PR⊙LON

FOCUS USER
GUIDE

Configuration Guide for Prolon Focus Software

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1 - Prolon Focus Software

Prolon Focus is a powerful configuration and visualization software designed to work with the Prolon controls system. Every device in the HVAC system can be configured and optimized while being constantly monitored for maximum performance and energy savings. It can communicate with a project over various media ranging from local serial connections to remote, Cloud-based networks.

1.1 - Requirements

Operating System
- Windows Vista, 7, 8, 10
- Mac OS X 10.8 or higher (Please note that all images in this documents are from Windows and their appearance may differ slightly on macOS)

*Keep your Focus version up to date by visiting our website (www.proloncontrols.com) or by making use of the **Update Software** feature of Prolon Focus.*

1.2 - Prolon Cloud Account

The Prolon Cloud is an online service used to store all your Prolon projects, settings and more. With your Cloud account you can:

- Easily share your projects and settings between your mobile devices and computers
- Communicate to the project via Cloud Communication (if Network Controller is present)
- Grant project access to colleagues, contractors or specialists, and revoke it at any time
- Ensure your projects are up to date, regardless of modifications from other users
- Take snapshots of the current state of your project for future reference
- Get notifications about any changes other participants make to your project
- View important project notes left by yourself or other participants
- Rest assured knowing all data is securely stored on Google-backed servers with daily backups

You can sign up for your FREE Prolon Cloud account anytime using the Prolon Focus software. An internet connection is required to sign into your account and access all these features.

Please note that a Prolon Cloud account is **optional, and therefore not necessary** to use the Prolon Focus software. A guest account can be used anytime, allowing for local access to a project in case no internet access is available. Project data can be stored in a local file for recovery later.

1.2.1 - Starting Prolon Focus

1) To start the Prolon Focus software, double-click the Prolon Focus icon on your desktop:

Figure 1 - Prolon Focus Desktop Icon

2) Upon start-up, you are greeted with a Welcome screen. From here you can decide whether to log in to your Cloud account, or to continue as a Guest. Note that if you do not have internet access, you will immediately be logged in as a Guest (see below).
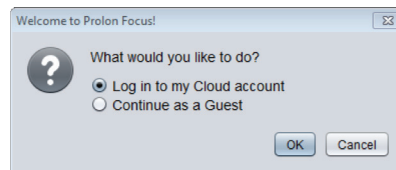
Figure 2 - Welcome Screen

- **Log in to my Cloud account**: Use this to proceed to the Login screen in part 3) below. See *Section 1.2 - Prolon Cloud Account* for more info about Cloud Accounts.

- **Continue as Guest**: If you do not yet have a Prolon Cloud account or cannot access the internet at this time, you can continue using Prolon Focus as a guest.

  While working as a guest, you can still connect to your project using local means (Serial port / USB) or remotely when available (TCP/IP over port 502, Modem), but you cannot communicate to your project using Prolon *Cloud Communication*.

  Also, any project you build while in guest mode will need to be saved to a local file (PRL file) if you wish to recover it later. Note that PRL files can be imported as projects into Focus and stored to your Cloud account the next time you log in.

3) This screen is used to login to your free Prolon Cloud account.
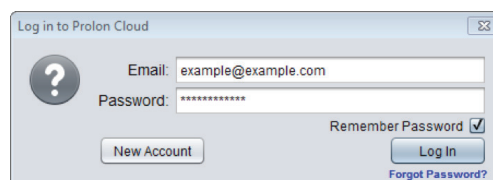
Figure 3 - Login Dialog Box

- **New Account**: If you do not yet have a Prolon Cloud account, this button launches the account creation screen.

- **Forgot Password**: If you forget your password, Focus will send you a temporary password via email that can be used to login and update your account password.

- **Log In**: After providing your credentials, you are logged into your Cloud account, and will be directed to the Welcome screen below.

4) Finally, you are presented with the Start-Up screen, prompting you for the desired project you wish to open.
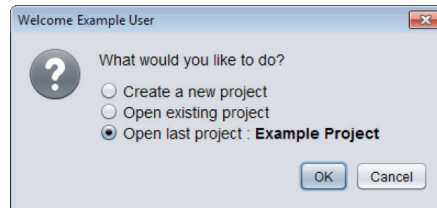
Figure 4 - Start-Up Dialog Box

- **Create a new project**: Starts an empty project. All controllers must be added to the screen from scratch. Use this for new jobs (start-ups) or for testing purposes.

- **Open existing project**: Browse your Cloud account for an existing Prolon project that you wish to open. *(See Open)*.

- **Open last project**: Instructs Focus to open the Prolon project that was last used. Gives you quick access to your last project.

Note that if you simply wish to import an existing PRL file from your computer, choose the option: "Create a new project", and proceed to the *Import PRL* menu.

The following is a screenshot from a typical Prolon project:

Figure 5 - Typical Focus Screen

1. Title Bar (Displays the current Focus version)

2. *Menus & Options*

3. *Project Name*

4. *Project Access Level*

5. *Global View* & *System View* Toggle Buttons

6. *System Select* Dropdown List

7. Connect & Disconnect Toggle Buttons

8. *Connection* Status

9. Device Category Selection

10. *Device Buttons* (Drag and Drop)

11. *Master* Icon

12. *Follower* Icons

13. *Profile Management*

3 - Network Hierarchy & Navigation

A typical Prolon Network can be seen as a simple hierarchy. A Network Controller is at the peak of the hierarchy, presiding above Prolon Master controllers, such as a Zoning Rooftop or Zoning Heatpump controllers. Then, below each Master are the Follower controllers. Follower controllers can only be associated with a single Master:
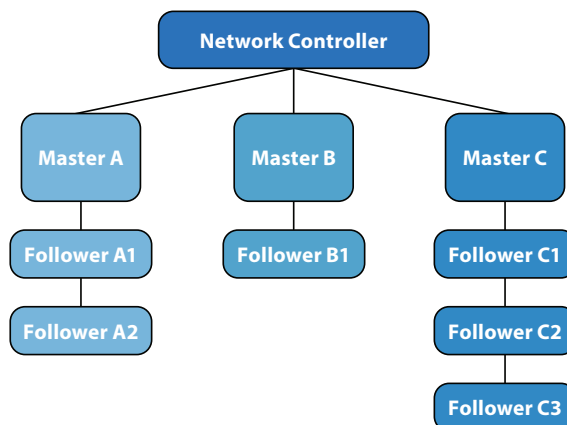
Figure 6 - Prolon Network Hierarchy

This hierarchy is also present in the way Prolon Focus is designed to display your project. There are two types of views: a "System" view and a "Global" view. You can flip between each view using the Global / System toggle buttons or using the *View Menu*.

3.1 - System View

The System view displays a single branch within the network:
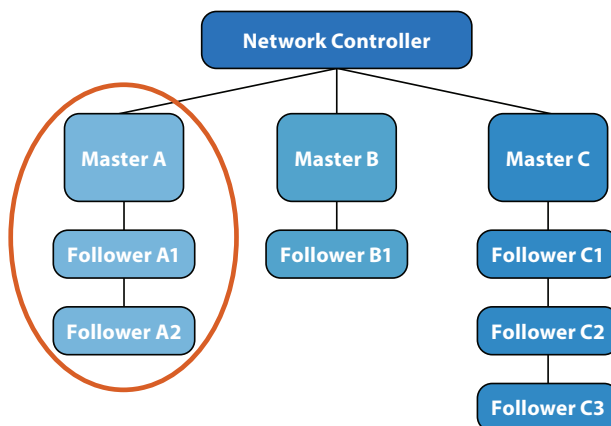
Figure 7 - System View

This branch shows a single Master controller with its associated follower controllers. You can switch between the different Systems using the System Select Dropdown list.

Note that a system does not necessarily require a Master controller: it can simply be a collection of follower controllers.

3.2 - Global View

The Global view displays the highest network hierarchy level:
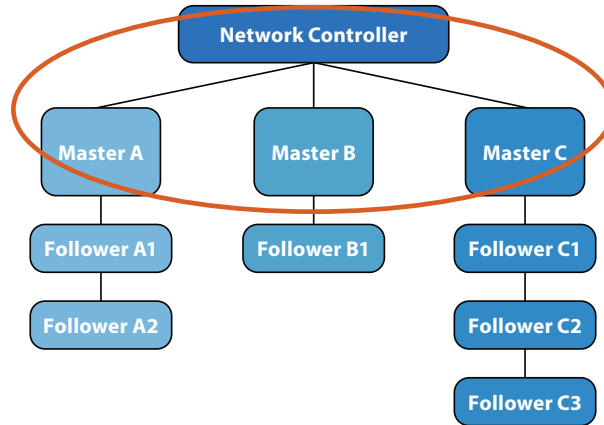
Figure 8 - Global View

It displays the Network Controller and all the Master controllers. If a particular system does not have a Master controller, then that system will instead be represented by a generic icon that displays the quantity of controllers within that system:

Figure 9 - System Icon

Double-clicking a Master or generic System icon will immediately switch you to the System View of **that** system.

Note that a Network Controller is not required for Focus to show the Global view. It will instead simply show all available **Masters** or Systems.

More Systems can be added to a project by clicking or dragging the "New System" button from the Drag & Drop section on the left side of the screen. Systems are empty by default.

4 - Controllers

The purpose of the Prolon Focus software is to provide information about the various controllers in your building. This section describes how to add controllers to your project and provides general information about viewing and modifying their configuration.

Please note that a detailed look at the settings and sequences of each controller is beyond the scope of this document. Please refer to each controller's respective Focus Guide for more details.

