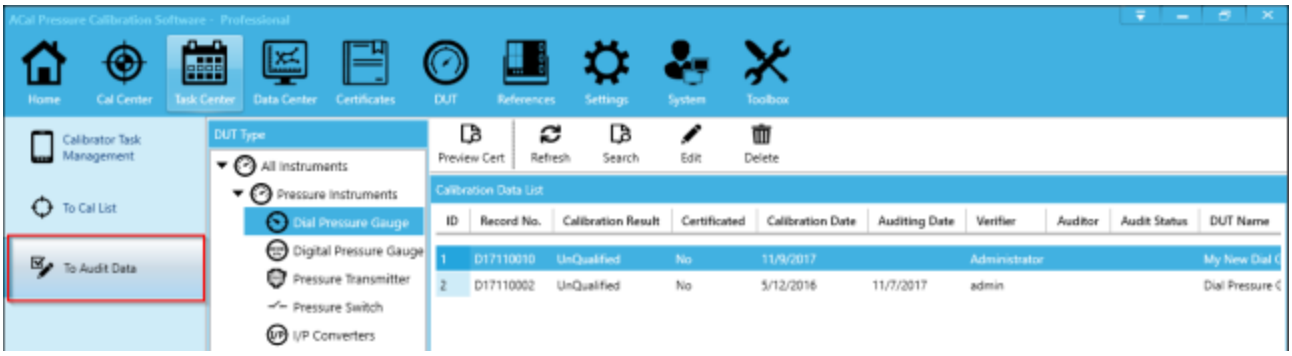
10.3.2 Searching the To Cal List

Much like with other lists, the To Cal list can be searched. You can do this by clicking Search, typing in your search criteria in the side window that appears, and then clicking Search. The DUTs in the To Cal list will be filtered according to the criteria.



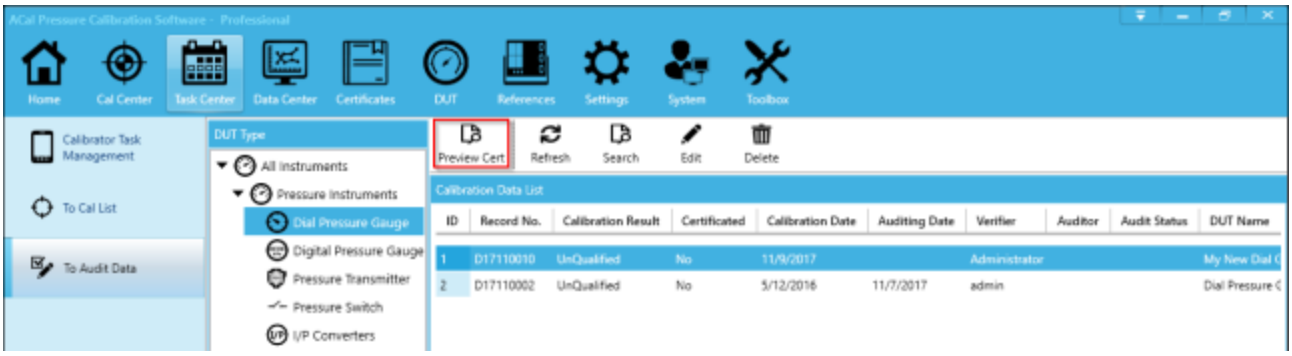
10.4 Using the To Audit List

You may wish to audit calibrations before they are turned into certificates. ACal has a built in auditing tool for you to do this. Audits allow you to preview certificates before they are turned into actual documents. The person who performed the calibration cannot be the auditor – so you can ensure that multiple people look at the document before it is turned into a certificate.



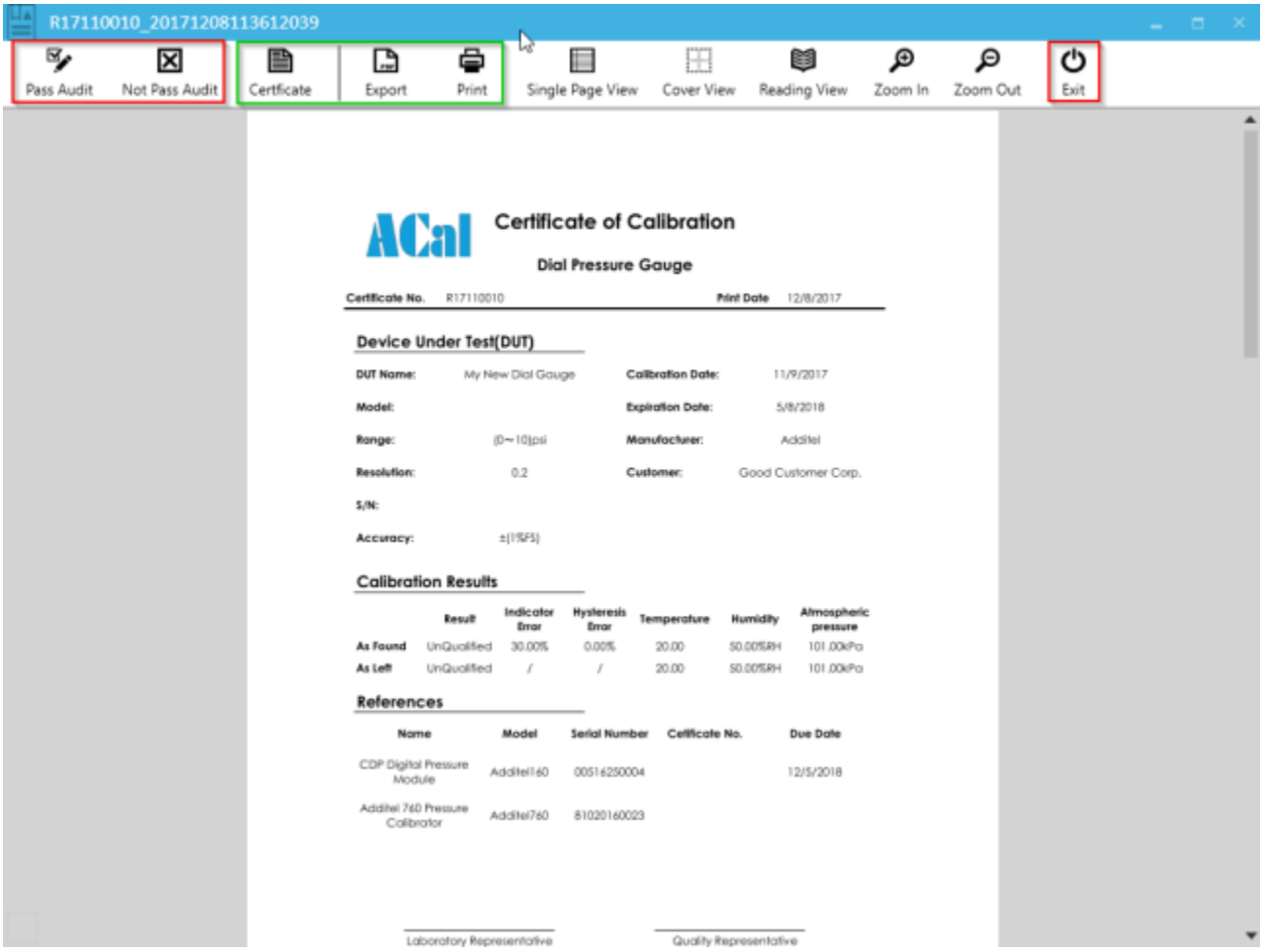
10.4.1 Auditing a Certificate

To start an audit, click Preview Certificate



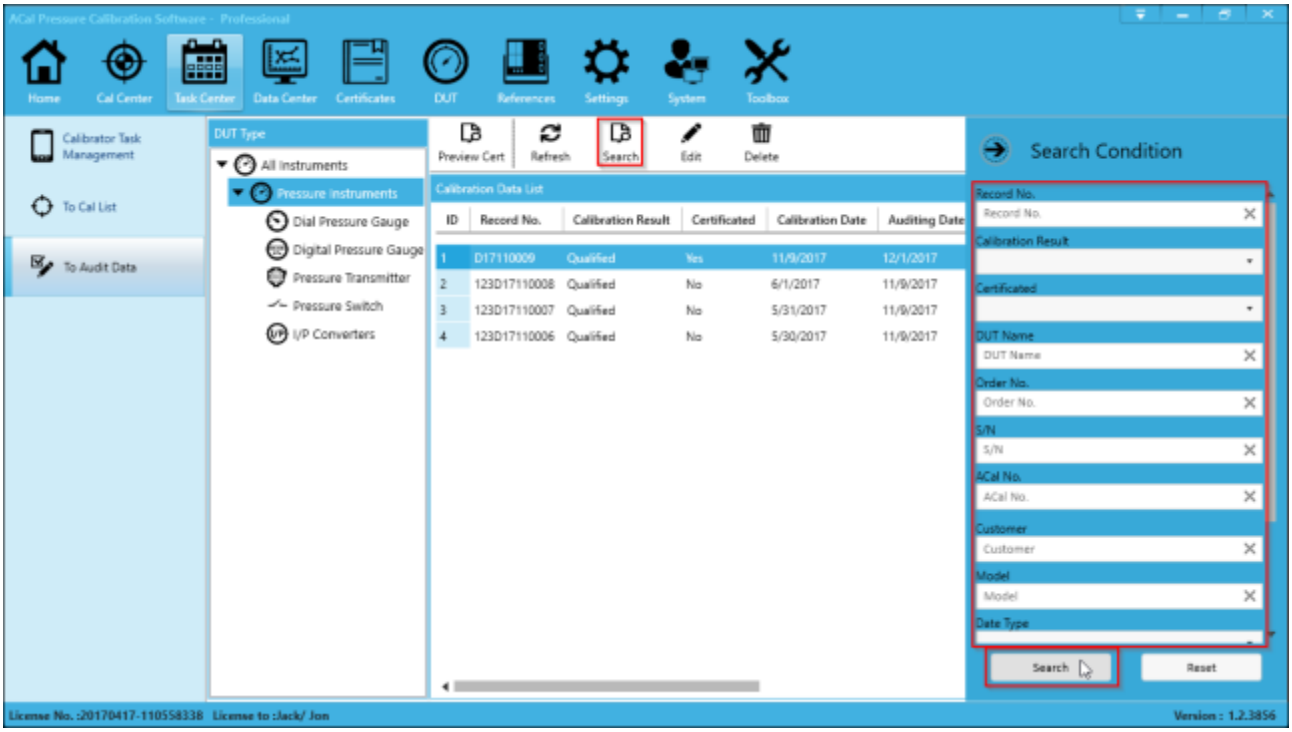
From there, you can view the certificate preview and mark it as Passing or Not Passing its Audit. Marking it as Not Passing will prevent Certificates for being generated for the data in the future (unless you re-audit it and mark it as passed). You can also choose to exit if you wish to not do anything at the current time.

There is also the option to jump straight to generating he certificate, exporting, or printing if you prefer.



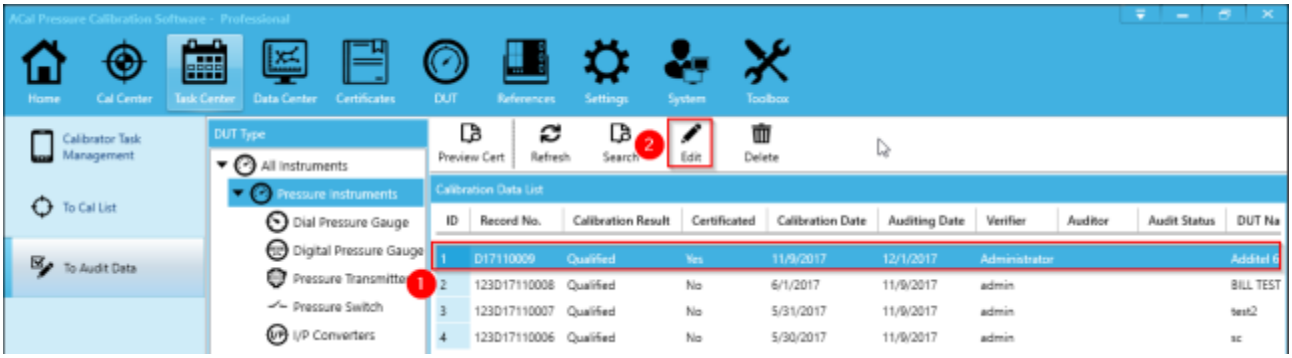
10.4.2 Searching the To Audit List

Much like with other lists, the To Audit list can be searched. You can do this by clicking Search, typing in your search criteria in the side window that appears, and then clicking Search. The calibration data records in the To Audit list will be filtered according to the criteria.

