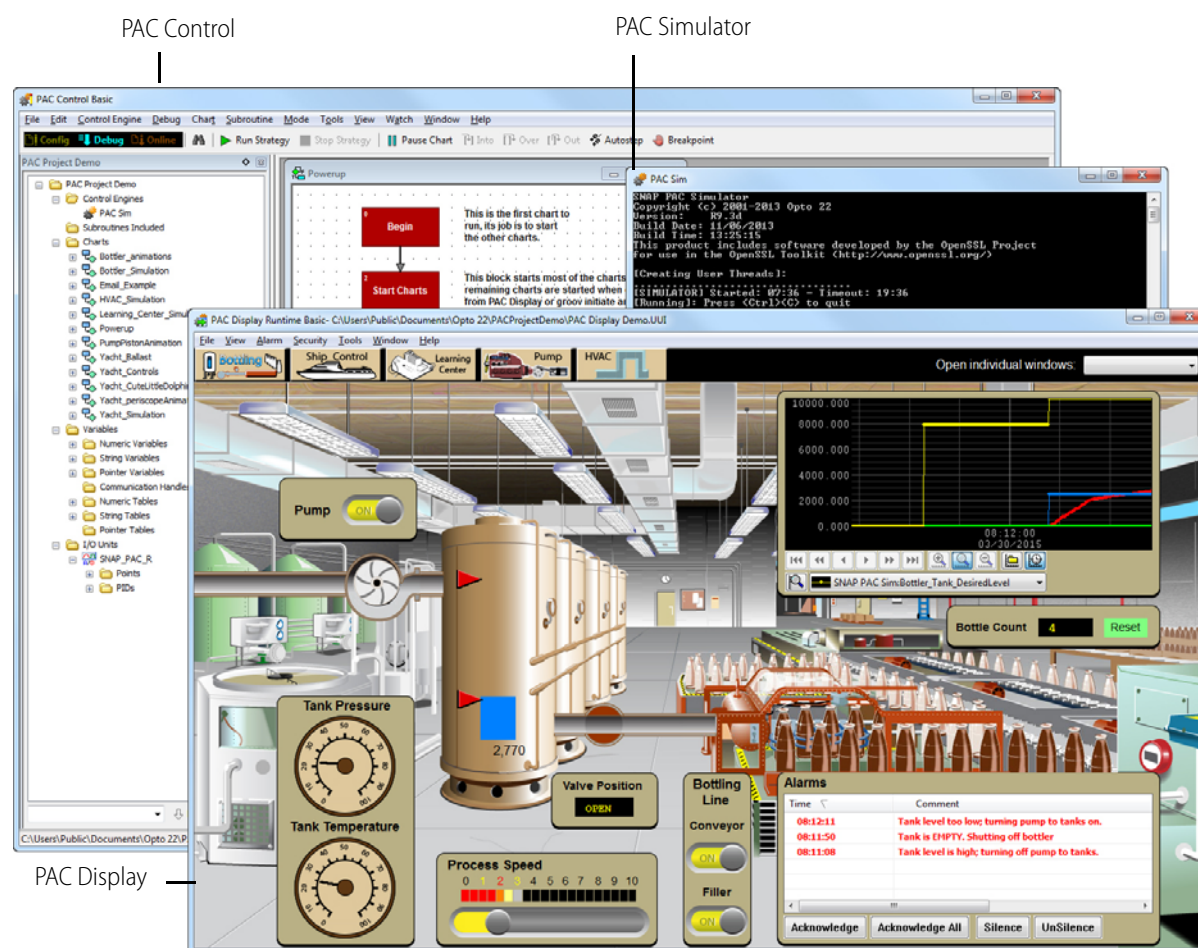# PAC Project Demo Quick Start

About the PAC Project Demo

The PAC Project Demo is distributed as a self-installing file. It installs the following files:

- PAC Control Basic and PAC Display Basic software
- Completed PAC Control strategy
- Completed PAC Display human-machine interface (HMI) project
- SNAP PAC Sim, a PC-based program that simulates a SNAP PAC controller. Using SNAP PAC Sim, you can demonstrate and experiment with PAC Control and PAC Display without having SNAP PAC hardware.

The strategy and project files are installed with PAC Project Basic, although they can also be opened in PAC Project Professional. Note that once saved in Professional, the files cannot be reopened in Basic.

PAC Control

PAC Simulator

PAC Display

Running the PAC Project Demo

Everything you need for the demo is automatically installed and configured. You just need to start the software and explore the demo screens as described below.

NOTE: PAC Control and PAC Display are installed without user guides or other PAC Project applications to save space. See "Finding Out More" on page 10 for links to download the complete software suite and documents.