4.1 - Controller Classes

There are two controller classes in Prolon Focus:

- Master Controllers
- Follower Controllers

In a single System, there can be many Follower Controllers but only a single Master Controller.

A Master Controller exchanges information with its Follower Controllers to achieve a better overall control strategy. In contrast, Follower Controllers will never directly talk to one another. They rely on the Master for any type of data exchange. A Follower Controller can only belong to a single Master. These dynamics are derived from Modbus, the communication protocol on which Prolon controllers are based. Note that Follower controllers can still operate in the absence of a Master, except they will be working with less information.

The following table lists all Controllers currently available:

MASTER	FOLLOWER	
	ZONE	OTHER
Zoning Rooftop (RTU)	VAV Zone (VAV)	Humidity (HUM)
Zoning Heatpump (HP)	Thermostat (T1100)	Boiler (BLR)
Hydronics (HYD)	Single-Zone Rooftop (RTUS)	Water Loop (WLC)
Make Up Air (MUA)	Single-Zone Heatpump (HPS)	Copper Theft Alarm (CPT)
		FlexIO (FLX)

Finally, all Prolon Controllers (Master or Follower) can be united under a Network Controller. There can only be a single Network Controller in an entire Prolon project. It traditionally acts as a gateway to the internet, but also serves in data logging and email alert capacities.

4.2 - Adding Controllers

When connecting to a new project for the first time, Prolon controllers will need to be added to the Focus project systematically under the direction of the user; Prolon Focus does not have any kind of general purpose detection feature to do this automatically due to the uncertain state of the communication bus during a job start-up. However, once the controllers are added the first time and the project is saved, they will be loaded automatically next time.

Controllers can be added manually to the project using the Drag & Drop buttons on the left side: You can drag a controller out from the left and drop it anywhere on the screen, or simply click the button and Focus will place it for you. The only information required is the Modbus address of the controller. The source of this address varies by controller; please refer to the respective controller's Focus guide for more details. Controllers can be addressed in the range of 1 to 127.

- **Note 1**: No two controllers (Master or Follower) should share the same Modbus address, regardless of where they are found in the network hierarchy. This will create an address conflict, disrupting the normal flow of communication.

- **Note 2**: When a Follower controller belongs to a Master controller, the Master controller acts like a router, and must be aware of the Follower controller before allowing any messages to reach it. In other words, you will not be able to manually add a Follower controller to a project if the Master does not yet know it exists. A Master periodically updates its list of followers, but you can force it do so manually by cycling power, or by performing a Get List (as described below).

There are other methods of adding controllers to a project, including the "Get List" method (found when right-clicking a Master icon) or the "Add Multiple" method (found when right-clicking the Drag & Drop button of the Zone Controllers). These are discussed in greater detail in the respective Focus guide of each controller.

If Focus cannot detect the controller, a warning message will appear, and the controller will not be added to the project. Verify the wiring and controller addressing and try again.
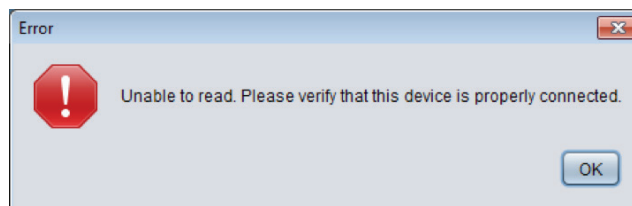
Figure 10 - Failure to Detect a Controller

Once the controller is added and detected by the Focus software, an icon is created representing that controller. You can move the icons around the screen as desired.

Once a Master icon is added to a System, you may notice that the other Master Drag & Drop buttons become unavailable for that system. This is consistent with the limitations of Master controller classes, as described above.

4.2.1 - Best Practice

This section details the most efficient way of building a typical Prolon project, consisting of one or multiple Masters, each with Follower Controllers of their own:

1. While in System View (the default view when starting a project), add your first Master Controller to the project using the Drag & Drop buttons on the left side of the screen. You will need to know the address of this Master Controller.

2. Right-click the newly-created Master Controller icon and select "Get List". The Master Controller searches its network and will create icons for any Follower Controllers that are discovered. (You do not need to provide any information for a "Get List").

3. If you have other Master controllers to add, switch to Global View and add a new System using the Drag & Drop buttons on the left. Otherwise, go to step 7. You will be prompted to name this new system.

4. Double-click the newly-created System icon. You are brought to the System view for this new system. Since it is a new system, it is normal that it will be empty.

5. Repeat steps 1 and 2 for this new Master and its respective Followers.

6. Repeat steps 3 to 5 for any other systems.

7. If applicable, add your Network Controller in Global View.

8. Synchronize your project's database by performing a "*Refresh All*"

9. Once all controllers in the project show up and are communicating, save your project.

If a particular system does not have a Master controller and is comprised entirely of Follower controllers, they will just have to be added manually using the Drag & Drop buttons on the left.

4.3 - Controller Icons

Each Controller class described above has its own type of icon:
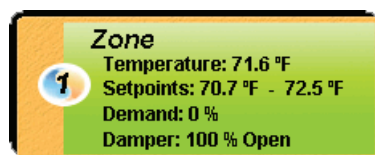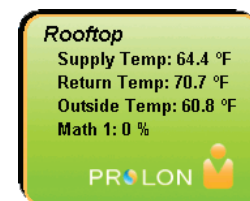

Figure 11 - Typical Follower Icon

Figure 12 - Typical Master Icon

(These icons are loosely portrayed in the respective Drag & Drop button for each controller, giving a quick way to discern the controller class of each device).

Icons show data about the controller they represent, offering a way to assess the status of your project at a quick glance. The information shown in the icons gets updated periodically (see Refresh Rate in the *Connection Tab*). The color of the icons is also significant: blue means that the controller is cooling, red is heating, green is satisfied, and gray is offline.

Icons can be moved around the screen by clicking and dragging them to the desired location. This can be of interest when using a *background*.

Finally, Follower icons can be minimized to reduce screen clutter. To minimize a Follower icon, click on the Prolon Yin-Yang symbol. Click it again to return to normal size:
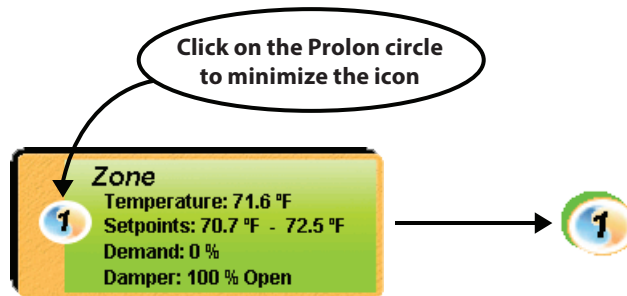
Figure 13 - Icon Minimization

When Follower icons are minimized, they are highlighted with the same color that represents the current action of the controller, as described above.

4.4 - Controller Configuration

The configuration of each controller can be accessed by double-clicking its associated icon. A configuration screen dedicated to that specific controller subsequently opens.

A detailed look at every setting of each controller is beyond the scope of this document (please refer to each controller's respective Focus Guide for these details). Instead this document will focus on the common elements of configuration shared between all controllers.

4.4.1 - Home Page & Button

When a configuration screen is opened, **Focus** first presents the Home page. In essence, the Home page is a detailed status page, displaying all possible information about the inputs, outputs and actions that the controller is currently taking. It is all visualized using a series of icons and graphics representing a typical setup for that controller. The graphics can vary based on the chosen configuration of that controller.

All controllers have a Home page, which is also used to perform overrides on the outputs of the controller. The configuration screen even has a permanent "Home" button at the top right to instantly bring up the Home screen when needed.

4.4.2 - Control Buttons

All controller configuration screens have the following three control buttons in the bottom right corner:
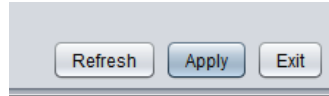
Figure 14 - Control Buttons

• **Refresh**: Forces the Focus software to read all configuration data from the controller and display it on screen. By default, this automatically happens anytime the configuration screen is opened, but this button can be useful for debugging purposes, or to see if recent changes to the controller's configuration were successful.

• **Apply**: Causes the Focus software to send the current configuration shown on screen to the controller. This command message will be sent regardless of whether or not any changes were made on screen. Note that before the message is sent, the Focus software will validate the configuration, warn you if any irregularities are found and suggest how to correct them.

• **Exit**: Closes the configuration screen. If any change is made to the configuration that has not yet been applied, the change will be lost (similar to a "Cancel" button). Note that if there are any overrides active on the control (damper, outputs, etc.) you will be given the option to remove the overrides at this point.

Note: These buttons are not visible when the Home Page is being displayed (they have no effect on the Home Page data, so they are hidden from view). They will be visible in every other page in the configuration screen.

4.4.3 - Offline Modifications

The Prolon Focus software can be run in Offline mode. In Offline mode, the configuration page of each controller can still be edited just like in online mode, but the actual controller will not receive these new settings until you return online. When a change is made to a controller's configuration in Offline mode, a small asterisk will be placed after the controller's name on its icon:

Figure 15 - Offline Modification Marker

This asterisk acts as a reminder that the configuration of this controller has been changed in Offline mode, and that an action from you is required before it can be sent to the controller.