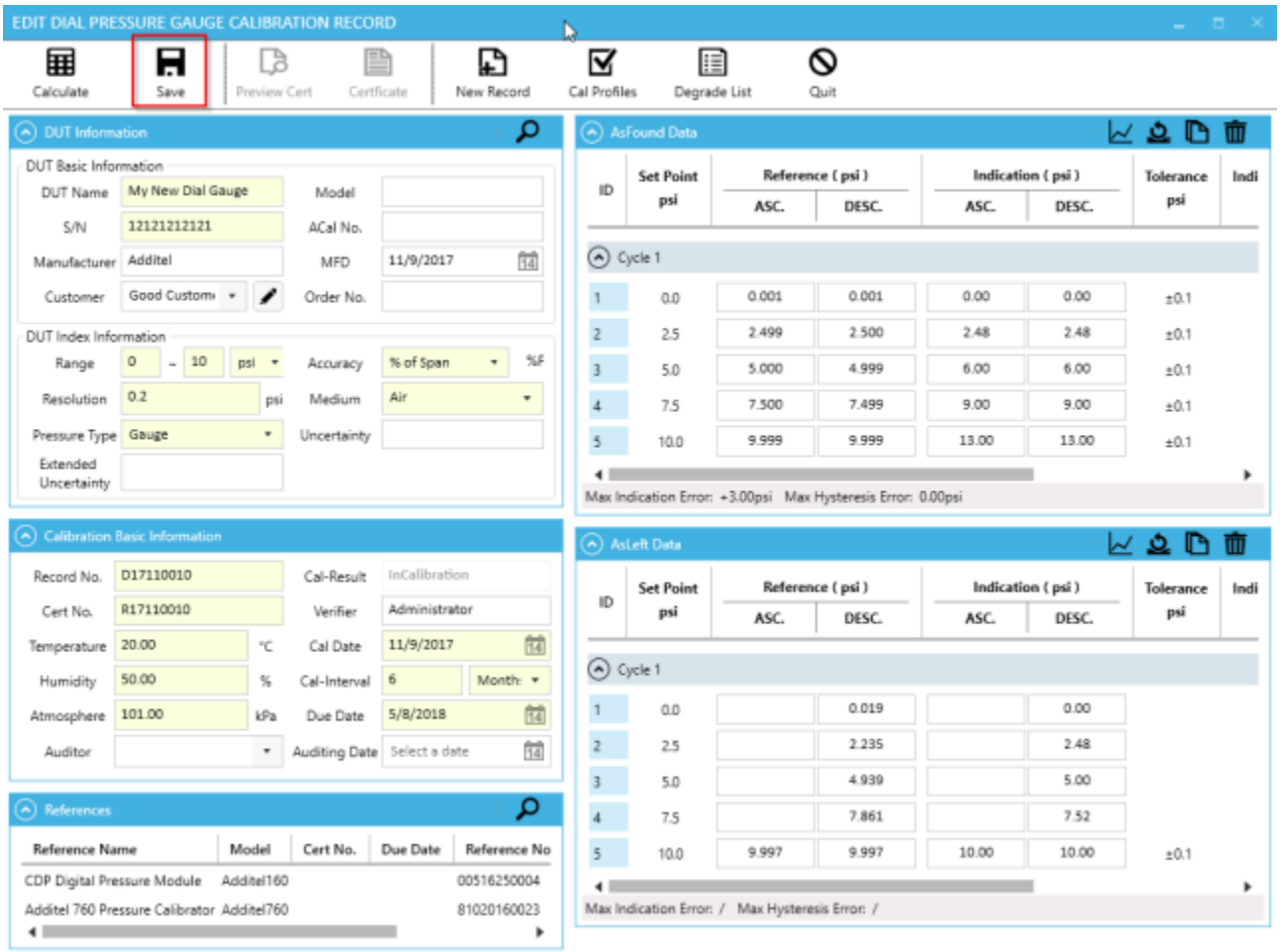


10.4.3 Editing Calibration Data

Occasionally, during an audit, you may have a need to edit calibration data. You can do so by selecting a data record and click Edit.



From there, you can edit any of the calibration data you previously recorded. Once you are done, click Save and the record will be changed.



Chapter 11 Toolbox

The Toolbox contains a number of useful utilities including a Pressure Conversion Calculator, Tolerance Calculator, Com Tool, and several migration tools.

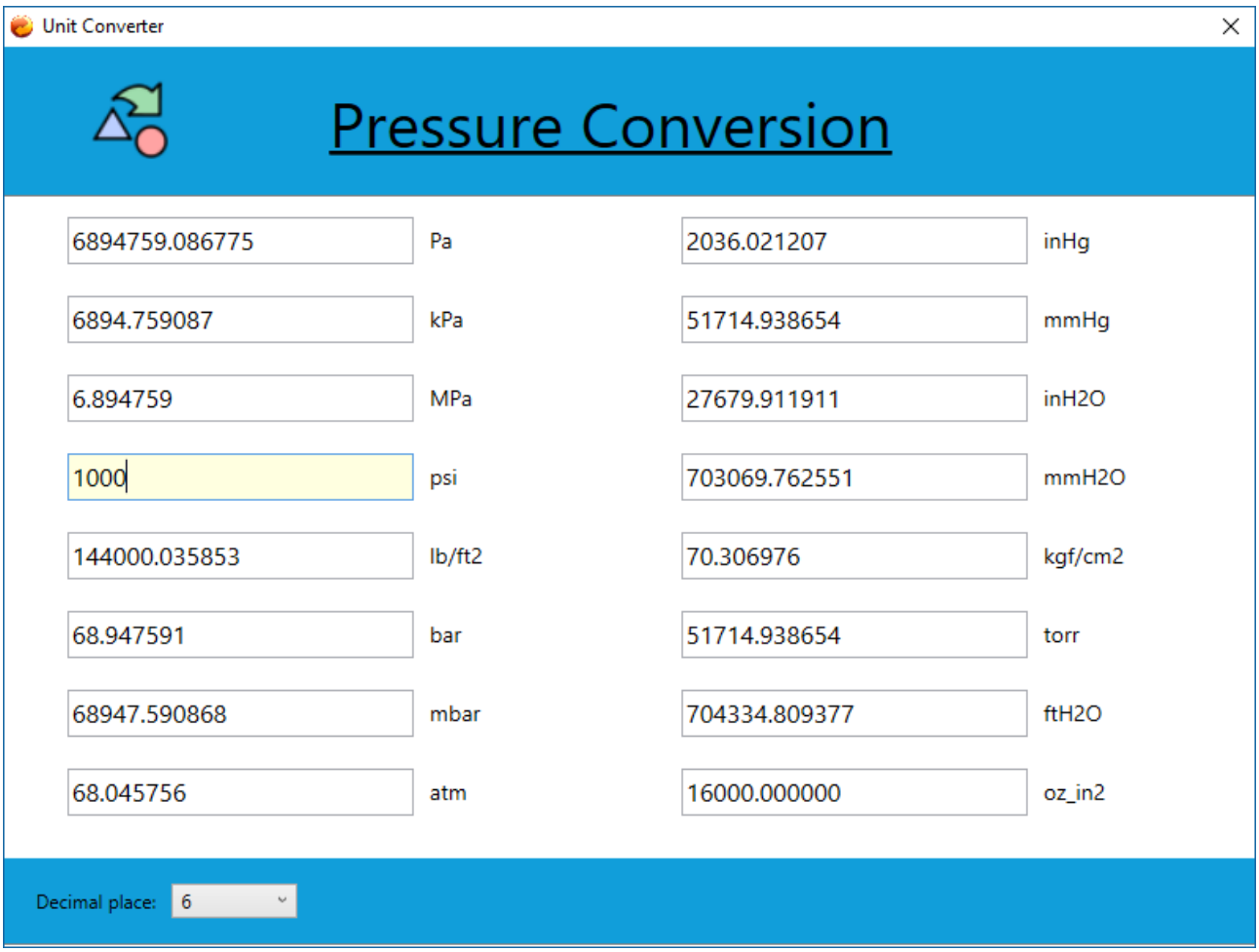


11.1 Pressure Conversion Calculator

The Pressure Conversion Calculator gives you an easy way to translate pressure from one type of unit of measure to another. You can open it by clicking Pressure Conversion.

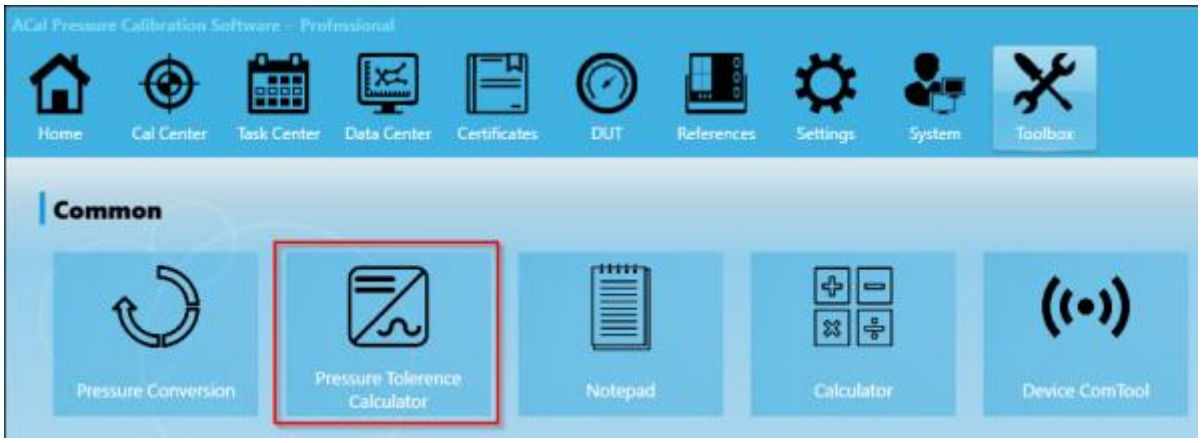


Next, type in any amount of pressure in any of the fields. The Conversion Calculator will display that pressure in the other units.

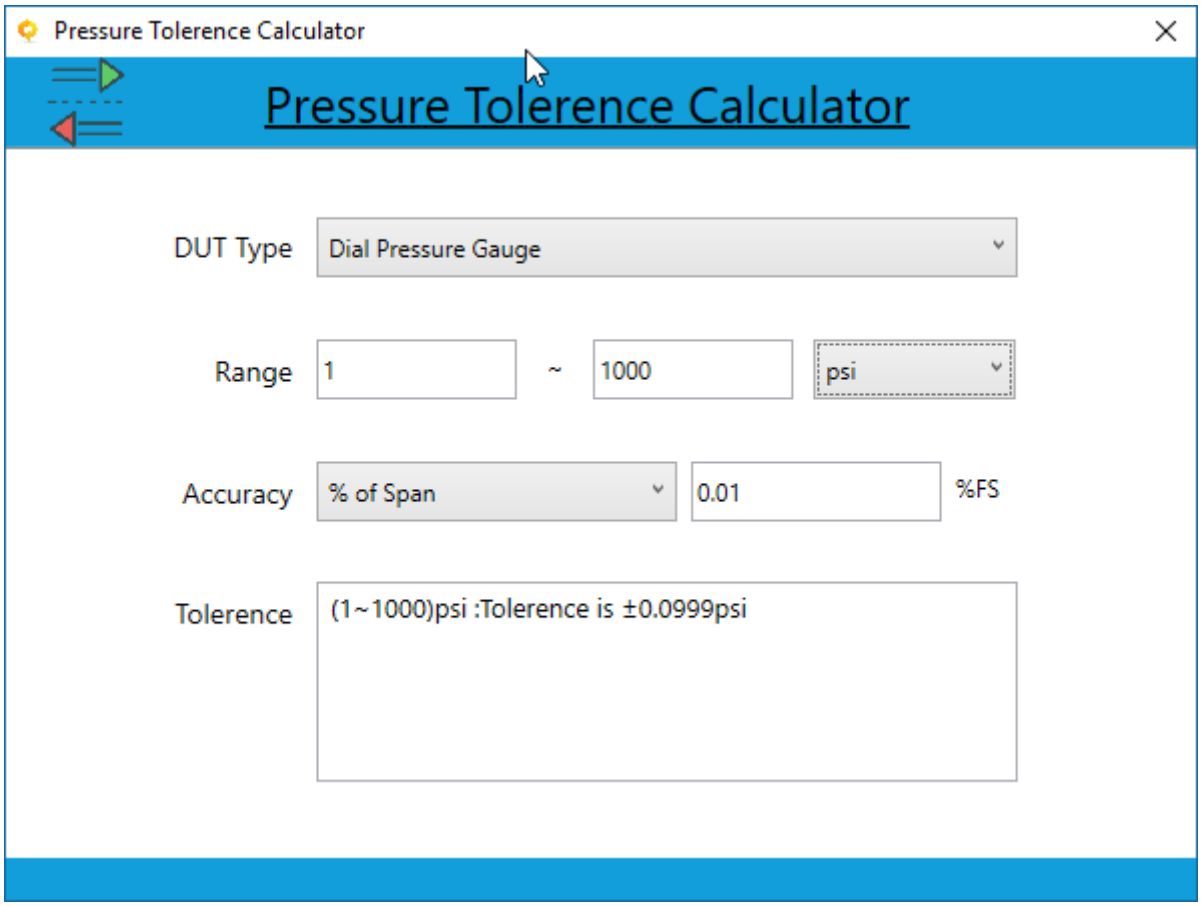


11.2 Pressure Tolerance Calculator

The Pressure Tolerance Calculator gives you an easy way to determine the tolerance of a unit given its range and accuracy. You can open it by clicking Pressure Tolerance Calculator.