Starting SNAP PAC Sim

1. To start SNAP PAC Sim, choose Start > Programs > Opto 22 > PAC Project > PAC Sim.
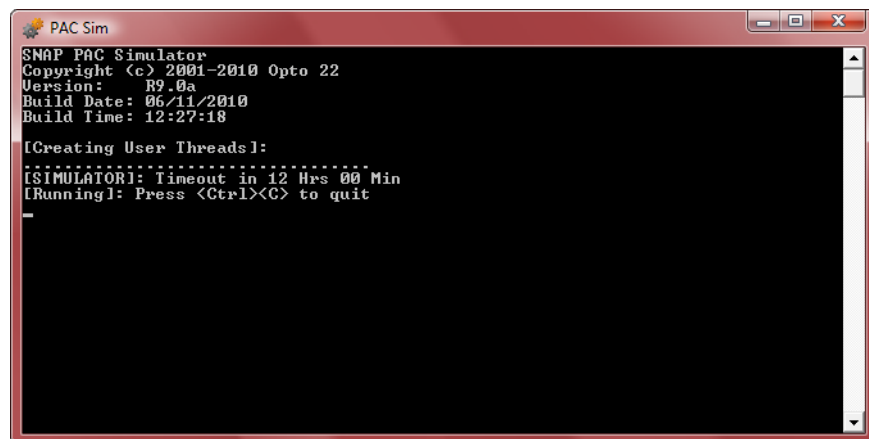
   If you receive a Windows message that the firewall has blocked some features, click **Unblock**.

   SNAP PAC Sim will run for 12 hours and then quit. You can restart the simulator as needed.

2. Leave the PAC Sim window open and continue with the next section.

Running the PAC Control Strategy

1. Choose Start > Programs > Opto 22 > PAC Project > PAC Control Demo Strategy.

   The control strategy opens in PAC Control.

2. To download the strategy to the control engine, choose Mode > Debug (or click the Debug button Debug).

3. At the Powerup Clear message, click OK. If a message asks if you wish to continue downloading, click Yes.

4. To start running the strategy, choose Debug > Run or click the Run Strategy button Run .

You can see when the strategy is running because the word Running appears in green at the bottom left of one or more flowcharts, like this:

Strategy is running.
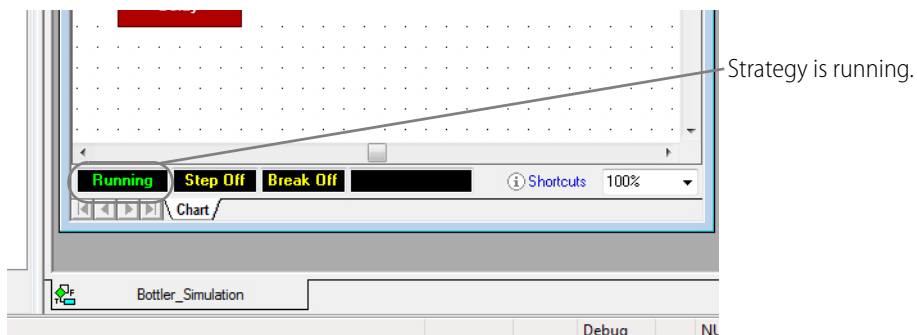
NOTE: If either PAC Control Debug mode or PAC Display Runtime is running when SNAP PAC Sim stops, these programs will report error messages. The solution is to restart SNAP PAC Sim and then download and run the strategy again.

5. You can leave PAC Control open to explore later. Continue with the next section.

Opening the PAC Display Project

1. Choose Start > Programs > Opto 22 > PAC Project > PAC Display Demo Project.

The HMI project opens in PAC Display Configurator.

2. From the File menu, choose Save project and load runtime.

The runtime opens. It includes several HMIs, described on the following pages:

– Bottling plant

– Yacht

– SNAP PAC Learning Center

– Pump

– HVAC

For Help

If you have difficulty downloading, installing, or running the demo and cannot find the help you need on our website, please contact our free Opto 22 Product Support.