When online, double-click the controller to open the configuration screen. You will be prompted to make a choice regarding the offline modifications:
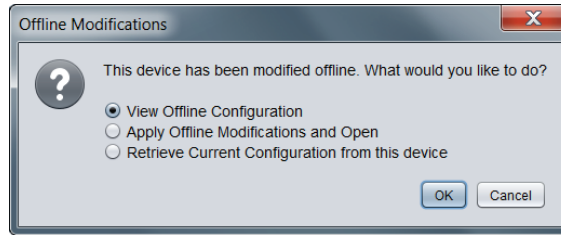
Figure 16 - Offline Modifications Popup

- **View Offline Configuration**: Allows you to review the setup you had created offline before applying it to the controller. Once you are satisfied, press the Apply button to confirm. Only after pressing the Apply button will the asterisk be removed.

- **Apply Offline Modifications and Open**: Focus will apply the offline configuration immediately. This will remove the asterisk automatically.

- **Retrieve Current Configuration from this device**: If you are curious as to the configuration currently in the device, you can view that with the third option. Note that this will not discard your offline configuration: the asterisk remains so long as the Apply button is not pressed. To view your offline configuration again, exit the configuration screen without pressing the Apply button, and then re-enter the configuration screen.

5 - Project Management

In Prolon Focus, a project represents the network of Prolon controllers in a building. The ability to remotely access and view the project is controlled by a project administrator.

5.1 - Project Administrator

For every Prolon project, there is an administrator. The administrator's primary role is to decide who has remote access to the project and what each participant's HVAC level is. Typically, the administrator is the owner or primary maintenance technician of the building.

The administrator controls the project's visibility on the Cloud, as well as any Cloud-based communication to the project (see *Cloud Communication*). The administrator also controls the ability to delete project notes.

It is important to note that if a person (participant or not) has the means to **locally** access the controllers (in other words, physically connect to them inside the building), there is nothing preventing them from creating a new project and working on them locally. However, they will not be able to continue their work remotely without the administrator's permission.

5.1.1 - Typical Project Lifecycle

When a project is first created, the initial creator is automatically set as the administrator. This could be a contractor who has been charged with installing and commissioning Prolon controllers in a building. During the installation phase, the contractor may choose to share the project with colleagues or employees for easier servicing.

When the project is finally ready for delivery, the contractor will typically transfer the administrator rights to the client or end-user. The client can then adjust the list of participants at their discretion.

Before handing over the administrator rights, the contractor can take a snapshot of the project. This snapshot can be useful for future reference, detailing the state of every controller in the project as it was delivered. Snapshots belong to the user who took them and remain in their possession even if the administrator removes their access (see *Snapshot*).

Over time, project administrators can grant or revoke access to various contractors and specialists as required for servicing and maintenance. If building ownership ever changes hands, the administrator should transfer their rights to the appropriate party. If the Prolon account containing the administrator rights to a project is forgotten or otherwise unobtainable, the procedure below outlines the steps for reclaiming those rights.

5.1.2 - Reclaiming Administrator Rights

Should the administrator of a project become unavailable, a new administrator can be assigned. The exact method to reclaim the administrator rights will depend on the presence of a Prolon Network Controller, but always requires local, physical access to the controllers (i.e. must be in the building) and cannot be done remotely. Note: A *TCP/IP connection* also counts as a **local** connection and can be used for this purpose.

If the project contains a Prolon Network Controller:

The process differs slightly depending on whether or not you are already a participant in the project. If you are NOT: the Prolon Focus software can determine which Cloud project is associated to a given Network Controller and can add a local user to that project. Follow the steps in *Section 6.4.3 -Manually Joining a Project* to add yourself to the project participation list.

Once you are a participant, follow the steps in *Section 7.2.1.2* - to become administrator.

If there is no Prolon Network Controller in the project:

A new project can simply be built to replace the old one. Connect to the project using local means and make use of the Get List function available on any Prolon Master controllers to speed up this process (*see section 4.2.1 - Best Practice*). You will have access to all the settings in every controller.

5.2 - Sharing

Prolon projects can be shared by the administrator to anyone who has a Prolon Cloud account (free). Sharing a project to other users allows them to:

- View the project and change settings (as far as their HVAC level allows them)
- Communicate with the project via Cloud Communication (if a Network Controller is present)
- Add notes to the project
- Take snapshots of the project

When the project is shared, the receiver will get a message in their Focus *Inbox* and the project itself will become available in their *Open Project* dialog. Any changes made to the controllers of a project by the administrator or the participants are noted in the project *Access Log*.

Note that the administrator can revoke any participant's access at any time, but the participant gets to keep any snapshots that they have been shared or that they have created on their own. Any logs or notes contributed by the removed participant remain attached to the project.

Projects can be shared to individual users one at a time by providing their email, or they can be shared instantly to a whole group (see *Manage User Groups*).

5.3 - HVAC Level

The project administrator assigns the HVAC level of all project participants. HVAC access levels determine the type of information a participant can see and change in the project. There are currently two access levels in Prolon Focus: Advanced and Standard.

The Advanced level unlocks all functionalities in the Focus software and lets the user view and configure any setting of any controller. (This is the default level assigned to you when creating a new project).

The Standard level grants basic access to the project: users can see the controller icons, backgrounds and be able to access the Home Page of a controller's configuration screen. However, they are blocked from accessing any of the configuration pages or from performing overrides to the controller's outputs. This prevents them from changing any of the configuration settings in any given controller.

There are a few exceptions. Users with Standard access can still adjust the following settings:

- Zone Default Heat Setpoint
- Weekly Schedules
- Holiday Calendar
- Zone Minimum Deadband
- Zone Setpoint Limits
- Zone Unoccupied Mode Limits and Offsets
- Zone Unoccupied Mode Override Time

These basic settings are less critical and are often required to be adjusted periodically.

The administrator can change any user's HVAC level at any time by heading to the *Access Tab* screen and individually adjusting the setting in the third column of the participants list.
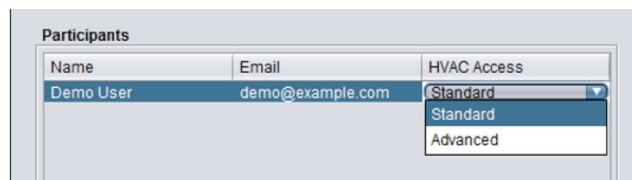

Figure 17 - HVAC Level Adjustment

The administrator also has the opportunity to set participants HVAC levels at the moment projects are initially shared to them.
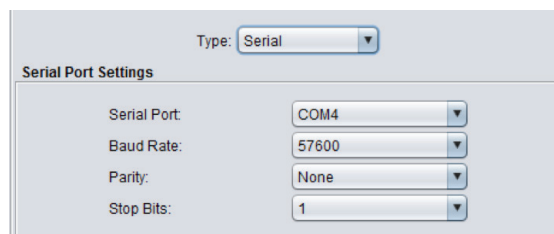
6 - Communication

Prolon Focus offers various methods to communicate to the controllers in a building, ranging from serial, wireless and remote cloud access over the internet.

Select the communication method in the *Connection Tab*.

6.1 - Serial Connection

Select this local communication option when you are using an RS485 converter or other serial method, such as USB through the Prolon Network Controller (look for the serial port marked "USB").
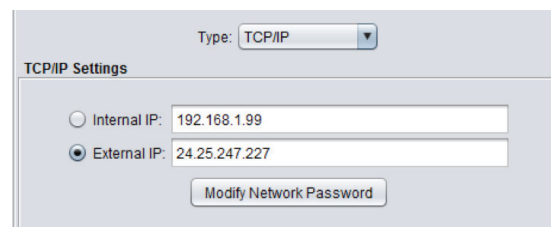

Figure 18 - Serial Port Connection

If the drop-down list of serial ports is empty, this indicates that your computer is not aware of any modules or peripherals that can act as a serial port. If this is the case, ensure that the proper drivers are installed for your peripheral and that your peripheral is properly connected to your computer, and then close and re-open the Focus software.

The Baud Rate, Parity and Stop Bits are configurable serial settings, but in standard Prolon networks, they are not usually changed and should remain at their default values: 57600 baud, no parity, and one stop bit.

6.2 - TCP / IP

This option is used when connecting locally or remotely to a Prolon Network Controller (or other Modbus TCP server) over its Ethernet port.

Figure 19 - TCP/IP Connection

Prolon Focus can remember two IP addresses for the same project. This can be useful when there is an IP address that works from inside the building, but an external one is required when working remotely.

By default, Prolon Focus will attempt to connect to the specified IP address by opening port 502 (the default port for Modbus communication).

The port can be changed by adding a colon followed by the desired port. For example:

192.168.1.99:503

This technique can be useful when more than one Network Controller is present on a job to differentiate between them when connecting from outside the building. Note however that Prolon Network Controllers only respond on port 502. It is the responsibility of the IT administrator to create a port forwarding setup in the router so that only requests for port 502 reach the Network Controller.

It is not obligatory to use the numerical format of an IP address. The text-based format can equally be used, which is useful for routers using a Dynamic Domain Name System (DDNS). For example:

myjob.ddns.com

This can also be combined with a colon to specify the port.

Modify Network Password: Although Prolon Focus has a sharing system in place that prevents unauthorized users from remotely accessing a project using the *Cloud Communication* method, this restriction does not apply to TCP/IP communication.

If the external IP address of a building is known, users who are not participants in a project can still communicate remotely over TCP/IP if port 502 is opened in the router. (If this is not desired, do not open port 502 in the router). Nevertheless, a password system has been put into place that prevents unauthorized users from viewing the project the instant a Master controller is detected. All controller icons, their configurations, overrides and backgrounds are blocked from view until the password is given. Once the password is given, normal access is re-established, and you can edit or remove the password by returning to this menu screen.