Enter the unit's range and accuracy. Accuracy can be specified in % Full Scale (% of Span), ASME, or a custom combination of % Reading and % Full Scale. The program will show the tolerance in the output field at the bottom.



11.3 Notepad and Calculator

ACal provides a convenient way to access the Notepad and Calculator of Microsoft Windows. Simply click the appropriate icon.

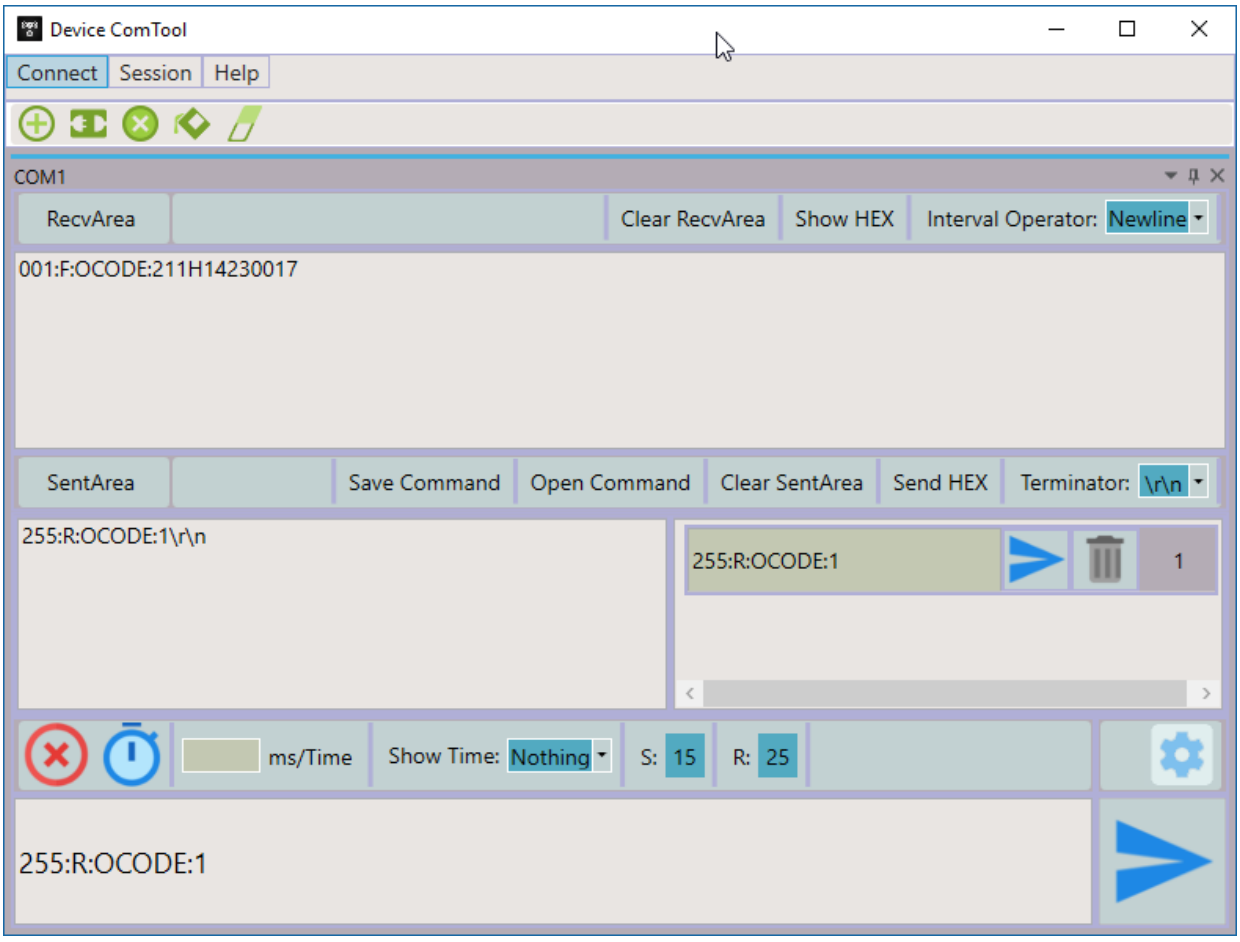


11.4 Device COM Tool

ACal provides a tool to allow you to send raw COM commands to various Additel devices, and to see their response.

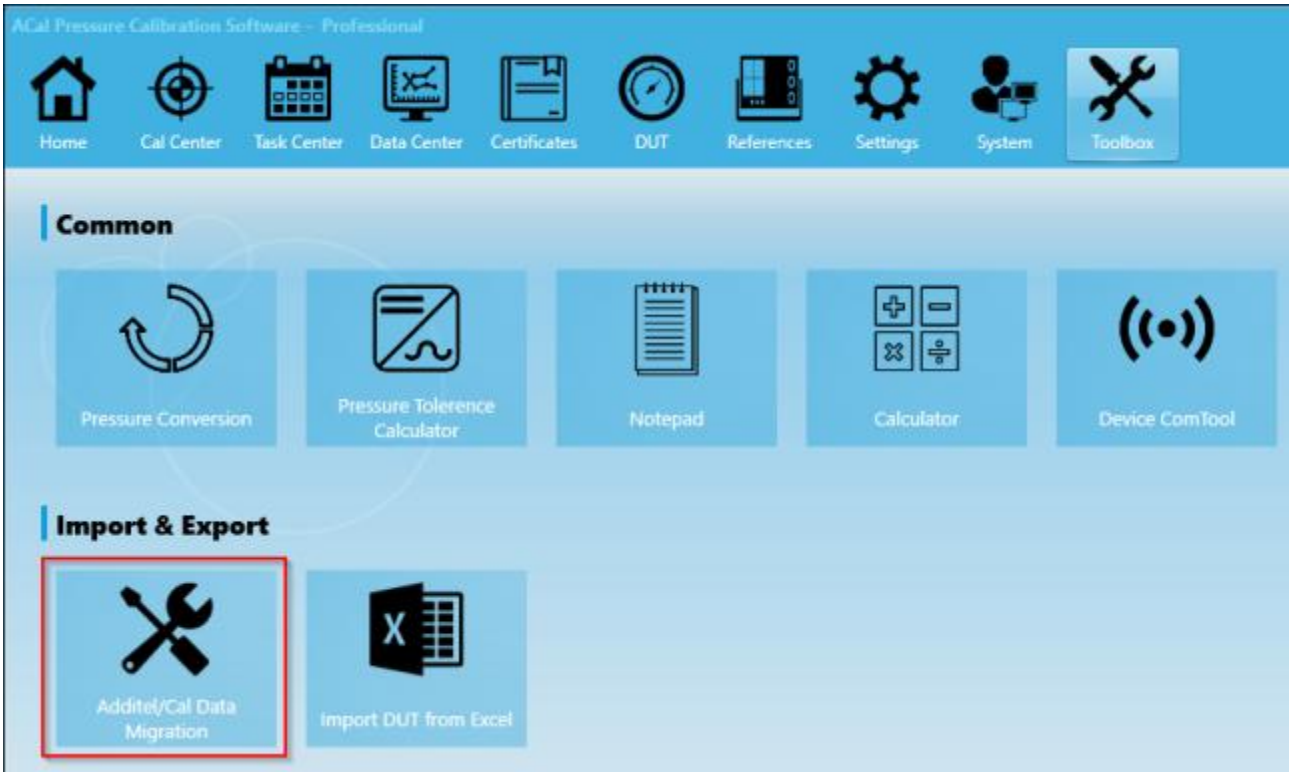


This is useful if you happen to be developing a custom application with Additel devices. If you have any questions about this, feel free to contact Additel.

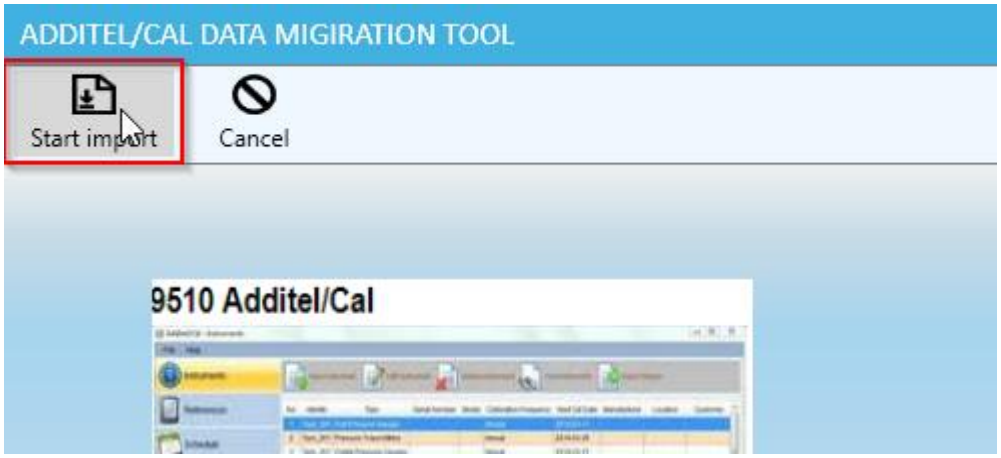


11.5 Migrating Data from Additel Cal

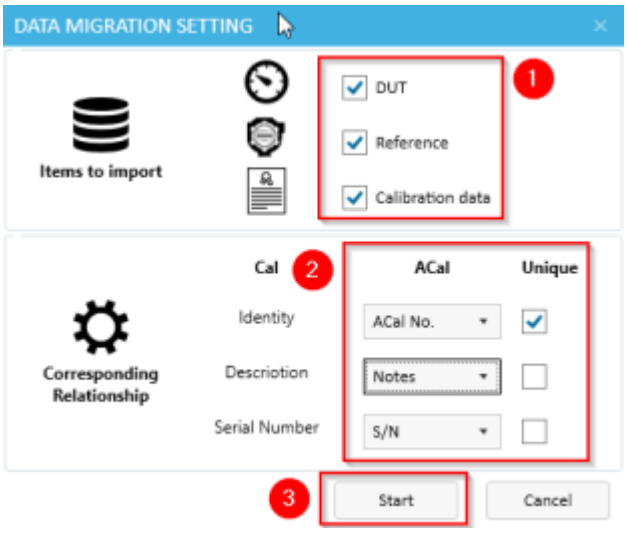
A utility has been provided to migrate data from Additel Cal software into ACal. This allows you to move DUTs, References, and Calibration Data that you recorded so that you can still use them in ACal. You can start using the tool by pressing the Additel/Cal Data Migration button.



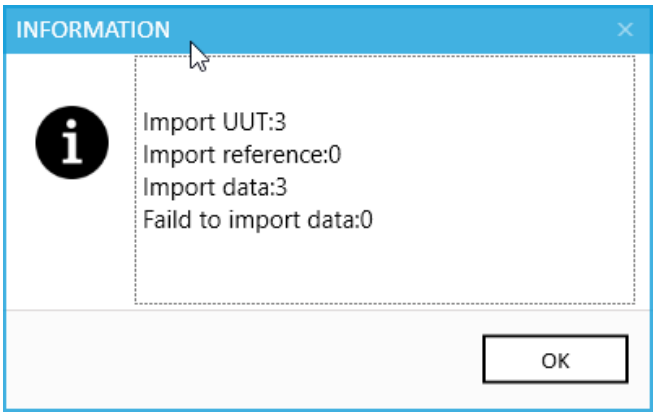
A window will appear. Click Start Import.



Select which items you would like to import. You can import DUTs, References, and Calibration Data. Next, select how you want the identification numbers from Additel Cal to move to ACal. For example, you may want to use the “Identity” field from Additel Cal as the “ACal Number” in ACal. Then click Start.



Once the data is imported, you’ll see a window describing the results of the import.



Appendix

A. Customizing Templates

ACal provides a way for you to customize the calibration certificates to better meet your business's needs. This allows you to make the certificates appear virtually any way you want.