Phone: 800-TEK-OPTO
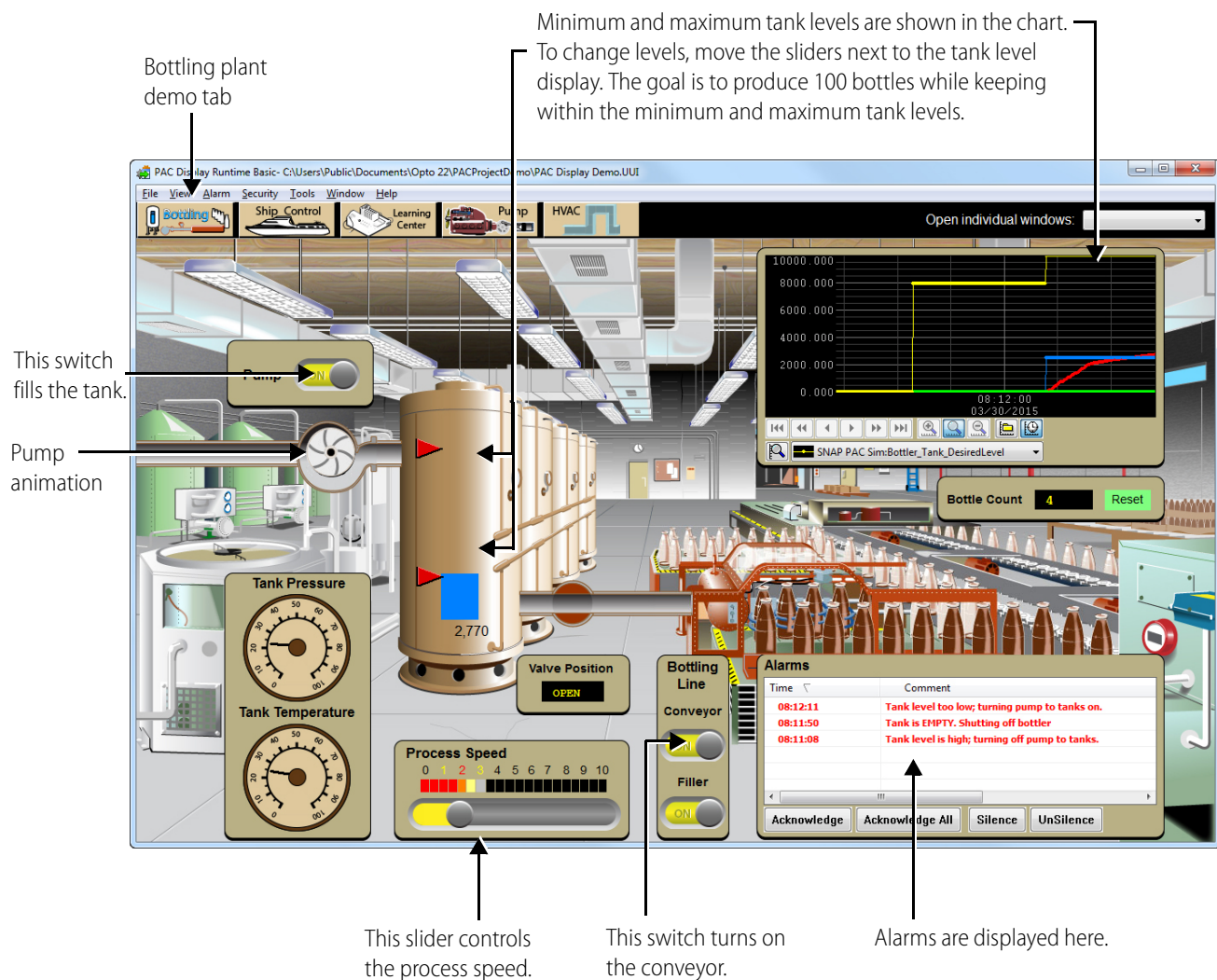(800-835-6786)
951-695-3080
(Hours are Monday through Friday,
7 a.m. to 5 p.m. Pacific Time)

NOTE: Email messages and phone calls to Opto 22 Product Support are grouped together and answered in the order received.