Forgotten Password: If you have forgotten the password, there is a "Forgot Password?" button available in the password screen.
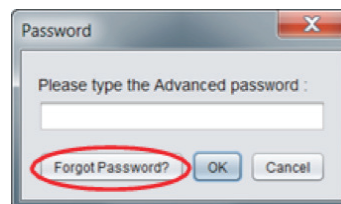
Figure 20 - Forgot Password Button

This button generates a configuration file that, once sent to Prolon or an authorized distributor, can be used to determine the forgotten password for you.

Warning: If you apply a Network password to a project with a Master controller, Focus will need to validate your given password with that Master before the project can be opened. If that Master controller is powered down or missing, for security reasons Focus will not give online access to the project. Open the project in offline mode instead (still requires password) and remove the Master from the project before returning online.

6.3 - Modem

To connect to a Prolon modem (legacy product), you must first select the serial port where your computer modem can be found from the drop-down list

Figure 21 - Modem Connection

You must then type the phone number you wish to dial. You may use dashes as you wish, and commas can be used to introduce delays in the dialing process (for example, to specify an extension number).

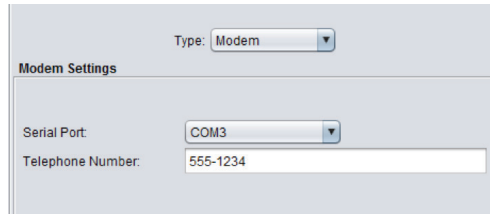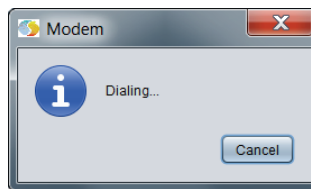**Figure 22 - Modem Dial-Up Screen**

Once the dialing process begins, you may cancel at any time by pressing the "Cancel" button in the pop-up screen. If a connection is established, the message "Connected to (Telephone #)" will appear in the Connection status section.

6.4 - Cloud Communication

Prolon Focus makes it possible to communicate with your project through the Cloud. Cloud communication works by posting messages onto the Prolon Cloud server that the Network Controllers can detect and then respond to. It is a bit slower than direct TCP/IP or serial communication, but offers the following advantages:

- No need to reserve and setup a local IP address for your Network Controller, thus reducing installation time and consultations with local IT personnel (DHCP plug-and-play)

- Bidirectional encryption, with no requirement to open any inbound ports in your router, ensures a much greater network security

- No need to obtain and setup a static IP address or DDNS service for your building, saving on additional fees and subscriptions

- Communication access can be granted or revoked just as easily as adding or removing participants from your project

6.4.1 - Setting Up Cloud Communication for the First Time

Cloud Communication is set up by linking a Network Controller to your project in a process called "Claiming". To claim your Network Controller, you simply need its unique NCID number that can be found in 2 different ways:

- **Method 1**: The NCID appears on a label inside the cover of the Network Controller (only applicable to Network Controllers sold with a firmware version of 7.1.0 or above).

    The NCID has the following format: "PLNC:1-12345678901234567890". It will be adjacent of a QR Code that can be scanned by smartphones.

- **Method 2**: The NCID can also be obtained by communicating with the Network Controller from the Focus software. Right-click on the Network Controller icon and select "View NCID".

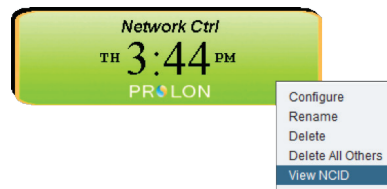**Figure 23 - Obtaining the NCID (Method 2)**

The NCID will be displayed, which you can then copy (right-click or press the Copy to Clipboard button):
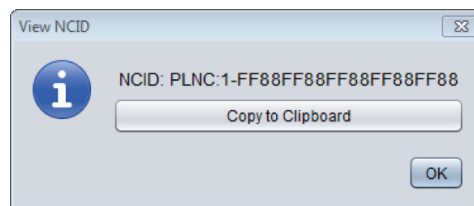

Figure 24 - NCID Popup

With the NCID now in hand, make your way to the Project Setup Menu, and then the Connection Tab. Set the Communication type to "Cloud" and press the Claim NC button.
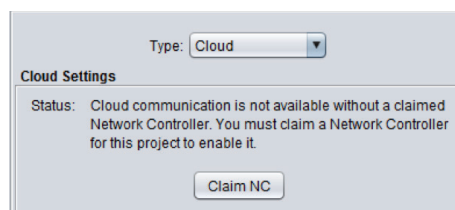

Figure 25 - Claiming the Network Controller

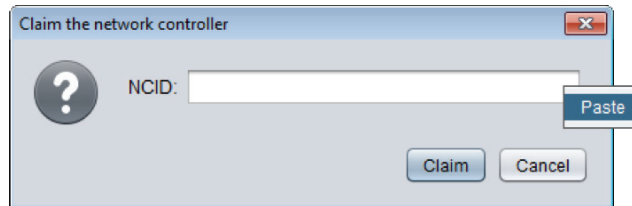You can then right-click to paste your NCID in the provided field:

Figure 26 - Pasting your NCID

The Network Controller is now claimed and linked to your project! You can communicate with it by pressing the usual "Connect" button.

Note 1: The claiming process can be done at any time, **even before** the Network Controller is even connected to the Internet! Only the NCID is required to establish a link to your project. The Focus software is then ready, and simply awaiting the Network Controller to come online so that communication can begin.

Note 2: For security reasons, Network Controllers cannot be linked via claiming to multiple projects at the same time. This means that even if someone else obtains your NCID, rest assured that they will not be able to "re-claim" your Network Controller and begin communicating remotely to your project. In the event that your Network Controller is already claimed before you have a chance to do so, follow the steps in _6.4.3 - Manually Joining a Project_, to first join the alternate project, then execute the Relinquish function to disassociate the Network Controller from that project. Finally, claim the Network Controller as usual. **Manually joining a project requires local physical access to the Network Controller, thus prohibiting outside agents from joining your project themselves.**

6.4.2 - Changing a Claimed Network Controller

If for some reason a Network Controller that has already been claimed needs to be replaced or moved to a different project, Prolon Focus offers tools to do so. In the Project Setup Screen, under the Connection Tab, when Cloud Communication is selected, there are two buttons:
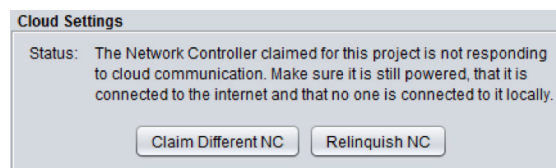
Figure 27 - Claim Operations

- **Claim Different NC**: Use this to link your project to a new Network Controller. As usual, the NCID of the new Network Controller is required. This step will break the connection to the old Network Controller.

- **Relinquish NC**: Use this to simply break the connection of your current Network Controller to the project. This may be useful if the Network Controller needs to be moved to another project.

6.4.3 - Manually Joining a Project

Once a Network Controller is claimed, it cannot be claimed again by someone else. This means that no one can communicate with your Network Controller over the Cloud once you have claimed it, except for the other participants in your project. Therefore, *project sharing* is still the principal method of granting access to Cloud communication. Project sharing can only be done by the project administrator.

However, there are instances where the project administrator cannot be reached or is no longer available. In that case, there is a method to manually add yourself as a participant to a project (and even gain administrator rights over it) if you have physical access to the Network Controller itself, as well as its NCID.

To manually join a project, you must first log into your Cloud account (you do not need to create a new project or open an existing one). From there, navigate to the Profile Management menu, select "Manage Projects", and then click on "Join Project":
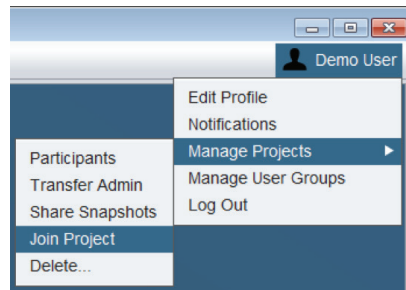

Figure 28 - Join Project Menu

You are then asked for the NCID, which can be obtained via one of the two methods in *Section 6.4.1 - Setting Up Cloud Communication for the First Time*. The Focus software will then provide you with on-screen instructions to remove power from the Network Controller and then re-apply it when prompted. When the process is complete, you will become a participant of the project that is linked to that Network Controller. You will get a notification stating the project's name, which you can then access by opening it in the standard way.

Note: The project administrator will also receive a notification that you have been added to the project.

6.4.4 - Troubleshooting Cloud Communication

Troubleshooting Tip 1: Ensure that the option to allow Cloud Communication is enabled in the configuration of the Network Controller:
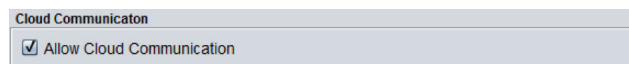

Figure 29 - Network Controller Cloud Enable Option

See the Network Controller's Communications Setup page.

Troubleshooting Tip 2: Cloud communication is disabled whenever someone is connected directly to the Network Controller using the traditional TCP/IP method. An active TCP/IP connection can be detected by looking at the CONN LED on the Network Controller. If the LED is ON, there is an active TCP/IP connection.

Troubleshooting Tip 3: For higher security setups, it may be necessary to open outgoing port 8080 towards proxy. prolon.net in your router to allow Cloud Communication to be achieved. Also, make sure traffic is not being blocked by a content filter.