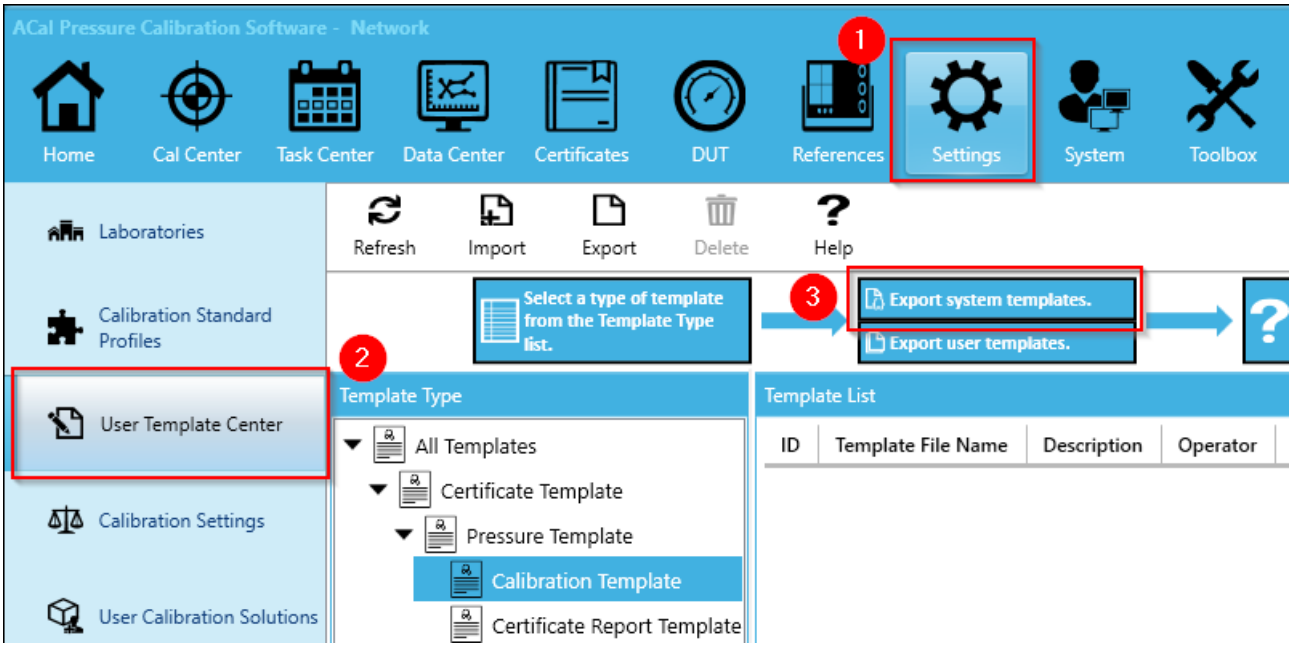
Some technical knowledge about Microsoft Excel is required to make a customized template. Please be prepared, or have someone familiar with Excel help you with the template.

Changing the template will not affect certificates that have already been generated. You will need to reissue a certificate for those templates in order to adjust them.

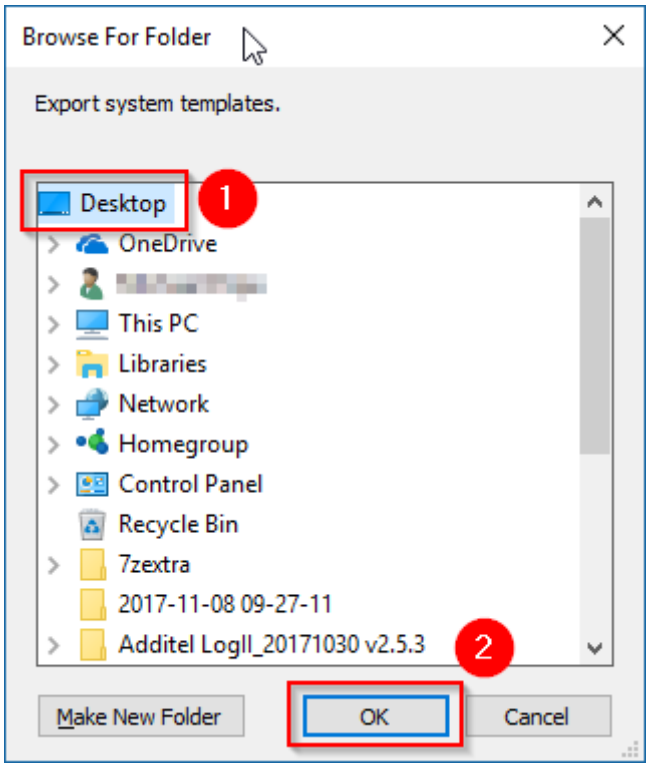
A.1 Exporting the Default Templates

ACal starts with a basic default template, which you will see used if you certify any calibrations before creating a custom template. All custom templates are started with this template and modified from there.

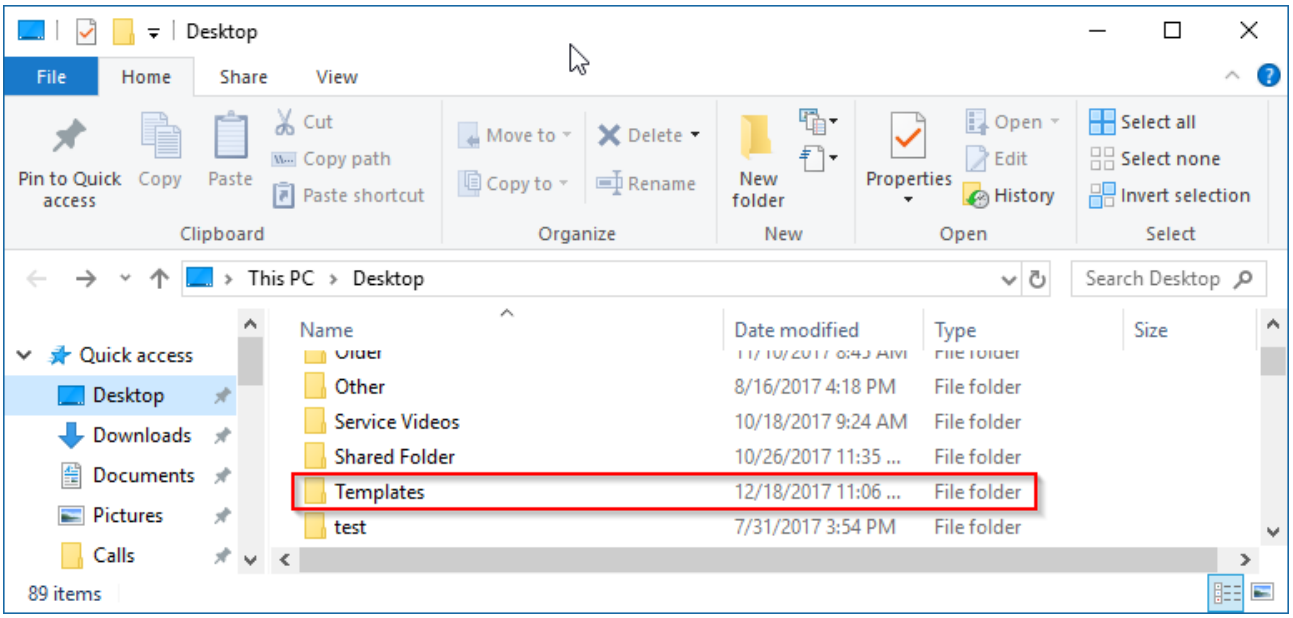
To start editing this template, you first need to export it. Go to the Settings Tab, and the User Template Center section. Click Export System Templates.



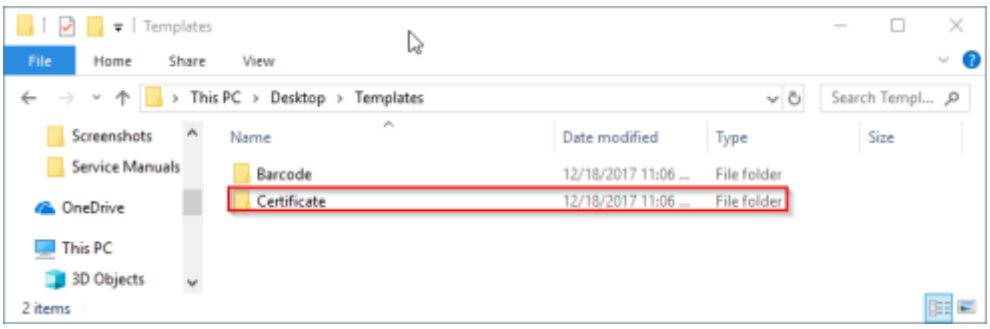
Select a place where you'd like to save the default templates.

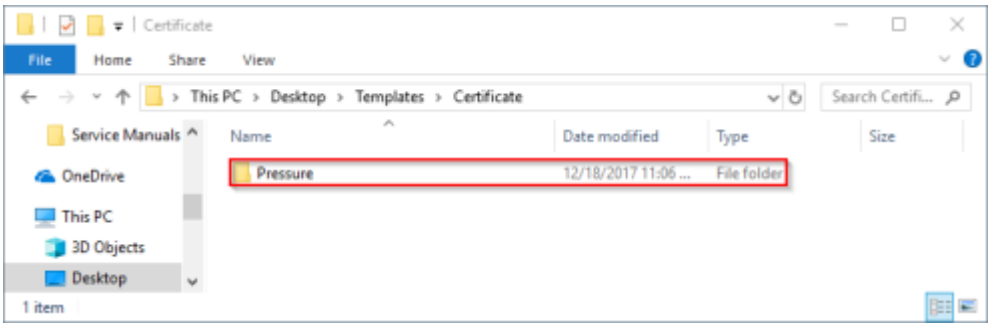


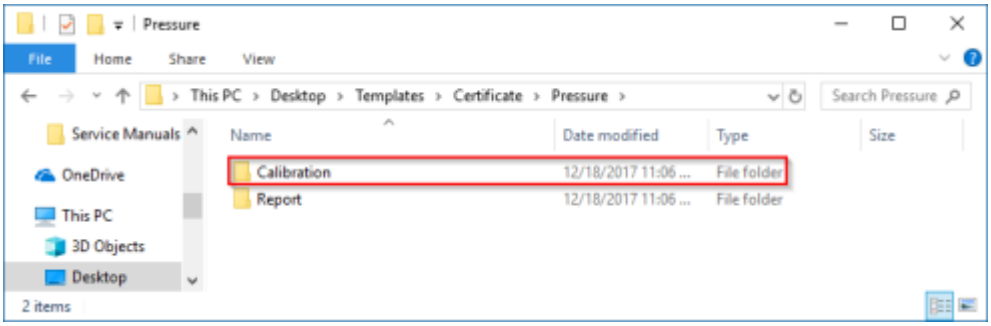
A window should pop up allowing you to explore the directory you just selected. You should see a folder called "Templates" in the directory. Double click on it to open it.



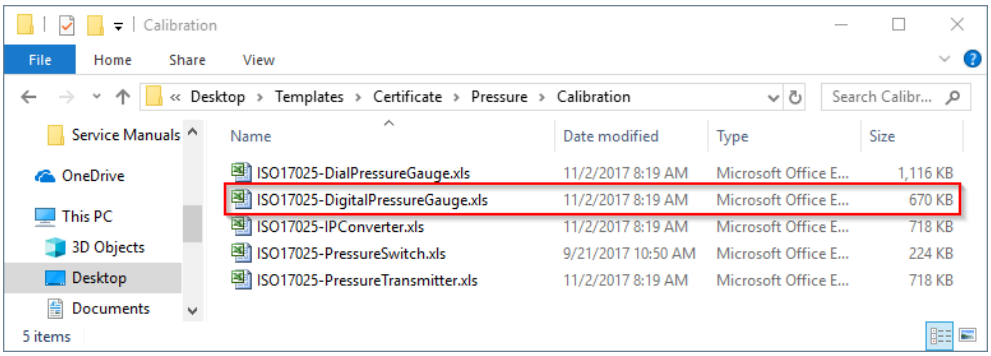
Next, you will need to navigate through a couple of nested folders. Go to Certificate -> Pressure -> Calibration.





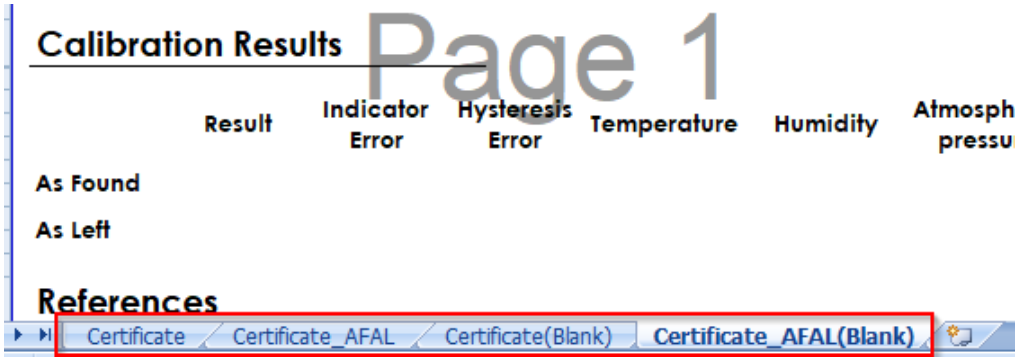


Next, double click on the template you wish to edit. Each template is different, so they will need to be edited individually.