Fax: 951-695-3017

Email: support@opto22.com

Opto 22 website: www.opto22.com
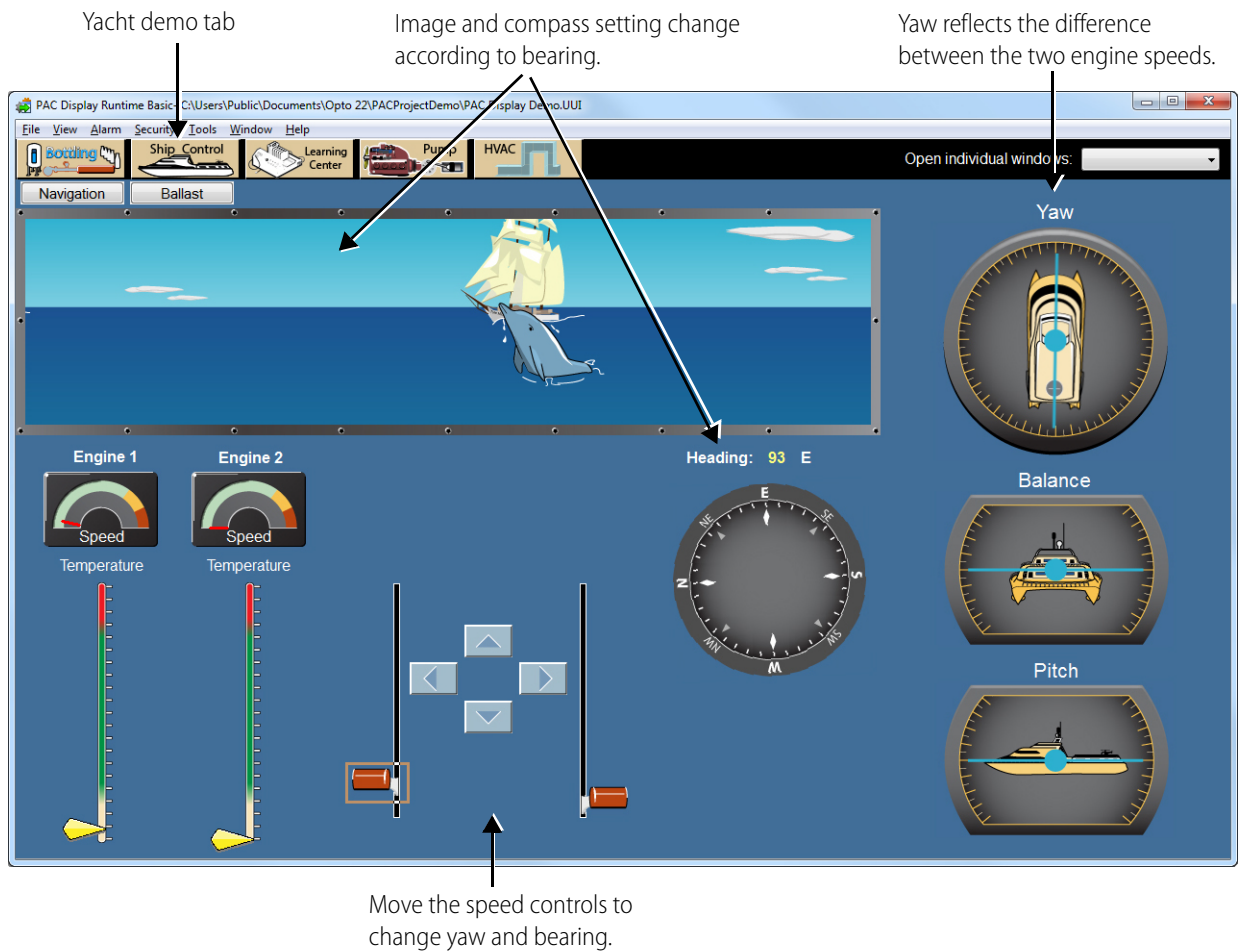
Bottling Cell Demo HMI

The first tab on the left opens a demo HMI that shows a one-point perspective illustration of a bottling plant, in which several graphical objects are animated.

Minimum and maximum tank levels are shown in the chart. To change levels, move the sliders next to the tank level display. The goal is to produce 100 bottles while keeping within the minimum and maximum tank levels.

Bottling plant demo tab

This switch fills the tank.

Pump animation

This slider controls the process speed.

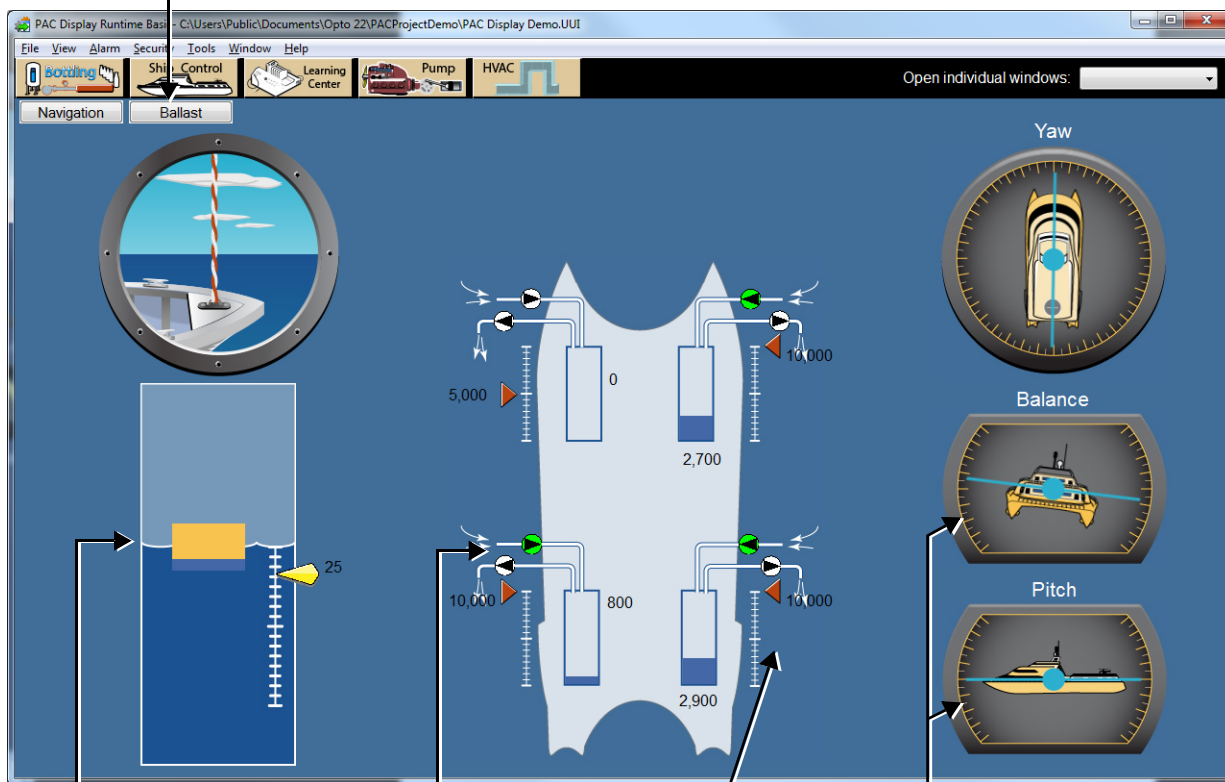This switch turns on the conveyor.