Troubleshooting Tip 4: If your Network Controller's TCP/IP setup is set to "Static" instead of "DHCP", it may be necessary to ensure that its static IP address, subnet mask and default gateway are all still valid and that they allow it to function within the local subnet.

Troubleshooting Tip 5: Ensure the CABLE LED is continuously lit. This LED indicates that an electrically valid Ethernet connection is detected on the other side of the CAT5 cable. The LED should react immediately to the cable being plugged and unplugged. If the LED response is slow to react, the signal strength in the wire may be weakening. Ensure the cable is no longer than 330ft (100m). A repeater (switch or hub) may be necessary to boost the signal.

Troubleshooting Tip 6: Use the CONN LED to help diagnose the condition of your Network Controller. If the CONN LED is:

- **Never blinking**: The Network Controller cannot determine the IP address of proxy.prolon.net and therefore cannot attempt to connect to the Cloud. Check the DNS settings of the Network Controller. Alternatively, the checkbox to "Allow Cloud Communication" may not be set (see Troubleshooting Tip #1).

- **Blinking Every 8 Seconds**: The Network Controller has obtained the IP address of proxy.prolon.net (DNS is OK) but is not receiving any answer. Check that port 8080 in your Router is opened towards proxy.prolon.net (see Troubleshooting Tip #3).

- **Blinking Every 30 seconds**: The Network Controller can reach the Cloud server at proxy.prolon.net and is awaiting communication (Ready for Cloud Communication).

- **Blinking Very Rapidly**: The Network Controller can reach the Cloud server at proxy.prolon.net and is currently in communication with a Focus app user (Cloud Communication is Active).

- **Steady On**: There is an active TCP/IP connection to the Network Controller *(see Section 6.2)*. An active TCP/IP connection will prevent Cloud, Serial and USB connections from occurring. Break the TCP/IP connection to allow Cloud Communication to resume.

Troubleshooting Tip 7: If you are having trouble simply signing into the Focus application, the following domains may need to be whitelisted in your router:

- www.googleapis.com
- firestore.googleapis.com
- *.firebaseio.com

7 - Menus & Options

This section will describe in detail the various menus and options that are available in the Prolon Focus software.

7.1 - File Menu

The File menu is similar to that of most software, allowing you to save and load projects, and exit the program.
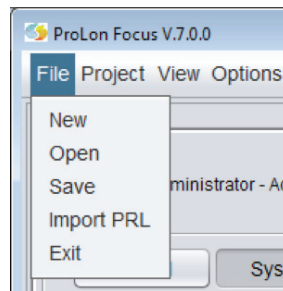

Figure 30 - File Menu

7.1.1 - New

Creates a new ProLon Focus project. You are always prompted to save your current project first. Disconnects any open connections.

7.1.2 - Open

Displays the "Open Project" screen. You are prompted to save your current network first. This screen lists all the projects and snapshots you have created or that have been shared to you.
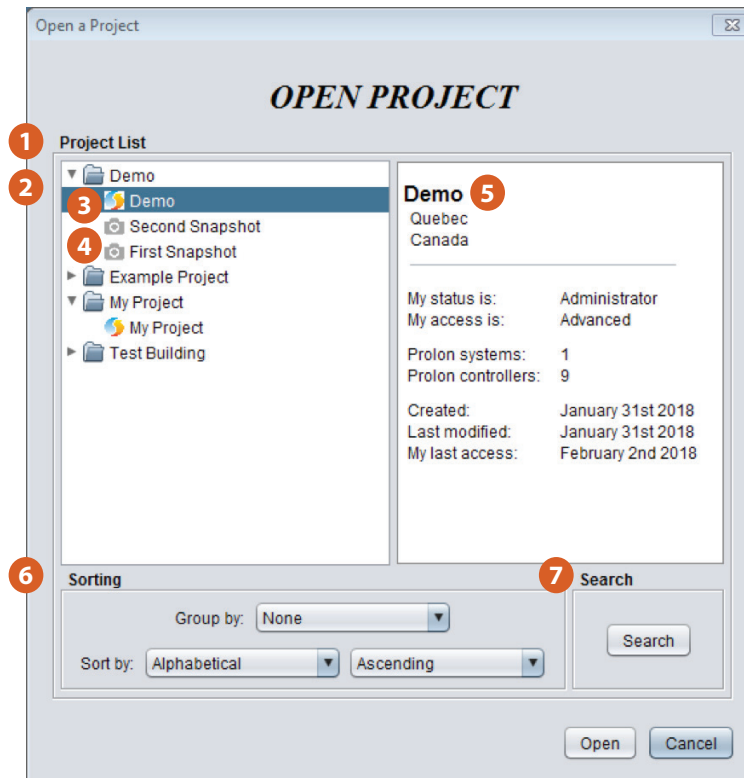

Figure 31 - Open Project Screen

1) Project List: List all the projects you have access to (created by you or shared by someone else)

2) Project Folder: Each project has a folder containing your project and any associated snapshots. Tip: Projects are preceded by a Prolon symbol, while snapshots are preceded by a camera symbol.

3) Project

4) *Snapshot*

5) Project Description Pane: This pane will provide a summary of the selected project or snapshot you have clicked on.

6) Sorting: Allows you to arrange your projects into groups to more easily track them down. They can even be sorted within each group alphabetically, chronologically, or by other means.

Projects are grouped depending on information you provide when they are created, such as City Company or other descriptors. If you have not yet provided the information needed for a group, the project will be placed in an "Unassigned" group.

7) Search: You can also directly search for a project you want, provided you know some details about it. Projects can be searched for by project name, address, creation date and more.

7.1.3 - Save

Saves the current Focus project. If you are logged into your Prolon Cloud account, your project will be immediately saved onto the Cloud.

A popup will confirm your save and will also give you the opportunity to make a local copy of the project to store on your computer. (Prolon projects are saved as files with a PRL extension). It is recommended to make local PRL copies if you anticipate that you may not have internet access the next time you work on the project.

If you a working as a guest, you will be immediately prompted to save a PRL file since you cannot save to the Cloud. If you have already saved the PRL file at least once, the Save function simply saves over this file without re-asking you to name it.

The following information will be saved:
- All controllers with their last known configuration and names
- All communication settings (COM port, IP address, baud rates, etc.)
- Location of each controller on screen and any background image settings

Please note that local PRL files do not store the following information:
- Details about any project participants or sharing
- Project Access Logs and Notes
- Projects descriptors (location, company, etc…) or access levels

7.1.4 - Import PRL

Creates a new project based on a local PRL file imported from your computer. PRL files store all the data related to a Prolon project and are created on command by users (see above). Prolon Focus is backwards compatible and can open PRL files generated by previous versions of the software.

If you are logged into your Prolon Cloud account, the project created from the PRL import will be immediately saved onto the cloud.

The following information is obtained from the PRL file:
- All controllers with their last known configuration and names
- All communication settings (COM port, IP address, baud rates, etc.)
- Location of each controller on screen and any background image settings

Note that you are always prompted to save your current project before the import occurs.

7.1.5 - Exit

Exits the Prolon Focus software. You are always prompted to save your current network first. This option also disconnects any open connections upon exit.

7.2 - Project Menu

The Project menu gives access to the settings, functions and notes related to the currently open project.
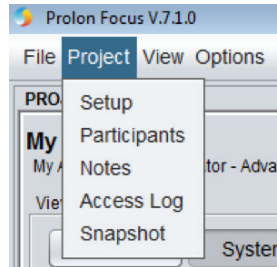

Figure 32 - Project Menu

7.2.1 - Setup

Opens the Project Setup screen. This screen allows you to view and modify the project description, access and connection details. If you are working as a guest, only the Connection tab is available.

7.2.1.1 - Description Tab

View or modify details that describe the project. These details are optional but can simplify the process of finding your project at a later date.

Figure 33 - Description Tab

7.2.1.2 - Access Tab

This screen displays the identity of the administrator of the project, as well as your current HVAC access level for this project. Note that you can only change your HVAC access level if you are the administrator of the project.

Figure 34 - Access Tab

Become Administrator: In the event where a project administrator cannot be reached, or is no longer available to manage project participation, it is important to have some means of manually transferring administrator rights to another user. This button launches a tool that allows you to become the current project's administrator, providing:

- You are already a participant in the project,

- And your project has a Network Controller,

- And that you have physical access to that Network Controller,

- And that you can obtain the Network Controller's NCID

The Focus software will then provide you with on-screen instructions to remove power from the Network Controller and re-apply it when prompted. When the process is complete, you will be set as the new project administrator.

Note: The original project administrator will receive a notification that administrator rights have been transferred.

7.2.1.3 - Connection Tab

This section sets the method with which the Focus software will communicate to the Prolon controllers in the building.

Figure 35 - Connection Tab

The various methods are individually detailed in the *Communication* section. However, certain parameters common to all communication methods will be outlined here.

- **Data Refresh Rate**: Defines how often the controller icons get updated. By default, it is set to 3 seconds. Raising this value alleviates network traffic and can be useful if your network has many icons or if the Network Controller is tasked with polling a large quantity of data for alarms and data logging purposes.

- **Timeout**: Defines how long Focus will wait after sending a message before concluding that no response is coming. Increasing this gives controllers more time to answer in the case of a busy COM bus but slows down the software if controllers get physically disconnected.

- **Retries**: Defines how many times Focus will attempt to retry a failed message. A message is failed if there is no response after the timeout expires, or if the content of the reply is not valid.

- **Poll Delay**: Defines the amount of time Focus will wait after receiving a reply before it is allowed to send a new message. Increasing this alleviates network traffic but slows down communication.

