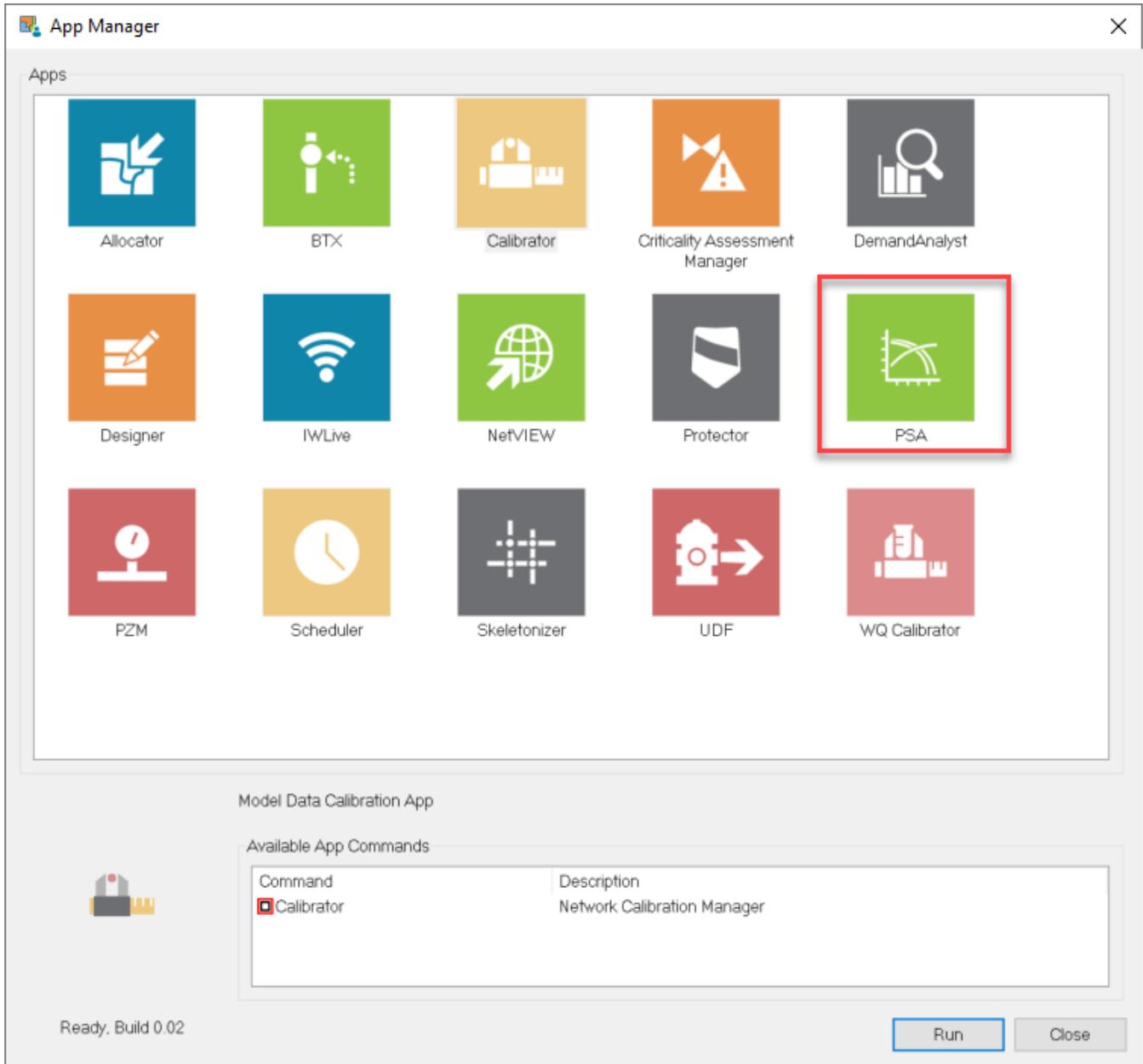


Pump System Analyst

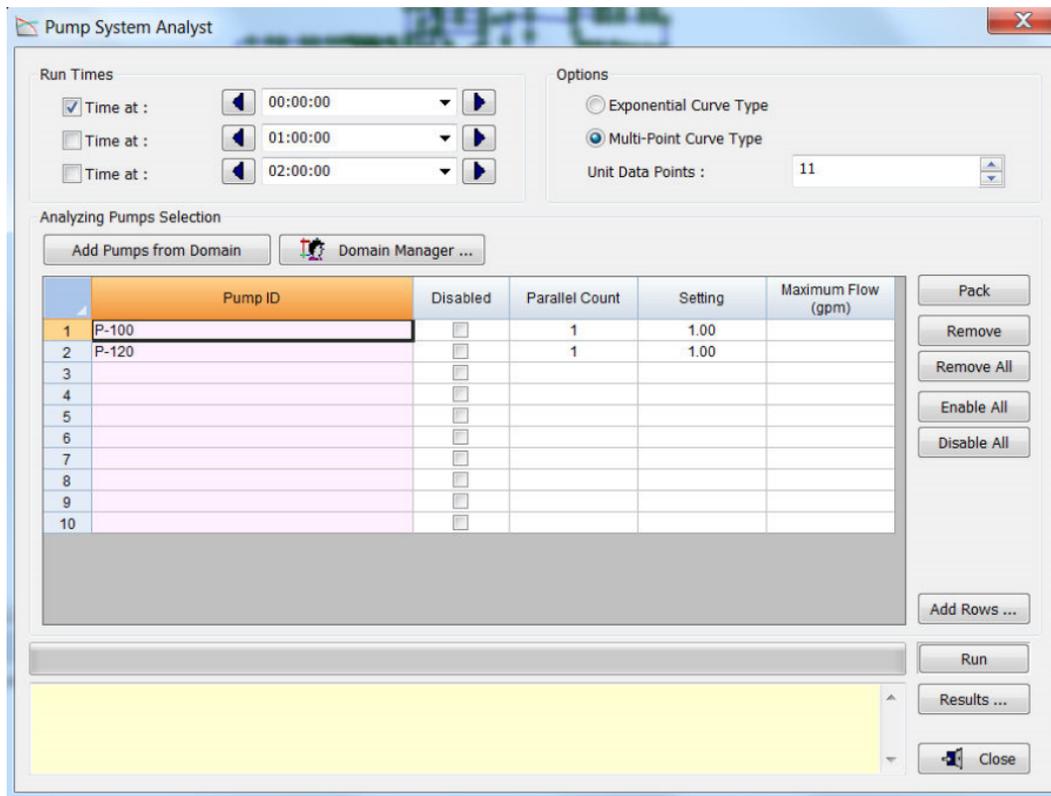
Pump System Analyst (PSA) is an extension module for InfoWater Pro. With PSA, you are able to not only evaluate whether a pump station meets the pumping capacity requirements or not, but also design a pump station improvement plan in order to meet the system needs and maintain the best pumping efficiency.

PSA can generate system head curves for part of or all pumps in the network. For a given pump, you can have system head curves for up to three simulation time steps. All system head curves and the pump curve for a given pump is displayed in both tabular and graphical format. In the meantime, you are able to manipulate the pump curve by adding one or more virtual pump in series or parallel mode, in order to determine the best options for upgrading the pump station.

To use PSA, go to the **InfoWater Pro** tab > **Project** group, select the **Apps**  button to bring up the **App Manager**, and then click on the **PSA** icon. Click on the **Run** button to start the Pump System Analyst.



Pump System Analyst Dialog Box



The following parameters are used to run the system head curves:

Run Times

Choose up to three simulation time steps for PSA to produce system head curves. Note that it is better to choose three simulation time steps that represent the low, average, and high system demands. For a steady state simulation, there is no choice to select simulation time steps.

Enable or disable the specified simulation time step

Specify simulation time step through the drop-down list or the button on both ends

Options

Specify the pump curve type and the number of data points for PSA to create system head curves and pump curves

Specify the pump curve type to use

Specify the number of data points by directly entering a number or clicking on the arrow buttons on the right

Analyzing Pump Selection

First, select a number of pumps for analysis by typing Pump ID, double clicking a Pump ID cell and selecting a pump from the map, or adding pumps from domain. Then, specify the three parameters (Parallel Count, Setting, and Maximum Flow) for each selected pump. These three parameters are used to determine the maximum flow, which is then used to generate system head curves for a given pump. Based on the Parallel Count, Setting, and the corresponding pump curve, PSA calculates one maximum flow (i.e., the flow with zero head gain), compares it with the user-defined maximum flow, and uses the larger value for the system head curve generation.

You can exclude a selected pump from pump system analysis by checking on the corresponding checkbox in the Disabled field within the table.