Alarms are displayed here.

Catamaran Yacht Demo HMI

The Catamaran Yacht demo HMI includes two screens representing navigation and ballast controls on a yacht.

Navigation

Yacht demo tab

Image and compass setting change according to bearing.

Yaw reflects the difference between the two engine speeds.

Move the speed controls to change yaw and bearing.

Ballast

Click for Ballast screen

Total ship weight is shown by orange plus blue boxes. Blue represents total ballast. Vertical placement shows draft as a result of total ship weight.

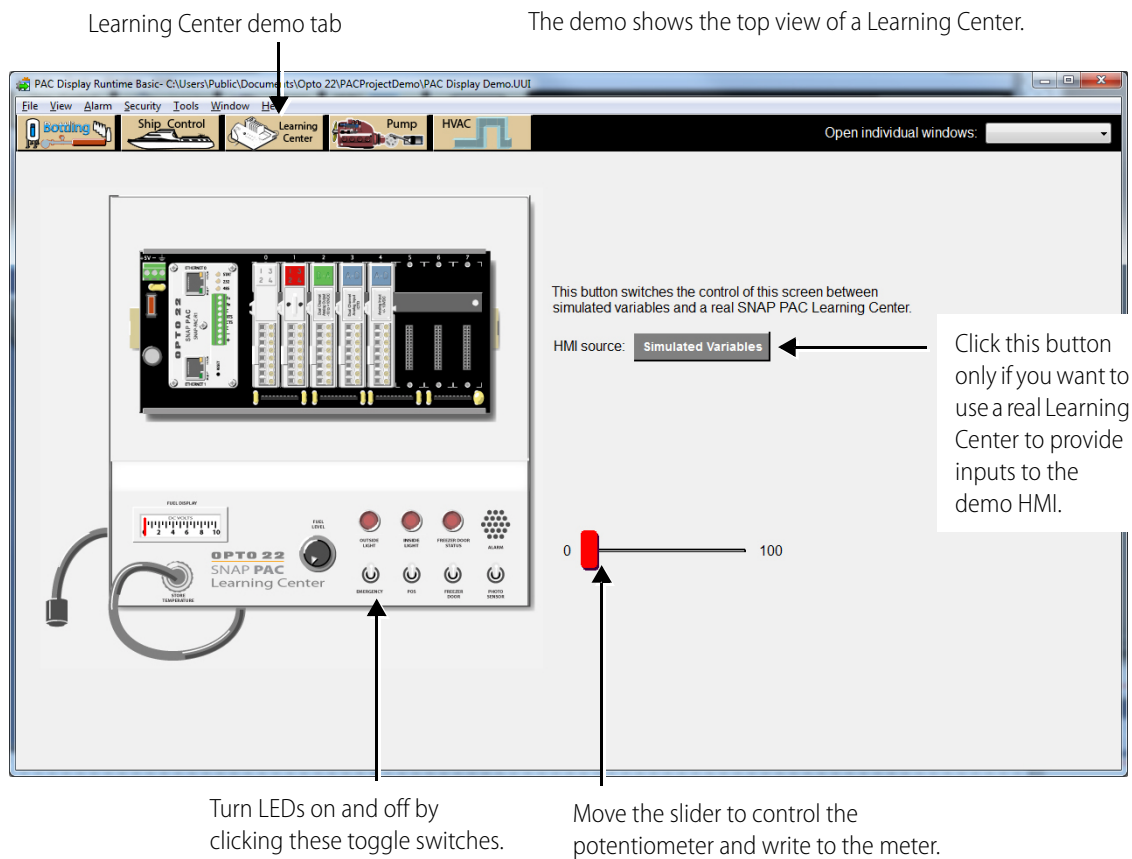Push the On/Off buttons to fill and drain ballast tanks.

Move the slider for each tank to set the desired level for the ballast tanks. Filling stops when the level is reached. Emptying starts when the slider is moved lower than the current level.

Balance and pitch are affected by levels of the ballast tanks.

SNAP PAC Learning Center Demo HMI

The SNAP PAC Learning Center HMI mimics the appearance of a SNAP PAC Learning Center, which is a package of real hardware and software you can purchase to try out the SNAP PAC System. The SNAP PAC Learning Center is available on our website, www.opto22.com.