7.2.2 - Participants

This screen is where a project administrator can add or remove participants to the current project or can transfer administrator rights. See the **_Project Management_** section for more details. The administrator can also change the HVAC level of the various participants.

Figure 36 - Project Participation Screen

Note that if you need to add, remove or transfer administrator rights from **multiple projects at once**, this can be done from the **_Manage Projects_** menu.

If you are just a project participant, this screen will identify the administrator and other participants, but you cannot make any changes.

The Notes screen allows users to make freeform notes and post them in this section, where they can be read by all project participants.
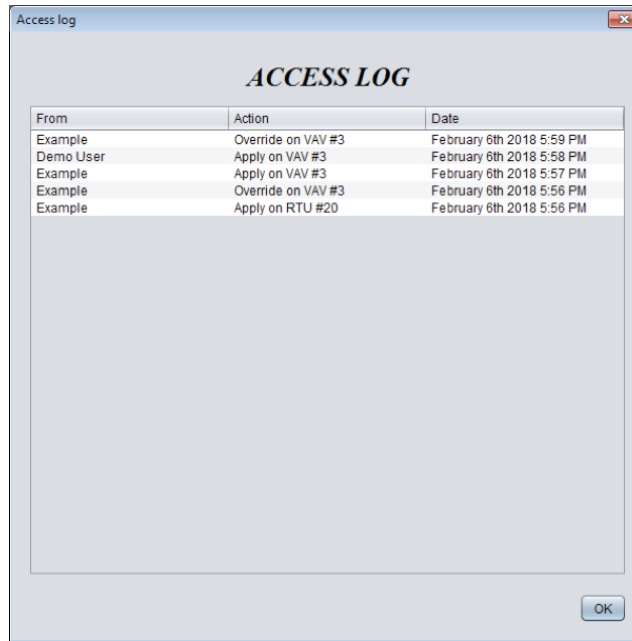

Figure 37 - Notes Screen

Only the project administrator can delete notes once they have been created. All notes are attached to the project and will remain even if the participants who created them are removed from the project.

7.2.4 - Access Log

The Access Log screen displays a list of operations made by any of the project participants throughout the existence of the project.

Figure 38 - Access Log Screen

This can be useful for tracking changes and for accountability purposes. The types of operations that are logged are:

- Configurations applied to controllers
- Equipment overrides
- Templates applied to controllers
- Controller reprograming

The operations stored in the Access log are permanent and cannot be erased.

7.2.5 - Snapshot

The snapshot feature provides a method to save the current state of every controller in a project. This is essentially a project 'backup' feature, which can be shared and used as a reference for this or other projects. When taking a snapshot, simply provide the desired name of the snapshot. The date of the snapshot is automatically attached.
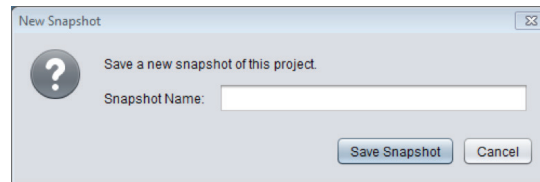

Figure 39 - Snapshot Dialog

Snapshots belong to the user who took them & remain in their possession even if the administrator removes their access.

7.3 - View Menu

The View menu is analogous to the Global View / System View Toggle buttons, in that it simply offers a way to flip back and forth between the two separate views:
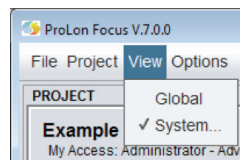

Figure 40 - View Menu

- The **Global View** is where the Network Controller is found, as well as the Master controllers for each System. (If a system does not have a Master Controller, it will instead be represented by a generic System icon). There is only a single Global view in each Prolon Focus project.

- The **System View** shows a given Master Controller along with its Follower Controllers. There can be many Systems in a Prolon Focus project: The system that will be shown is the one that is currently displayed in the System Select Dropdown Box.

7.4 - Options Menu

This menu gives access to various interesting features of Prolon Focus.
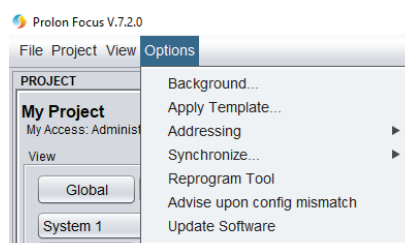

Figure 41 - Options Menu

7.4.1 - Background

The Prolon Focus software allows for the placement of an image, such a floor plan or photo of a building, in the background of the screen. This becomes an interesting feature when coupled with the ability to drag icons around on the screen, allowing you to place them in the real space they are controlling:
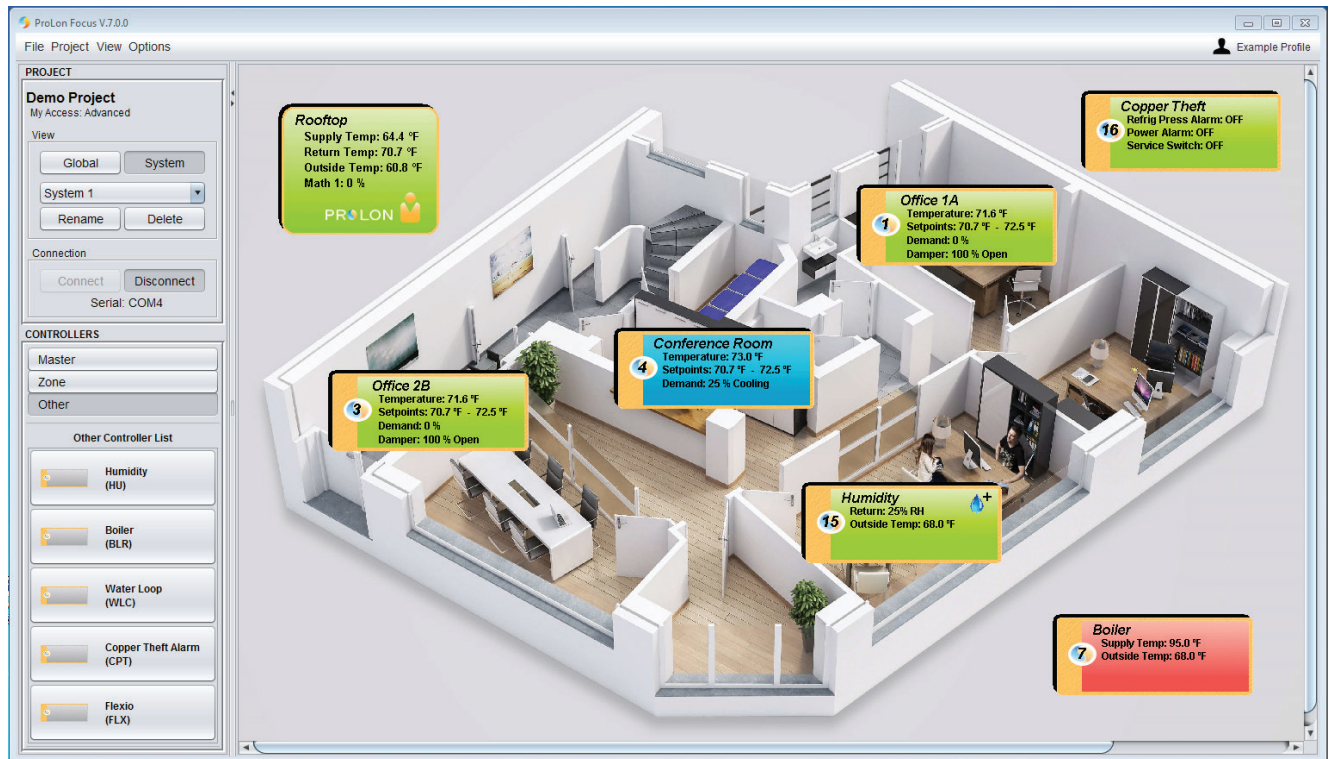

Figure 42 - Example Background

Once a background is chosen, you may still want to adjust its **dimensions** so it will better fit on the screen. There is an option to do so when you click on the background menu:
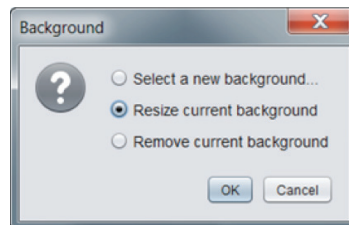
Figure 43 - Background Options

When resizing a background, a small red square will appear at the bottom right of the image, which you can use to drag the image to the appropriate size. Click away from the red square to stop the resize process.

A different background image can be used for each system, as well as one more for the Global View. Only images with a JPG, PNG or GIF extensions can be used. Focus stores these images on the Cloud so that they can be viewed by the other project participants.

7.4.2 - Apply Template to All

Prolon Focus has a template system that allows you to use a controller's specific configuration and quickly apply it to another controller. This can be done manually through the configuration screen of a given controller.