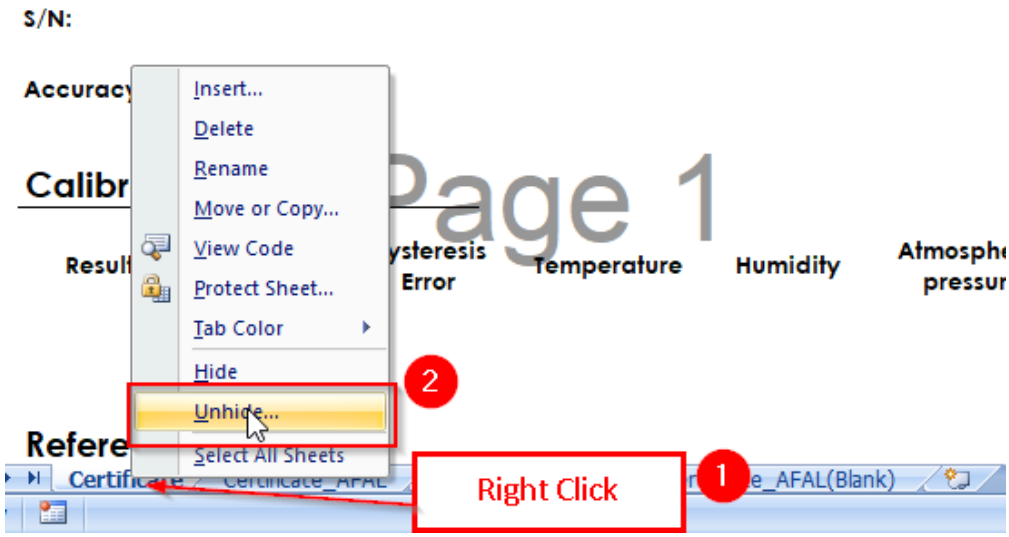
A.2 Unhide the Hidden Worksheets

An Excel worksheet should have popped up at this point. Each Certificate Template contains four visible sheets and four hidden sheets. The four visible sheets represent the As Found data (Certificate and Certificate(Blank)) and the As Left data (Certificate_AFAL and Certificate_AFAL(Blank)). You can see them at the bottom of the worksheet.

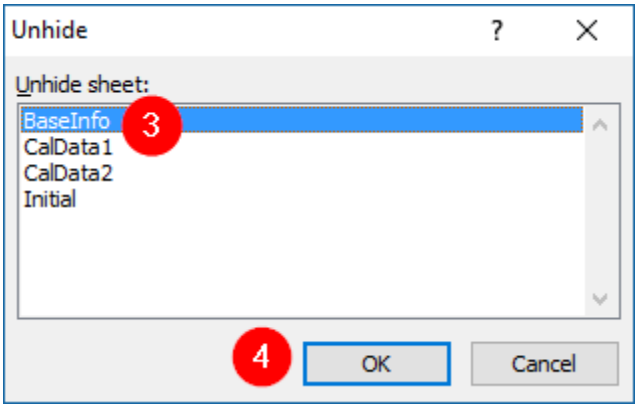


The four hidden sheets are BaseInfo, CalData1, CalData2, and Initial. These hidden sheets are where your calibration, DUT, and Reference information go when ACal exports to Excel. The information on the other sheets is all brought in via Excel Formulas. This allows you to have more freedom in how you customize your certificate.

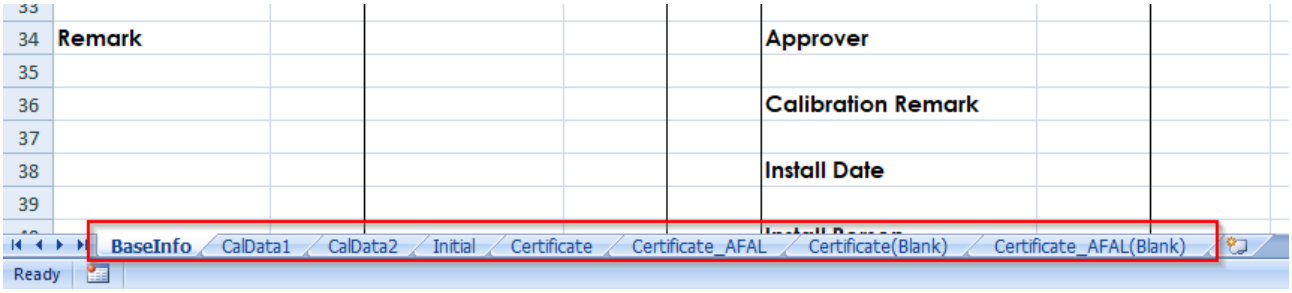
Because of this, you will not want to edit the hidden sheets, except in the ways specified in this manual. Editing them in other ways may result in missing data on your certificate. We will need to view the hidden sheets though. You can unhide them by right clicking on any of the worksheet tabs and then clicking Unhide Sheets.



Then select the sheet you want to unhide and click OK. You will need to do this individually for each of the four sheets.

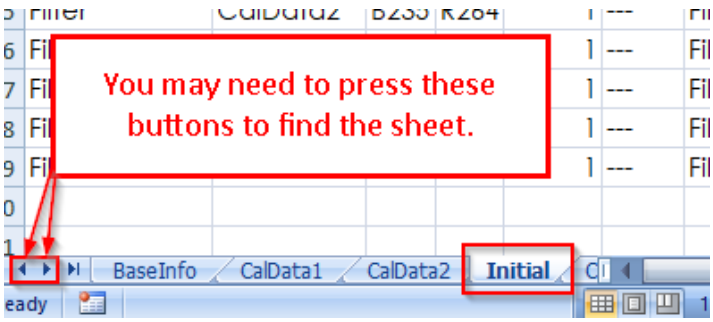


When finished, you should see all eight sheets at the bottom as tabs.



A.3 The 'Initial' Worksheet

Of the four hidden worksheets, BaseInfo, CalData1, and CalData2 should never be edited. However, the 'Initial' worksheet contains some fields you can edit which will effect how the main worksheets will be displayed. Switch to the 'Initial' Worksheet by clicking on it in the tabs at the bottom left of Excel.



The top of the initial worksheet contains several options that can be toggled on or off. You can control this by putting a 1 or a 0 in the Enable column. If there is a 1, that option will be on, and will change how ACal generates your certificates. If there is a 0, however, that option will be left off. Currently, only the Fold option is used by ACal, but the others may be used in the future.

	A	B	C	D	E	F	G	H
1	**FunctionCode**	**sheetName**	**start**	**end**	**Enable**	**value**	**description**	
2	Version					1.0.0	Version	
3	Fold				1		Fold	
4	Prefix				1	±	Add Prefix（±）	
5	Sign				1	+	Add Sign（+/-）	
6	HiddenArea	BaseInfo	G30	G30	1		Is Show Verifier Name	
7	HiddenArea	BaseInfo	G32	G32	1		Is Show Auditor Name	

A.4 Folding

Calibrations consist of a set of points at which you measure the accuracy of a unit under test. Sometimes, there is a lot of points. Other times there are fewer. The templates we make have to fit all of those situations. ACal leaves a lot of space so that even calibrations with large numbers of points can be shown correctly.

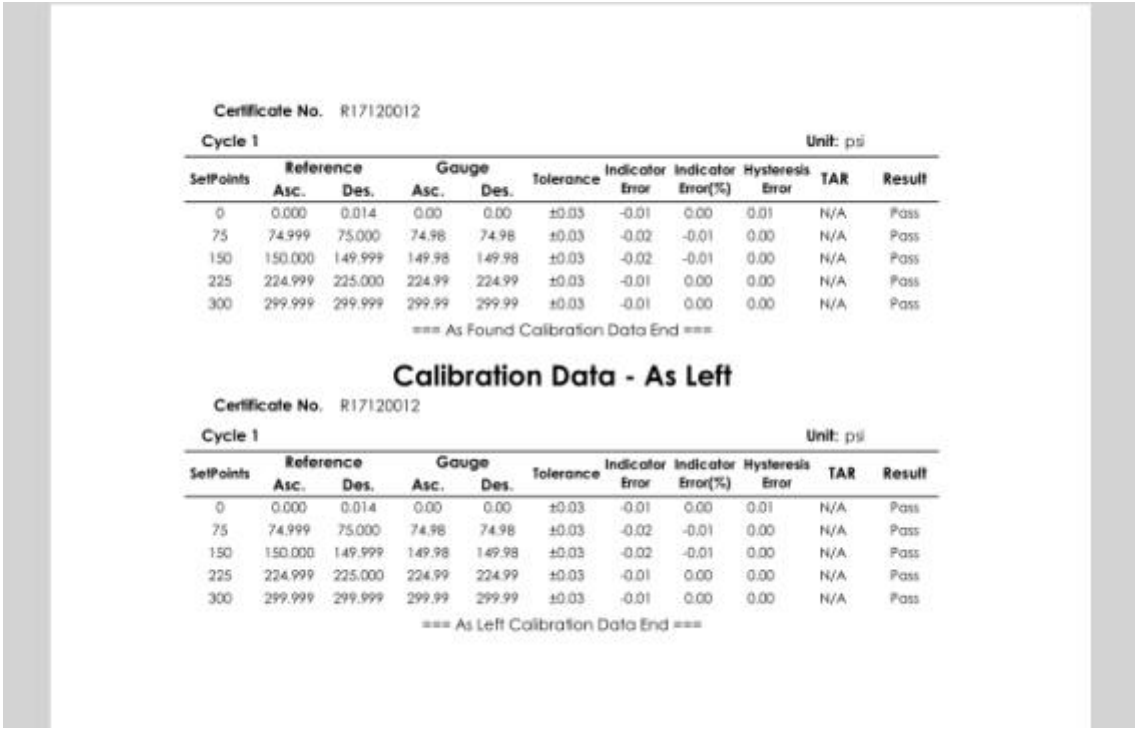
Folding allows you to hide all of the unused extra space so that your certificates look nicer. It is set on by default, however, you can turn it off if you would like. To turn it off, change the 1 in the Enable column to a 0.

	A	B	C	D	E	F	G	H
1	**FunctionCode**	**sheetName**	**start**	**end**	**Enable**	**value**	**description**	
2	Version					1.0.0	Version	
3	Fold				0		Fold	
4	Prefix				1	±	Add Prefix（±）	
5	Sign				1	+	Add Sign（+/-）	
6	HiddenArea	BaseInfo	G30	G30	1		Is Show Verifier Name	
7	HiddenArea	BaseInfo	G32	G32	1		Is Show Auditor Name	

If you disable folding, the extra space will be shown on all certificates you generate, and filled with a placeholder (in this case 3 dashes). You may use different placeholder characters if you prefer.

	A	B	C	D	E	F	G
1	**FunctionCode**	**sheetName**	**start**	**end**	**Enable**	**value**	**description**
2	Version					1.0.0	Version
3	Fold				0		Fold
4	Prefix				1	±	Add Prefix（±）
5	Sign				1	+	Add Sign（+/-）
6	HiddenArea	BaseInfo	G30	G30	1		Is Show Verifier Name
7	HiddenArea	BaseInfo	G32	G32	1		Is Show Auditor Name
8	Filter	CalData1	B25	P54	1	---	Filter
9	Filter	CalData1	B60	R89	1	---	Filter
10	Filter	CalData1	B95	R124	1	---	Filter
11	Filter	CalData1	B130	R159	1	---	Filter
12	Filter	CalData1	B165	R194	1	---	Filter
13	Filter	CalData1	B200	R229	1	---	Filter
14	Filter	CalData1	B235	R264	1	---	Filter
15	Filter	CalData1	B270	R299	1	---	Filter
16	Filter	CalData1	B305	R334	1	---	Filter
17	Filter	CalData1	B340	R369	1	---	Filter
18	Filter	CalData1	B375	R404	1	---	Filter
19	Filter	CalData2	B25	P54	1	---	Filter
20	Filter	CalData2	B60	R89	1	---	Filter
21	Filter	CalData2	B95	R124	1	---	Filter
22	Filter	CalData2	B130	R159	1	---	Filter
23	Filter	CalData2	B165	R194	1	---	Filter
24	Filter	CalData2	B200	R229	1	---	Filter
25	Filter	CalData2	B235	R264	1	---	Filter
26	Filter	CalData2	B270	R299	1	---	Filter
27	Filter	CalData2	B305	R334	1	---	Filter
28	Filter	CalData2	B340	R369	1	---	Filter
29	Filter	CalData2	B375	R404	1	---	Filter

This makes a big difference. Consider the following certificate below, with folding **enabled**:



Certificate No. R17120012

Cycle 1 **Unit:** psi

SetPoints	Reference Asc.	Reference Des.	Gauge Asc.	Gauge Des.	Tolerance	Indicator Error	Indicator Error(%)	Hysteresis Error	TAR	Result
0	0.000	0.014	0.00	0.00	±0.03	-0.01	0.00	0.01	N/A	Pass
75	74.999	75.000	74.98	74.98	±0.03	-0.02	-0.01	0.00	N/A	Pass
150	150.000	149.999	149.98	149.98	±0.03	-0.02	-0.01	0.00	N/A	Pass
225	224.999	225.000	224.99	224.99	±0.03	-0.01	0.00	0.00	N/A	Pass
300	299.999	299.999	299.99	299.99	±0.03	-0.01	0.00	0.00	N/A	Pass

=== As Found Calibration Data End ===

Calibration Data - As Left

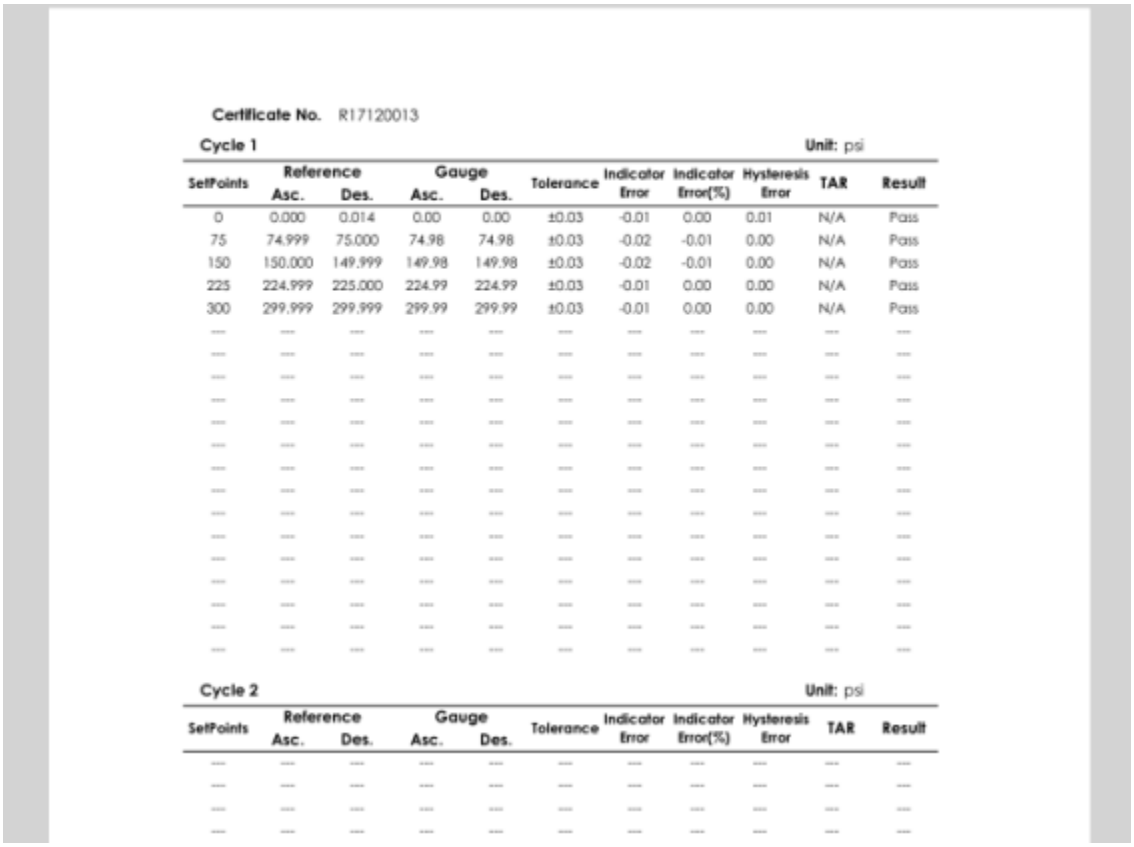
Certificate No. R17120012

Cycle 1 **Unit:** psi

SetPoints	Reference Asc.	Reference Des.	Gauge Asc.	Gauge Des.	Tolerance	Indicator Error	Indicator Error(%)	Hysteresis Error	TAR	Result
0	0.000	0.014	0.00	0.00	±0.03	-0.01	0.00	0.01	N/A	Pass
75	74.999	75.000	74.98	74.98	±0.03	-0.02	-0.01	0.00	N/A	Pass
150	150.000	149.999	149.98	149.98	±0.03	-0.02	-0.01	0.00	N/A	Pass
225	224.999	225.000	224.99	224.99	±0.03	-0.01	0.00	0.00	N/A	Pass
300	299.999	299.999	299.99	299.99	±0.03	-0.01	0.00	0.00	N/A	Pass

=== As Left Calibration Data End ===

Now consider the same certificate with folding **disabled**:



Certificate No. R17120013

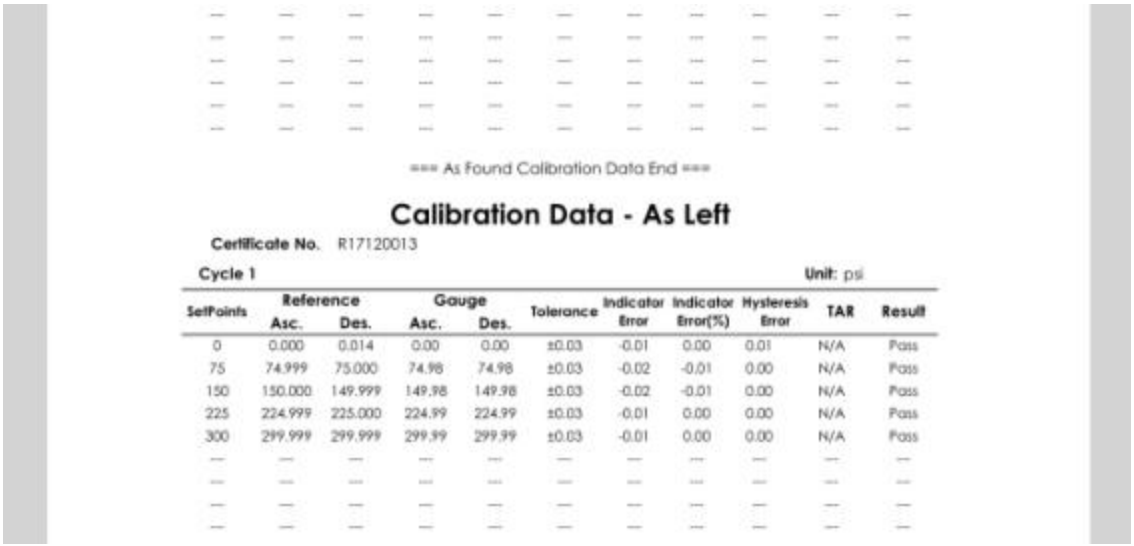
Cycle 1 Unit: psi

SetPoints	Reference		Gauge		Tolerance	Indicator Error	Indicator Error(%)	Hysteresis Error	TAR	Result
	Asc.	Des.	Asc.	Des.						
0	0.000	0.014	0.00	0.00	±0.03	-0.01	0.00	0.01	N/A	Pass
75	74.999	75.000	74.98	74.98	±0.03	-0.02	-0.01	0.00	N/A	Pass
150	150.000	149.999	149.98	149.98	±0.03	-0.02	-0.01	0.00	N/A	Pass
225	224.999	225.000	224.99	224.99	±0.03	-0.01	0.00	0.00	N/A	Pass
300	299.999	299.999	299.99	299.99	±0.03	-0.01	0.00	0.00	N/A	Pass

Cycle 2 Unit: psi

SetPoints	Reference		Gauge		Tolerance	Indicator Error	Indicator Error(%)	Hysteresis Error	TAR	Result
	Asc.	Des.	Asc.	Des.						

The document is longer, and the calibration data covers many pages.



=== As Found Calibration Data End ===

Calibration Data - As Left

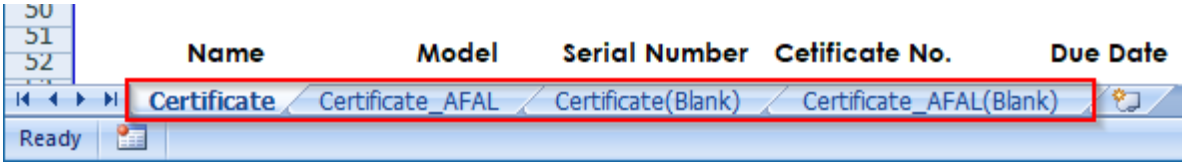
Certificate No. R17120013

Cycle 1 Unit: psi

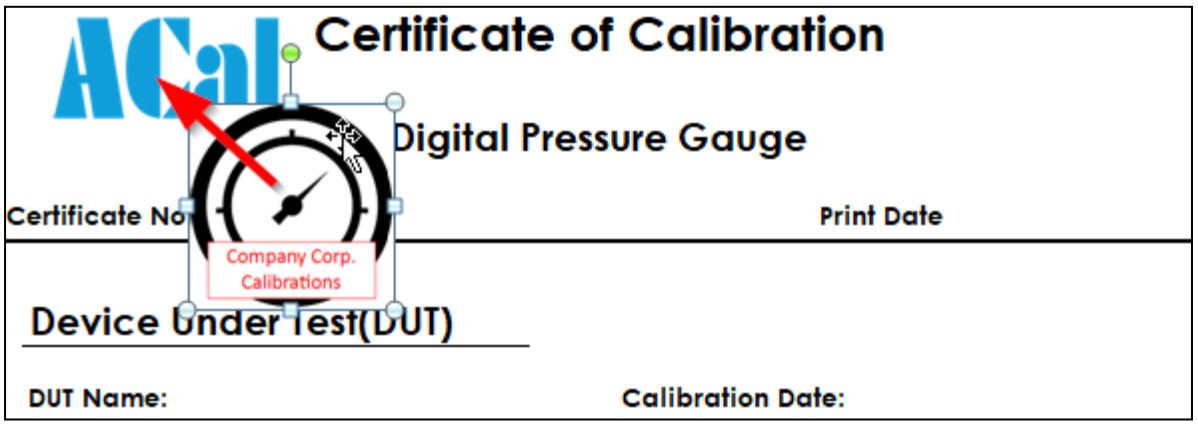
SetPoints	Reference		Gauge		Tolerance	Indicator Error	Indicator Error(%)	Hysteresis Error	TAR	Result
	Asc.	Des.	Asc.	Des.						
0	0.000	0.014	0.00	0.00	±0.03	-0.01	0.00	0.01	N/A	Pass
75	74.999	75.000	74.98	74.98	±0.03	-0.02	-0.01	0.00	N/A	Pass
150	150.000	149.999	149.98	149.98	±0.03	-0.02	-0.01	0.00	N/A	Pass
225	224.999	225.000	224.99	224.99	±0.03	-0.01	0.00	0.00	N/A	Pass
300	299.999	299.999	299.99	299.99	±0.03	-0.01	0.00	0.00	N/A	Pass

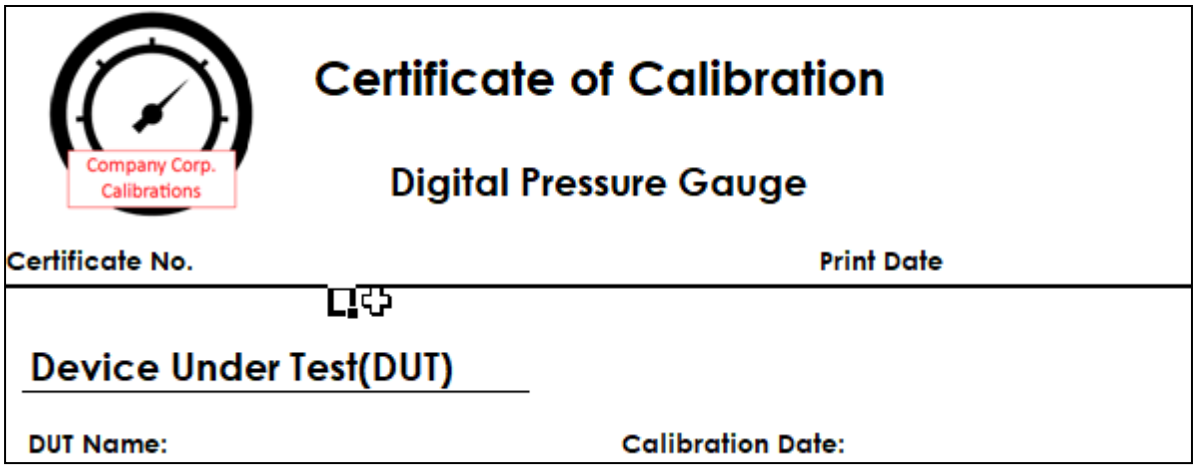
A.5 Changing How Your Certificate Looks

The rest of the changes you can make to your certificate are done on the four main sheets, which you can see below:



You'll probably want to do some things to customize those sheets. For example, you may want to replace the ACal logo with a logo of your own. This is reasonably easy to do. Start with the first sheet and delete the blue ACal logo. Then replace it with your own logo.