In the Learning Center Demo HMI, you can click switches and move the slider to control LEDs, the potentiometer, and the meter in the image.

Learning Center demo tab

The demo shows the top view of a Learning Center.

Click this button only if you want to use a real Learning Center to provide inputs to the demo HMI.

Turn LEDs on and off by clicking these toggle switches.

Move the slider to control the potentiometer and write to the meter.

Using the Demo HMI with a Real Learning Center

You can also use the SNAP PAC Learning Center Demo HMI with a real Learning Center. Here's how.

1. If the Demo strategy is not open in PAC Control, open it by choosing Start > Programs > Opto 22 > PAC Project > PAC Control Demo Strategy.

2. In the Strategy Tree, open the Control Engines folder. Right-click SNAP PAC Sim and choose Modify. Then click the Modify button.

Change the IP address to the IP address of your Learning Center.
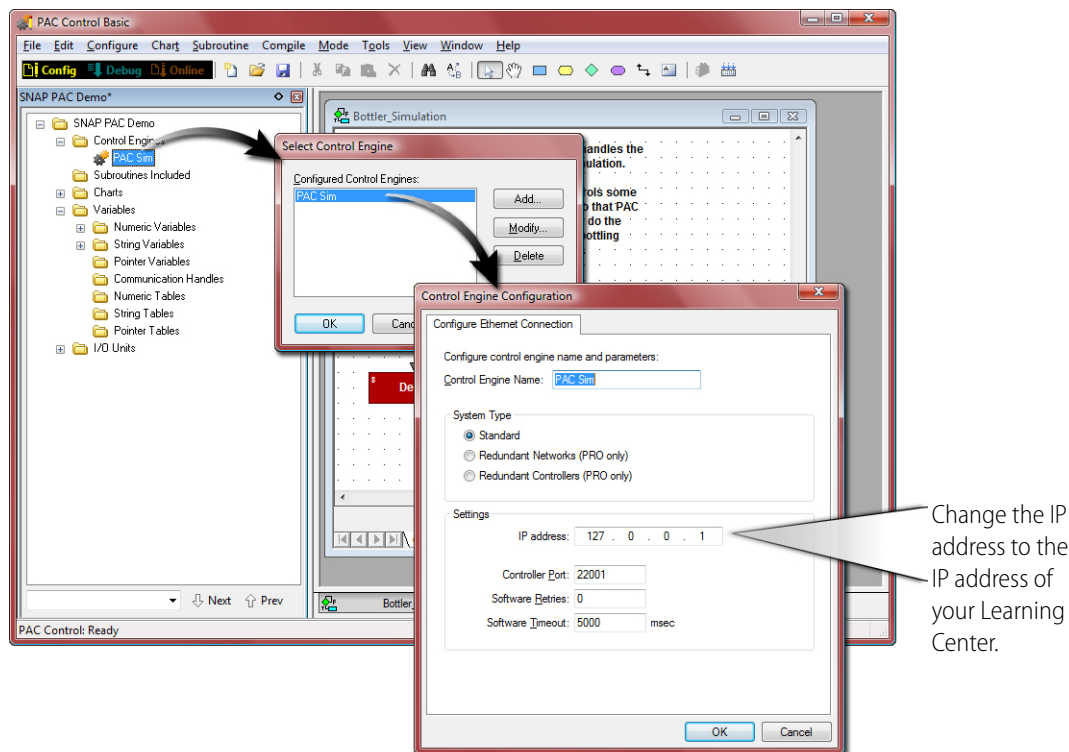
3. Change the IP address to the address of your Learning Center and click OK.

4. Back in the Strategy Tree, open the I/O Units folder and double-click SNAP_PAC_R.

Leave the IP address as is.