However, this menu gives the option to apply a template to all controllers of a specific type within a given system, without having to enter the configuration screen of each controller.
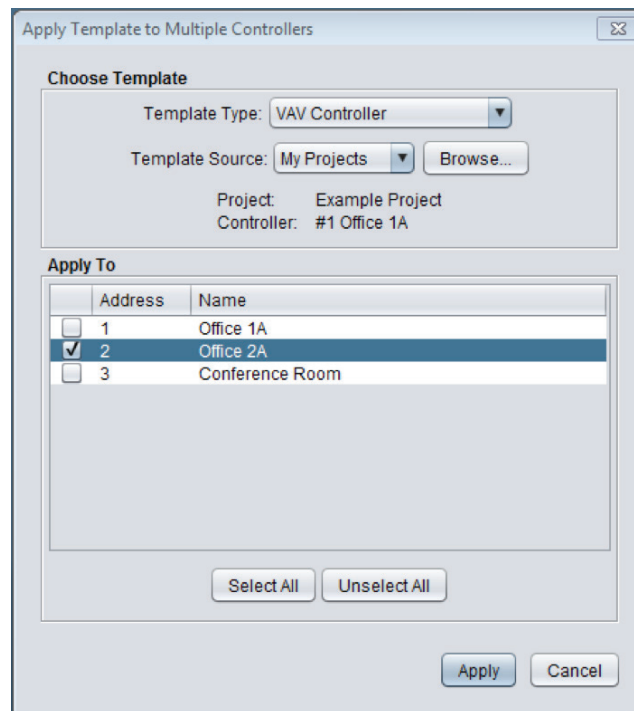

Figure 44 - Apply Template to Multiple Screen

This option is useful during start-ups where multiple controllers share the same configuration. Once a template is applied, you are then free to customize and fine tune the configuration of specific devices as needed.

This feature is only available for the **Zone** types of controllers that are usually present in large quantities in a system (VAV Controllers, Thermostats, Single-Zone Rooftops and Single-Zone Heatpumps). The specific controller type is set in the Template Type drop-down box.

Next, you need to select the source of the template. The source of the template can come from any controller of the same type, from any project or snapshot you have access to. The source can also be from a file on the computer that has a VCT extension. VCT files are user generated files that contain the configuration of a controller. Follow the on-screen prompts to select the appropriate source.

Finally, use the checkbox list to select the controllers you want to apply the template to.

7.4.3 - Addressing

Controller addressing is a vital component of any Prolon project. This menu has two features that allow for the management and assignment of addresses.
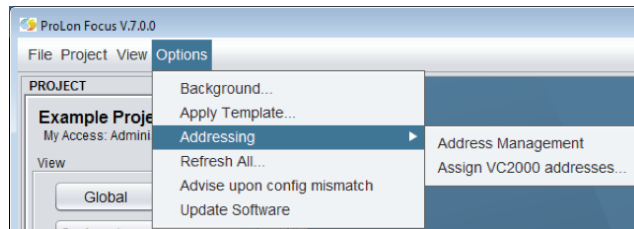

Figure 45 - Addressing Menu

All controllers must have unique Modbus addresses, ranging from 1 to 127.

7.4.3.1 - Address Management

The Address Management screen is used to quickly view the address of all controllers in every system of the project. It also provides a way to digitally lock and modify the addresses of the controllers.
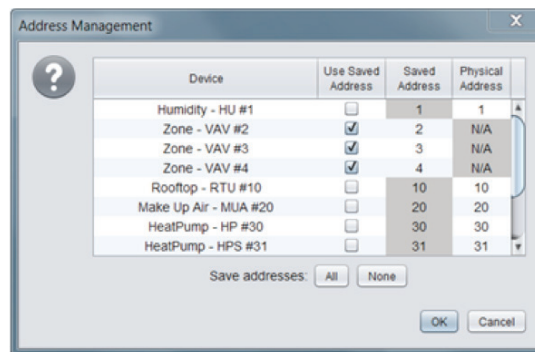

Figure 46 - Address Management Screen

Most Prolon Controllers have a physical means of assigning the address (dipswitch, touchpad). However, the Address Management Screen can be used to digitally command a controller to ignore its physical address and instead use a digital address (assigned by the user). This is useful to prevent tampering with the physical address, or to reassign addresses remotely.

The Address Management screen has four columns: The first is simply the device name. The second denotes whether or not the controller is using a saved (digital) address or a physical one. The third column is where the user can enter the saved address (grayed out when using a physical address). Finally, the last column shows what the physical address on the controller is currently set to.

The Save addresses buttons ("All" or "None") instantly checks all the checkboxes in the Use Saved Address column or removes all the checks.

Note: The VC2000 VAV Controllers have no physical means to set the address and always use the saved address. When you change the address of one or multiple controllers, Focus will prevent the operation should it ever result in an address conflict, even if temporarily during an intermediate step. For example, if there are controllers at addresses 1 and 2, and you wish to respectively change them to addresses 2 and 3, Focus will first try to change address 1 into 2. This will result in a conflict since there is already a device at address 2. Although this example is simple, it can get very complex as the number of controllers increase. It is the user's responsibility to modify addresses so that there are no conflicts along the way.

7.4.3.2 - Assign VC2000 Addresses

This menu opens a special tool that is used to assign addresses to VC2000 VAV Controllers only. It also only applies to VC2000 controllers that have not yet been assigned an address. This tool is described in detail in the VAV Controller Focus Guide.

7.4.4 - Synchronize

The Focus software stores the configuration of all controllers so that they will be ready for you the next time you open your project or need to access them offline. This menu has two features that allow for the discovery and synchronization of the Focus database with the actual state of your live project.

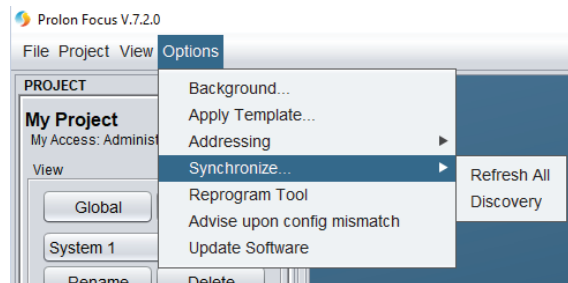**Figure 47 - Synchronize Menu**

Note: These features cannot be accessed while offline.

7.4.4.1 - Refresh All

The Refresh All function is a useful tool to synchronize the Focus software with the actual configuration of all known controllers in the project.

This function is basically a shortcut, equivalent to manually opening the configuration screen of every controller and pressing the Refresh button:
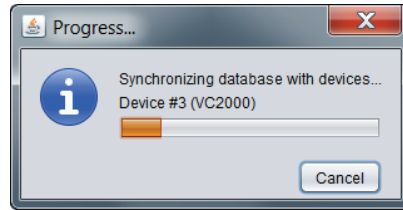
Figure 48 - Synchronization Progress Bar

No input is needed from the user. This function is most useful while creating a new project, after having added all controllers to the screen. The configuration of each controller is retrieved, along with their names. It is also useful when you suspect modifications were made to one or several controllers without saving the project, and you want to synchronize your Focus database.

Simply save your project when it is complete.

7.4.4.2 - Discovery

The purpose of the Discovery process is to scan a live network and make a list of any connected devices that are found. The Focus software then analyzes the list, creates all appropriate controller icons for you and organizes them into Systems based on the discovered network topology. This means that a new System will be created for each Master controller, and Follower controllers will be placed into the appropriate System based on their respective Master. Any Follower controllers left over that do not belong to any Master will be stored together into a additional System. Finally, the software will perform a "Refresh All" function, identical to the one in Section 7.4.4.1, so as to synchronize the database with the configuration of all controllers.
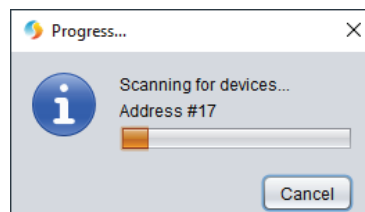

Figure 49 - Discovery Scan Procress

This function effectively lets Focus handle the on-screen portion of the commissioning process of a Prolon project. However, it does not assign addresses for you or configure the controllers in any way. Please follow proper Prolon RS485 network setup guidelines.

It is important to note that the Focus software will re-organize all devices and systems based on the findings of the Discovery process. If you have already built your project and have already arranged your icons, systems and backgrounds to your liking, it may be in your best interest not to execute this function. For this reason, the Discovery process is primarily used upon project creation. Backgrounds can then be added after the process is complete.

Tip: The process can be sped up by manually adding your Network Controller (commonly found at address #99) to the project first, and by ensuring your Network Controller has the most recent firmware inside it.

7.4.5 - Reprogram Tool

The Reprogram Tool is used to upgrade Prolon controllers to a new software version. The tool can upgrade multiple controllers in a row in an automated process, and has problem detection and correction capabilities. A step-by-step log of the procedure is displayed on screen, including a summary of the results at the end. It can be browsed in full once the process is complete.
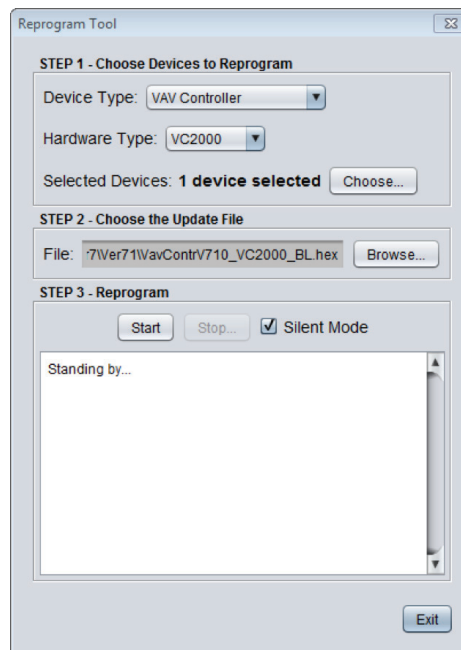

Figure 50 - Reprogram Tool

Step 1 - Choose Devices
First choose the type of controller you want to reprogram, in terms of sequence (VAV, RTU, etc.) and hardware platform (M2000, C1000, etc.). The software will then list all the controllers in your project that match the selection. You can then individually add or remove controllers from this list.