Populate domain pumps into the table

Open up Domain Manager

Rearrange pump records in the table

Remove the highlighted pump record from the table

Remove all pump records from the table

Enable all pumps for pump system analysis

Disable all pumps from pump system analysis

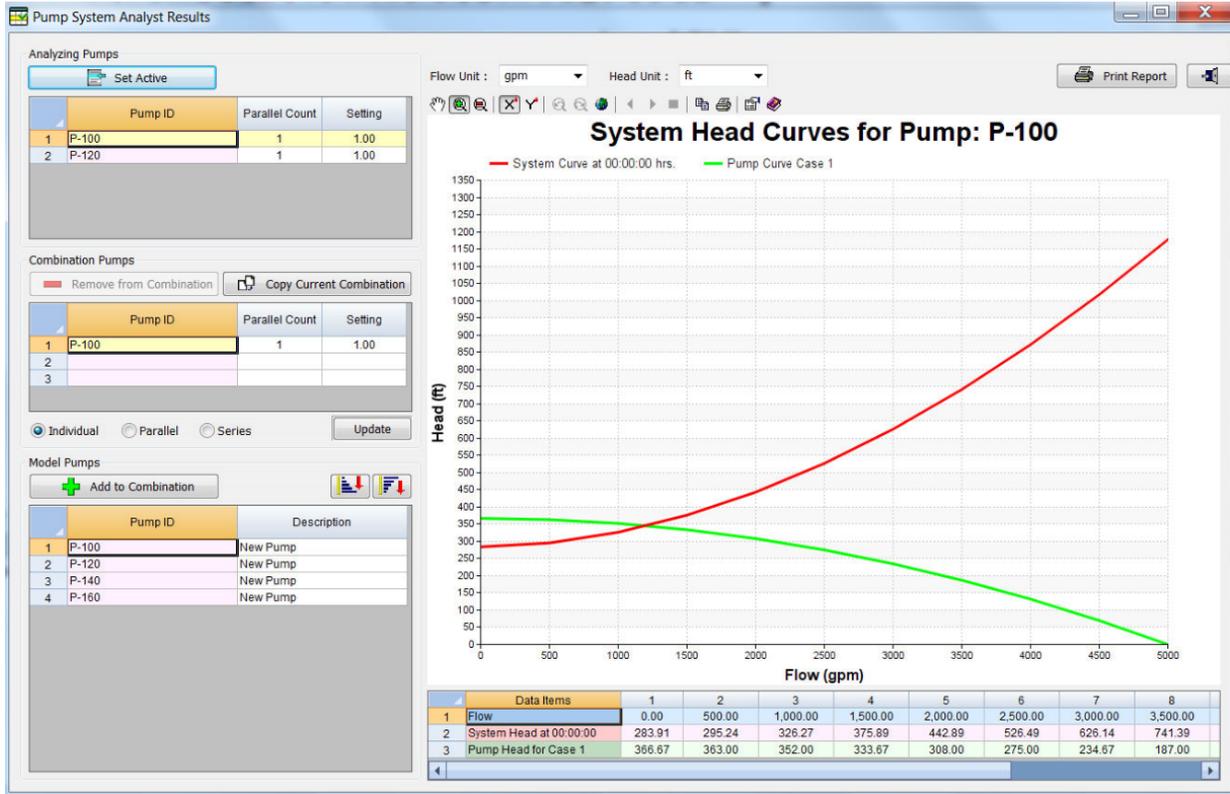
Add more rows if there is no enough room in the table. You can specify the number of additional rows after clicking the button

Run pump system analysis for the target pumps in the table. While running pump system analysis, PSA updates the progress bar and shows messages in the text box

Open a dialog to show pump system analysis results

Exit the PSA dialog box

Pump System Analyst Results



The following parameters are used to format the system head curves:

Analyzing Pumps

PSA analyzes the target pumps and shows them in the table with three fields of Pump ID, Parallel Count, and Setting. Note that the table is not editable. The active analyzing pump is highlighted in yellow and its PSA results are shown on the right in both tabular and graphical format.

Click to make the selected analyzing pump active and highlighted in yellow, so the PSA results for the selected analyzing pump is shown on the right

Combination Pumps

PSA provides a convenient way to evaluate pump combination alternatives, based on the active analyzing pump. The active analyzing pump's ID is highlighted in yellow in the table. You can create up to three pump combination alternatives, such as three different pump settings or three different pump parallel counts. After creating additional pump combinations, you can revise each pump combination scenario's Parallel Count and Setting as desired.

Click to copy the selected pump combination as a new pump combination

Click to delete the selected pump combination from the table. Note that the first pump combination is the base scenario, and then cannot be deleted

Select to show pump combination scenarios individually

Select to put all pump combination scenarios in parallel mode. Note that only a pump curve is displayed for the parallel mode

Select to put all pump combination scenarios in serial model. Note that only a pump curve is displayed for the serial mode

Click to refresh the graph and tabular report, based on the updated pump combination scenarios

Model Pumps

PSA also populates all pumps in the model to the table of Model Pumps. The table has two fields to display Pump ID and Pump Description. You can simply add any model pumps to the table of Combination Pumps.

Click to add a model pump to the table of Combination Pumps

Click to sort ascending or descending the records according to the Pump ID field

Graph and Report

The graph displays the system head curves and pump curves, while the table displays all data points behind the graph's system head curves and pump curves. For help with the graph buttons, please refer to the page about the Graph control.

Choose one of ten flow units for system head curves and pump curves

Choose one of two head units for system head curves and pump curves

Click to print the tabular report on the bottom

Click to exit out of the PSA Results dialog box