Check the box to enable communication.
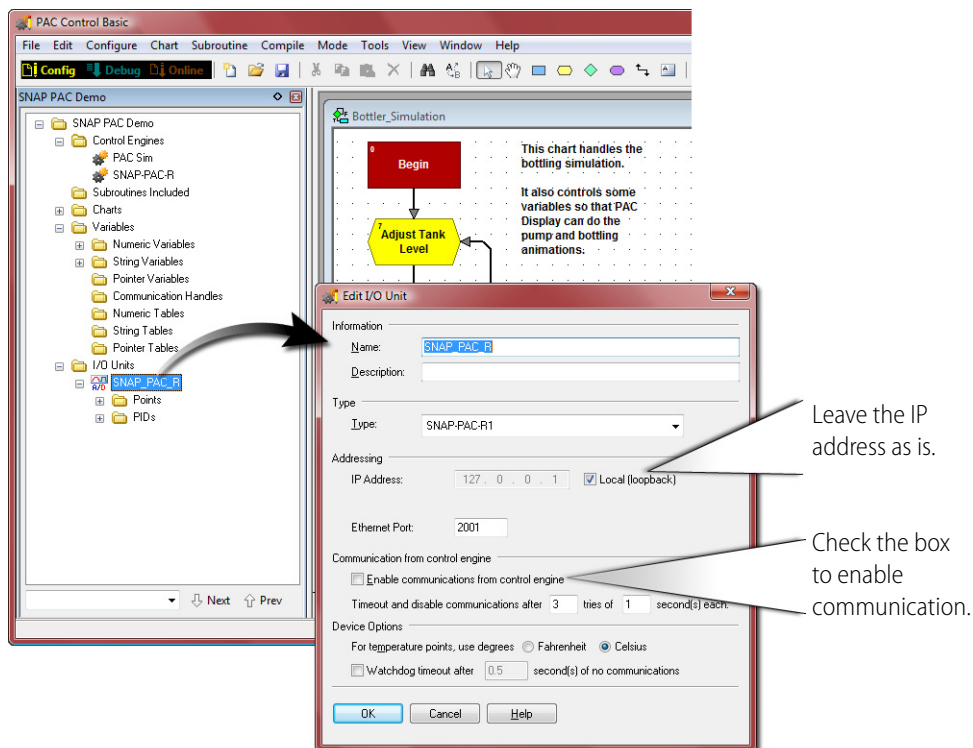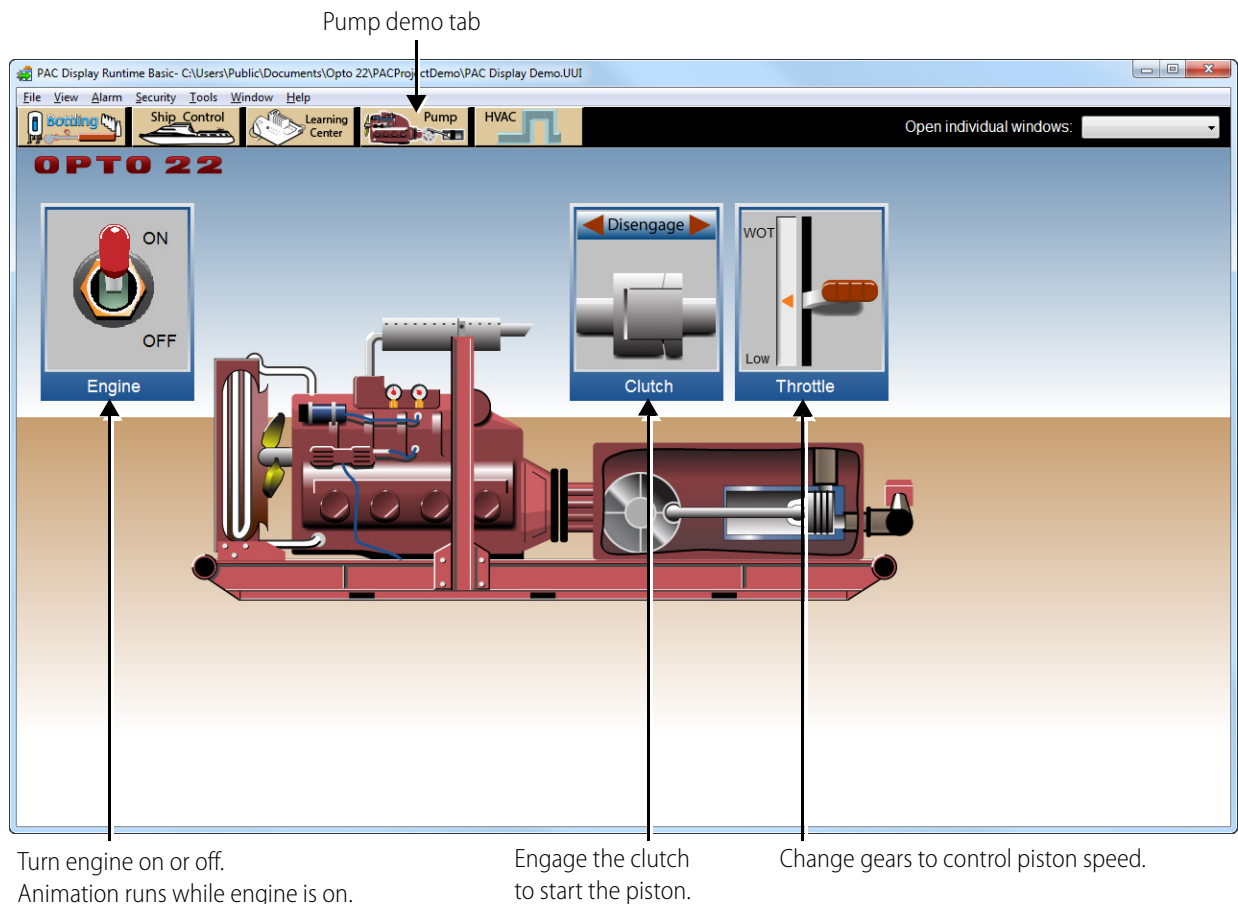
5. Check the box to enable communication.