Step 2 - Choose the Update File
Focus requires you to specify the specific HEX file that contains the software update for the chosen devices. Software HEX files can be obtained on Prolon's FTP site.

Step 3 - Reprogram
Press start to begin the process. For each controller in the list, Focus will completely update its program and then re-apply its previous configuration settings before moving onto the next controller. The process can be stopped anytime.

Should there be any interruption during the programming procedure (due to intermittent communication or other), the procedure is halted and you are alerted so that the problem can be fixed. You have the choice to then retry the current operation, skip to the next controller in the list or abort the whole process completely.

If you are not able to complete the process on a given controller, the upgrade procedure can be restarted again later. It is normal for the controller's icon to turn grey and become unresponsive during this period. Simply continue with the procedure anyways. Note: It may be necessary to manually add any follower controllers to the master controller's device list for communication to be re-established.

Silent Mode

Silent Mode further automates the Reprogram Tool process. As explained above, if an error should occur during reprogramming, the user is alerted and must make a choice to retry, skip or abort. But with Silent Mode active, Focus automatically attempts to retry up to three times, at which point it will automatically skip to the next controller in the list and continue from there, without making any request for feedback from you.

Silent Mode can be useful if you have a long list of controllers and want to avoid having to remain in front of the screen for the whole process. You can leave the area knowing that if a problem occurs on the first controller, Focus will at least program the others and not halt while awaiting your input. Rest assured that the results for each controller are displayed at the end of the process, allowing you to retry the ones that may have failed.

Silent Mode can be turned ON and OFF at will.

7.4.6 - Advice Upon Config Mismatch

The "Advise upon Config Mismatch" feature comes into play when browsing the configuration of the controllers in a project. Whenever the configuration screen of any controller is opened, the Prolon Focus software always performs a Refresh command. If this "Advise" feature is enabled, Focus will alert you if the configuration found in the controller does not match what is stored in the database.
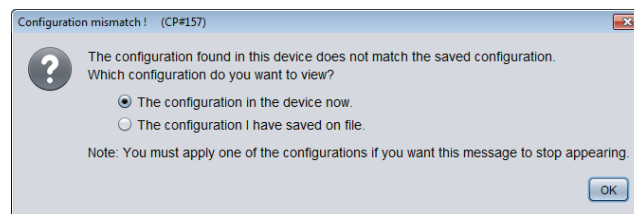

Figure 51 - Configuration Mismatch Popup

You have the option to view the current configuration in the device, or instead to see the configuration stored in the database, as it was last remembered. You must apply either one of these configurations (using the Apply button) to finally synchronize the database with the controller, or else this message will appear anytime you want to view its configuration.

By default, this option is disabled in a Prolon Focus project. When a configuration mismatch is found, Focus will simply take the live configuration found in the controller and store that in the database without providing any warning. This alleviates some of the confusion often expressed by users who simply want to know what the current configuration is and are uncertain as to the correct course of action.

7.4.7 - Update Software

Upon startup, the Prolon Focus software will automatically check its online database to see if there is a more recent version of the Focus software available. If so, a dialog box will appear to advise the user to go to Prolon's website (*www.proloncontrols.com*) and update the Focus software.
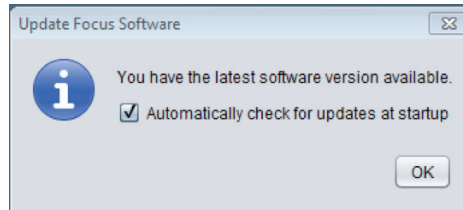

Figure 52 - Update Focus Screen

The download does not happen automatically and must be initiated by the user.

If you do not want Focus to notify you about new versions, you can opt out by removing the checkmark.

7.5 - Background Right-Click

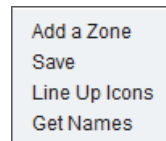There are some quick options available simply by right-clicking the background of a Focus project.

Figure 53 - Background Right-Click Popup

7.5.1 - Add a Zone / System

- When in **System View**, this option allows you to quickly add a new VAV Zone controller to the project (identical behavior to clicking the new VAV Controller button).

- In **Global View**, this will instead add a new system to the project (identical behavior to clicking the new System button).

7.5.2 - Save

This option saves the current project (identical behavior to using the Save menu option).

7.5.3 - Line Up Icons

- In **System View**, this options lines up all the Follower controller icons in the order in which they were created, following a grid-like format. The Master controller icon gets centered at the top of the screen.

- In **Global View**, this options lines up all the Master controller icons in the order in which they were created, following a grid-like format. The Network Controller icon gets centered at the top of the screen.

7.5.4 - Get Names

This option commands Focus to collect all the names of the controllers in the current system. This is useful when building a project whose controllers have already been given names. This option is only available in online mode.

7.6 - Profile Management

At the top right of the screen is the Profile Management menu. This section is where you can change your personal preferences, view your messages and manage your projects.
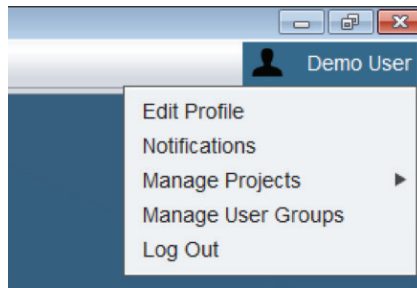

Figure 54 - Profile Management Menu

7.6.1 - Edit Profile

This screen contains your Prolon Cloud account settings, such as your unit and time format preferences, as well as a section to allow you to change your password, email or to simply close your account.

Figure 55 - Edit Profile Screen

As a precaution, please note that you cannot close your account as long you are the administrator of any projects that still have participants. Transfer your administrator rights to another user or remove all participants in your projects before closing your account.

7.6.2 - Notifications

The Prolon Focus software comes with its own messaging system built in. These messages can alert you to changes in your project participation, HVAC levels and more.

Focus notifies you that new messages are available by putting an asterisk (*) next to your user name. The quantity of messages appears in parenthesis next to the Messages menu:
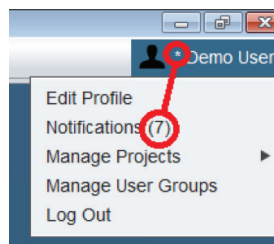

Figure 56 - Message Notification

Your Notification Inbox displays your message, its sender and date of delivery. Notifications are automatically generated based on specific actions such as project sharing and transferring administrator rights. The notifications are not user-generated and cannot be used to communicate with someone.
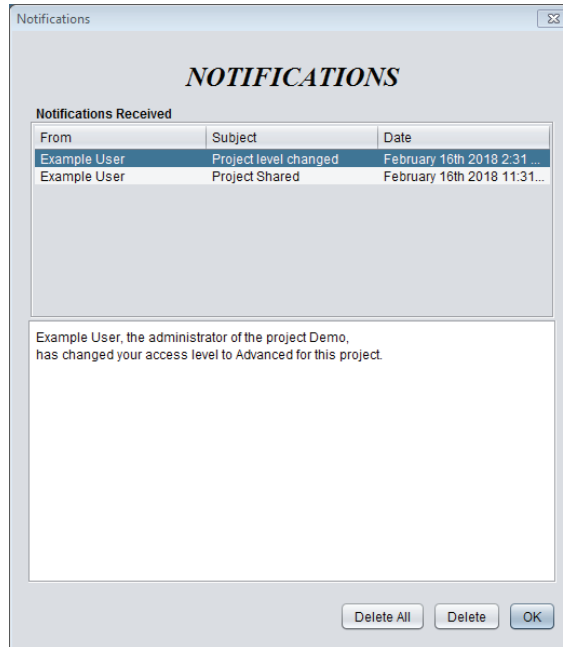
Figure 57 - Message Inbox

You can click on individual notifications and read their content in the info box below. You can then delete one or all notifications at your leisure.

7.6.3 - Manage Projects

This menu allows you to perform project management operations to one or multiple projects at once. The type of operations you can perform are:

- Share any projects (which you administrate) to one or multiple users
- Revoke project access to one or multiple users (from projects that you administrate)
- Transfer administrator rights from projects you administrate to a single specific user
- Share your snapshots to one or multiple users
- Manually join a project of which you are in close physical proximity
  (see 6.4.3 -Manually Joining a Project)
- Delete your projects

Some tips:

- You can select multiple projects at once by holding down CTRL or SHIFT while clicking on them.
- Projects can be shared to users one-at-a-time by providing their email, or they can be shared instantly to a whole group that you pre-configure (see *Manage User Groups*).
- Administrators can revoke any participant's access at any time, but the participant gets to keep any snapshots that they have been shared or that they have taken on their own.
- You cannot delete any projects that you administrate that still have participants. Take care to transfer your administrator rights or remove all participants before deleting your projects. If you are NOT the administrator of a project you delete, you are simply removed from the project's list of participants. This will not impact the project's functionality for the remaining participants in any way.

7.6.4 - Manage User Groups

The section allows you to group individuals with Prolon Cloud accounts together so that they can be shared projects at the same time, simplifying the *Sharing* process.

Figure 58 - Manage User Groups

You can Edit groups to change their name or specify the default HVAC access level that members of the group will receive when they are initially shared the project. You can then individually change their HVAC level in each project's *Access Tab* at your discretion. Note that groups you create belong to you and cannot be seen by other users.

7.6.5 - Log Out

This option logs you out of your Prolon Cloud account. You are always prompted to save your current project first.