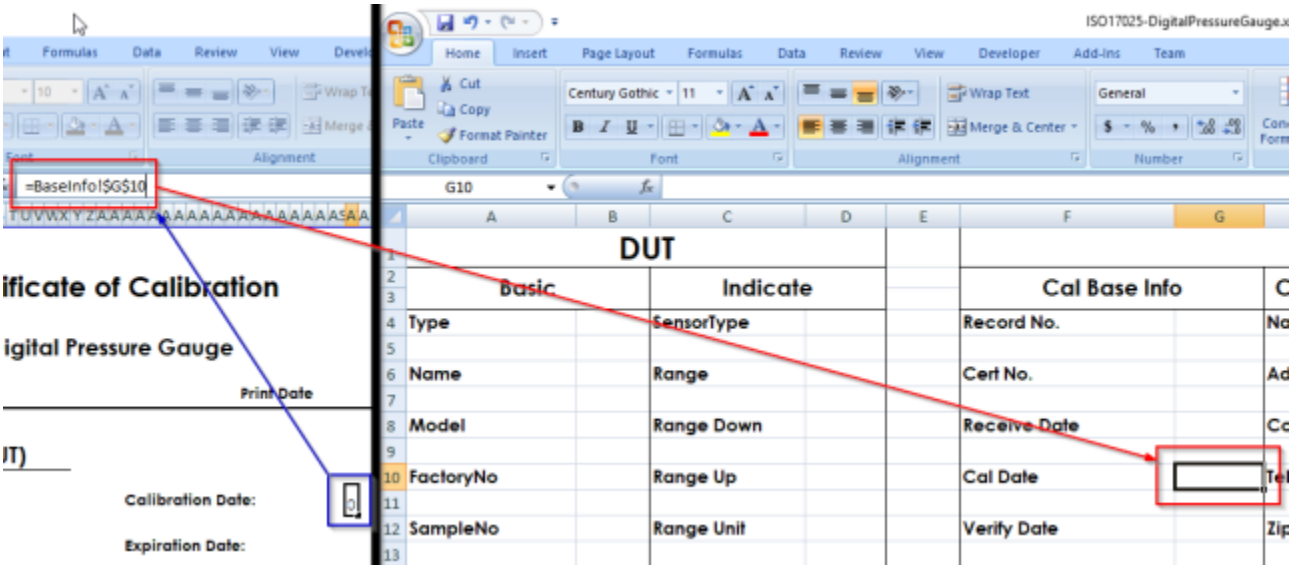




Do this on each of the four sheets (Certificate, Certificate_AFAL, Certificate(Blank), Certificate_AFAL(Blank)). When new certificates are generated, the logo will appear on them.

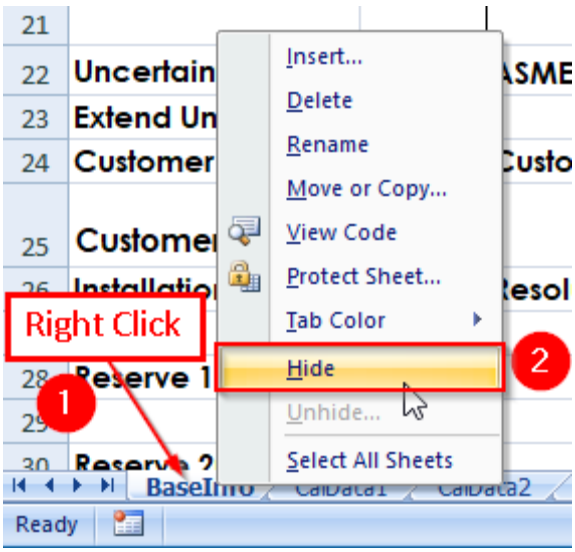


You may also wish to change the location of fields on your worksheet. If you do move them, please make sure that the cells continue to link to the hidden sheets using formulas. This will allow the information to appear on the certificate correctly.

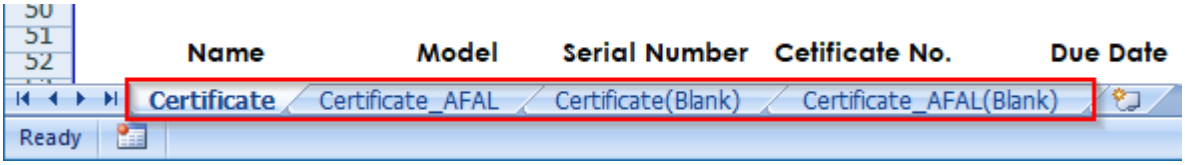


A.6 Hiding the Hidden Worksheets

Now that you are finished, you can hide the sheets that were originally hidden. You can do this by right clicking on the tabs and clicking Hide.



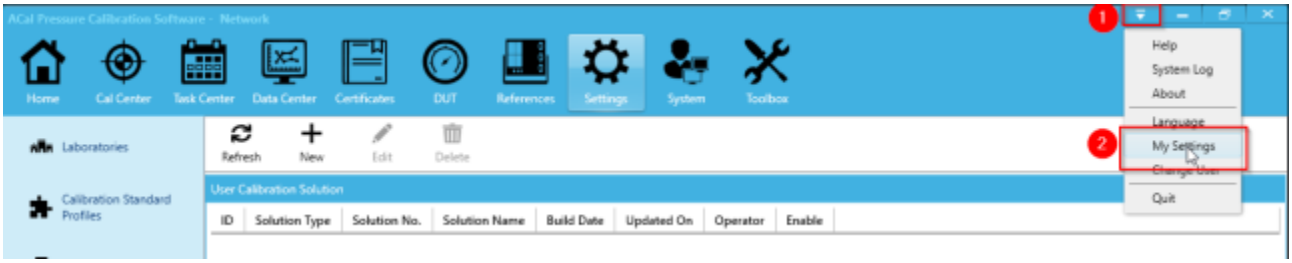
You will need to do it for the 'BaseInfo', 'CalData1', 'CalData2', and 'Initial' sheets. Once you are done, only the following sheets should be visible:



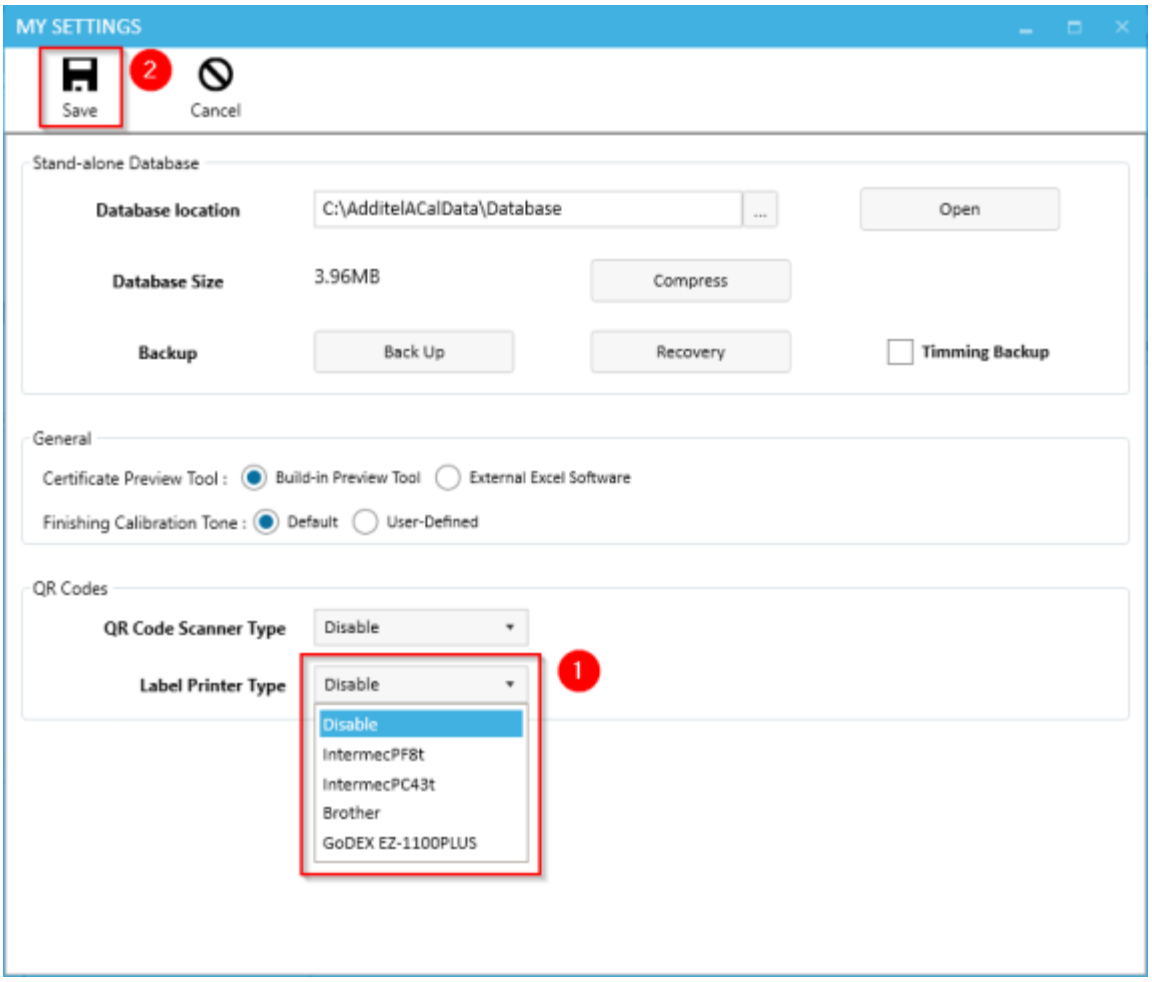
B. Label Printing

ACal allows you to print QR code labels for your DUTs, References, and Certificates. These can later be used with a scanner to help you identify units more quickly. This feature can only be used in the Professional and Network versions of ACal.

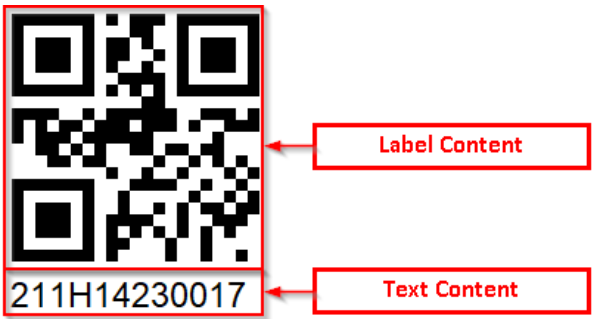
1. First, connect your label printer to the computer.
2. Next, open the Dropdown in the upper right hand corner of the screen and click My Settings.



3. Next, select the type of label format you would like to use (there may be some additional settings for the format you pick as well). Then click Save.

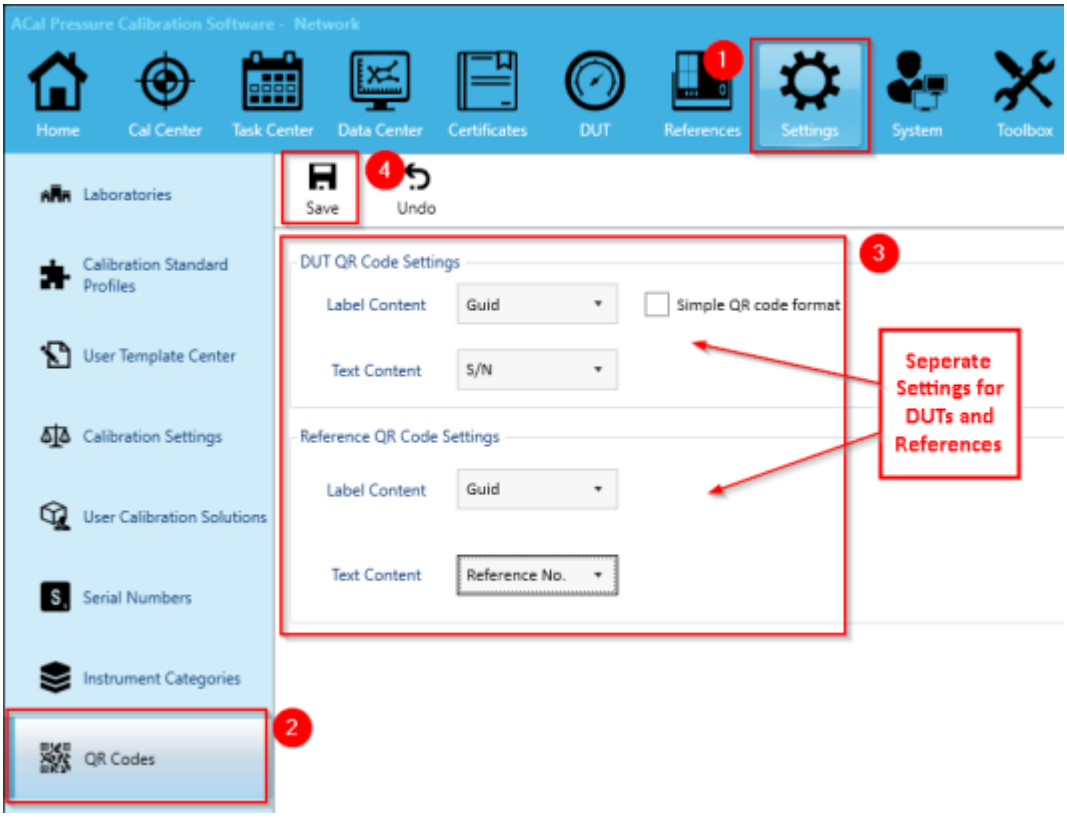


4. Next, we need to adjust the ID numbers the label uses. A label printed by ACal has two parts:



You'll need to determine what ID numbers go in which section. In the example above, both the label and text represent the Serial Number of a DUT. In some cases, though, you may want the text to be the Reference Number for the DUT instead (keeping the Serial Number as the label content).