   You do not need to change the IP address, because 127.0.0.1 (the loopback address) tells the controller to look at its own I/O. Since the rack-mounted controller on the Learning Center also provides I/O processing, the loopback address works fine.

6. Choose Mode > Debug or click the Debug button ![Debug]. Click YES or OK at the messages to continue downloading the strategy to the Learning Center.

7. To start running the strategy, choose Debug > Run or click the Run Strategy button ![Run].

8. In the Learning Center Demo HMI, click the Simulated Variables button to toggle away from the HMI inputs and use the Learning Center inputs instead.

   Now the Learning Center itself is running the PAC Control strategy, and the switches and potentiometer on the Learning Center hardware are inputs to the LEDs and meter in the HMI.

Pump Demo HMI

The Pump HMI shows an engine, complete with clutch and gear shift.

Pump demo tab

Turn engine on or off.
Animation runs while engine is on.

Engage the clutch to start the piston.

Change gears to control piston speed.

HVAC Demo HMI

The HVAC Demo tab demonstrates a heating and cooling system made from artwork pieces you can use yourself if you wish.

Choose Summer Cooling or Winter Heating, and then play with getting the room temperature the way you want it. Explore the labeled tabs (VAV Unit, Cooling Components, Heating Components) to see other possibilities.
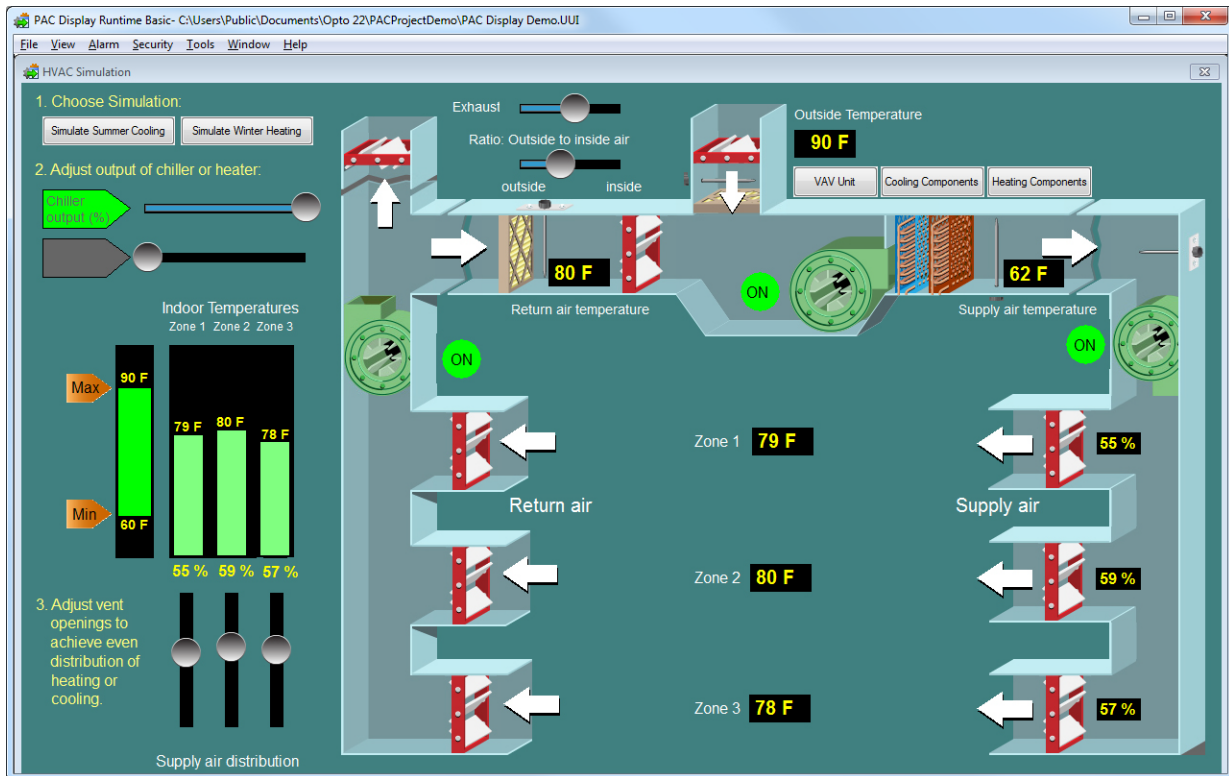
To go back to the other demos, either close this window or, from the Window menu, open the window you want. **To see and use these artwork pieces**, in PAC Display Configurator, from the Window menu, choose Open and then HVAC Parts.

Finding Out More

More information is available on our website, www.opto22.com. You can download the complete PAC Project software suite, which includes all documents, or you can download individual user guides. The easiest way to find a guide is to search on its form number:

PAC Control User's Guide, form 1700

PAC Control Command Reference, form 1701

PAC Display User's Guide, form 1702