You can set what those two fields are by clicking the Settings tab and going to the QR codes section. You can set the settings for both DUTs and References (Calibration labels will always use the Certificate Number for both fields). When you are finished, click Save.

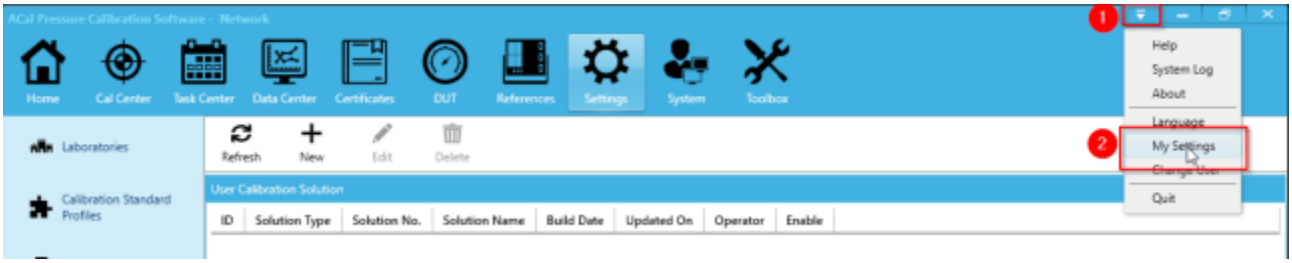


5. Exit out of ACal and reload the program
6. Do a test print to see if the label printer works.

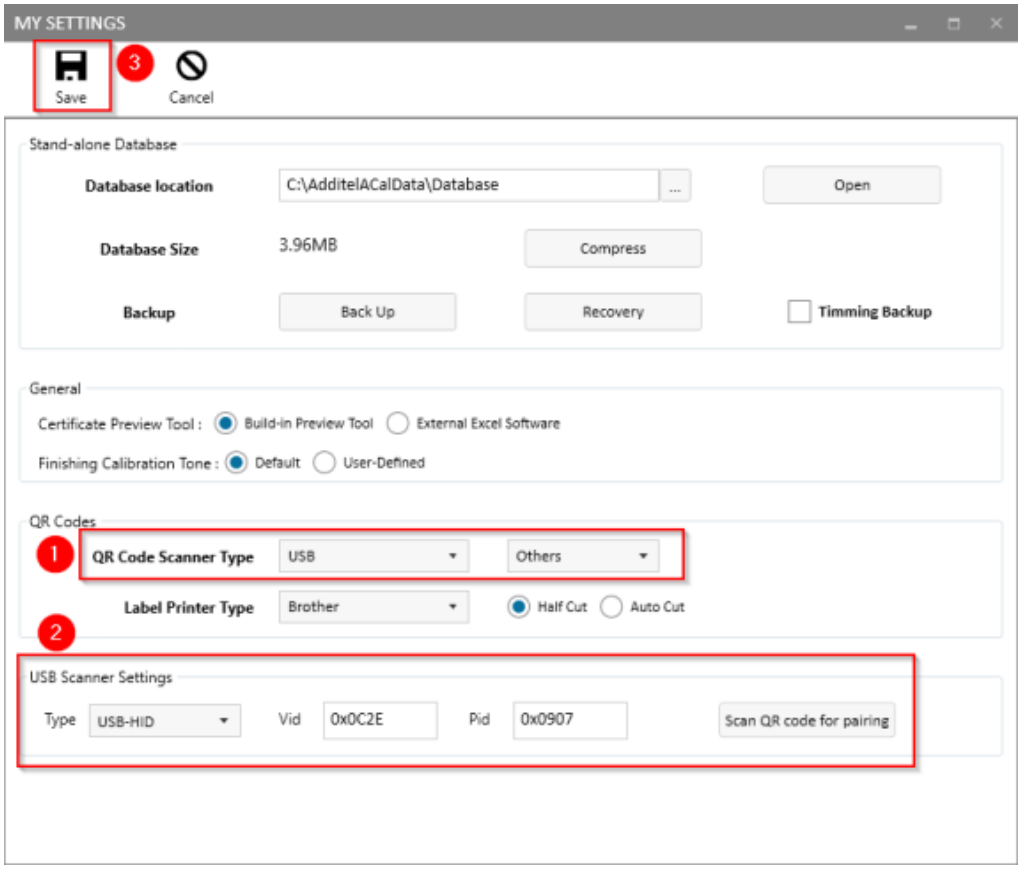
C. Scanning in QR or Bar Codes

ACal can allow you scan in QR codes and Bar codes, including the ones you print on labels (see Appendix B). Using QR or Bar codes can help you identify the units you are using more quickly. This feature can only be used in the Professional and Network versions of ACal.

1. First, connect your QR code or Bar code scanner to the computer. ACal supports scanners that use either USB or RS232 communication as input.
2. Next, open the Dropdown in the upper right hand corner of the screen and click My Settings.



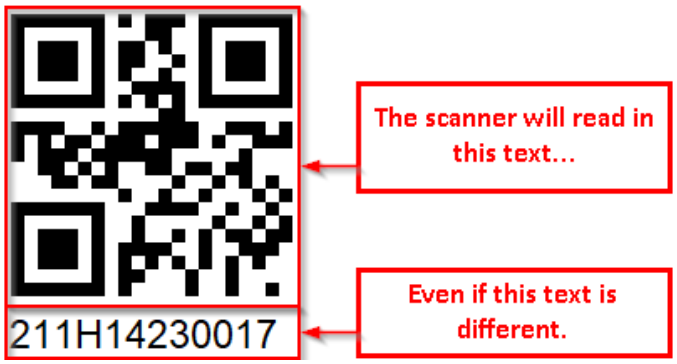
3. Next, select the type of scanner you would like to use (there may be some additional settings for the scanner you pick as well). Then click Save.



4. The label scanner performs different actions depending on what you are currently doing in your calibration process. For references and certificates this is simple - scanning them will always go to the appropriate tab and select the item (if it exists).

   For DUTs, this is a bit more complex though. Where it takes you depends on which tab you are currently viewing.

Tab	
Home	Change to the DUT Tab and select the DUT
Cal Center	Adds the DUT to the To Cal List
Data Center	Finds all calibration data related to that DUT
Certificates	Finds all certificates related to that DUT
Anywhere Else	Nothing Will Happen

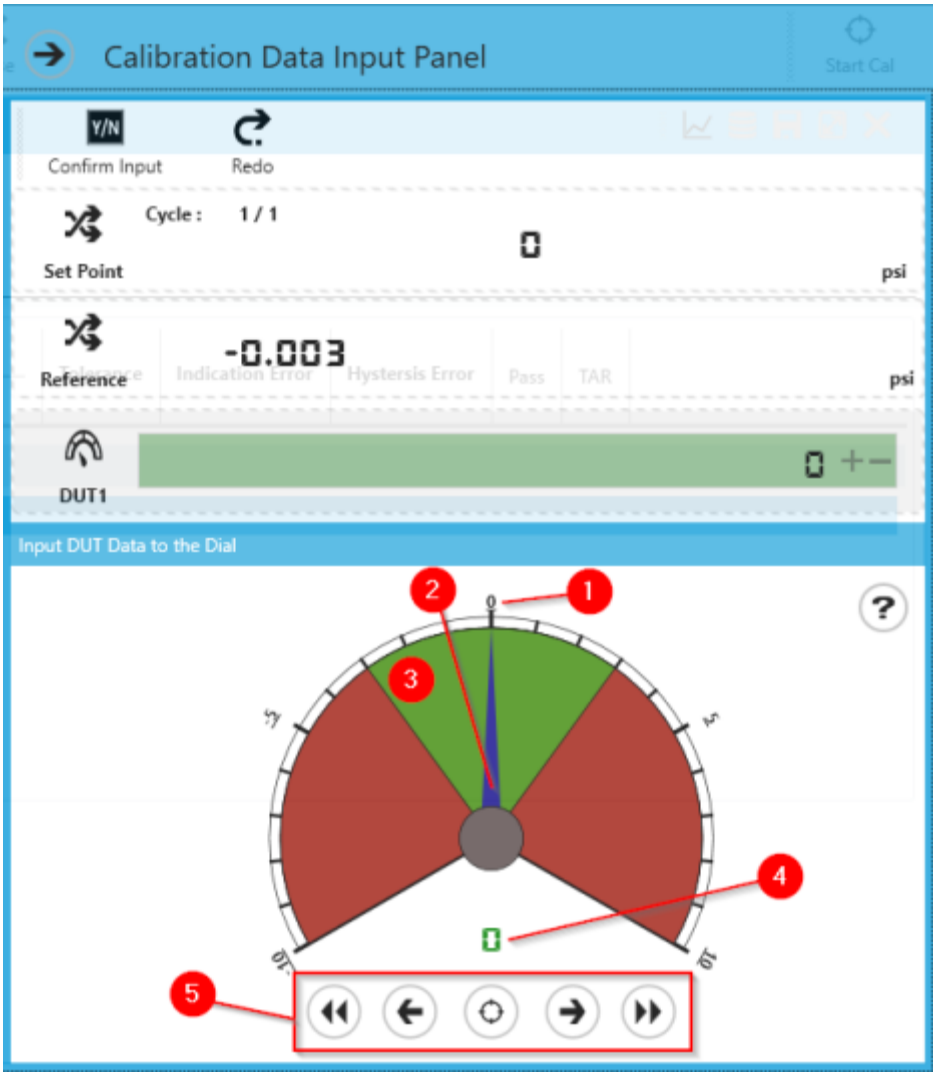


   If the code you scan in doesn't related to a DUT, Reference, or Certificate, nothing will happen.

   Scan in a DUT, Reference, or Certificate, and see if it works for you.

D. Calibration Data Input Panel

While performing non-automated calibrations, you may see a window appear which will look like the one below. While the buttons at the top should be obvious, this appendix will describe a few of the functions of the gauge graphic at the bottom.



Here's a description for each of the following parts:

1. **Scale Marking** – These indicate a specific pressure value. There are 20 markings, 5 of which are labeled.
2. **Scale Needle** – This shows the pressure value you are attempting to enter. You can move it around by moving your mouse.
3. **The Background** – The green areas of the scale are within tolerance for that unit. The red areas, on the other hand, are out of tolerance.
4. **Current Value** – This shows the current pressure value pointed to by the needle.

5. **Controls** – These buttons can be used to control the calibration process (alongside the other buttons talked about in Chapter 3).



This will move the needle 1 unit to the left or 1 unit to the right. If the needle is already at the bottom of the display, it'll change the display so you can continue to move it more to the left or right.



This will move the needle the bottom left or bottom right. If the needle is already at the bottom of the display, it'll change the display so you can continue to move it more to the left or right. It's similar to the two previous buttons but moves the needle more.



This button sets the pressure shown on the display as the current pressure of the DUT. It then moves on to the next set point.

6. You can also use keyboard shortcuts to make the process faster.

    1. **Left / Right** – Much like the first two buttons listed above, moves the needle 1 unit to the left or 1 unit to the right.
    2. **Down / Up** – Moves the needle 5 units to the left or 5 units to the right. Down moves the needle left. Up moves the needle right.
    3. **0** – Moves the needle to the current center (or top) of the display.
    4. **F1-F9** – Moves the needle to the left to the corresponding marker. For example, F4 would move the needle to the 4^{th} marking from the center on the left.
    5. **1-9** – Moves the needle to the left to the corresponding marker. For example, 6 would move the needle 6 units to the 6^{th} marking from the center on the right.
    6. **Enter** – Much like the last button listed above, sets the pressure currently shown on the display as the current pressure of the DUT. It then moves on to the next set point.