

AQS110 – Introduction to Quality and Metrology – Fall 2016
LABORATORY EXERCISE #9
ROOM VALIDATION – Part 1 Data Collection

Purpose

The purpose of this exercise is to evaluate the temperature consistency of the biotechnology laboratory, using temperature data loggers.

The research question to be answered is the following:

Does the room remain in control? Control is defined as 70°F +/- 2°F

Format

A summarized report will be completed by each student that describes
how the study was conducted
rationale for selection of the data logger placement, why the locations chosen to determine if room in control.
analysis of data collected

Due Date the laboratory will be conducted over two class periods. The final report will be due at the beginning of class on December 7, 2016.

Laboratory Exercise:

The lab will be conducted in two teams. Each team will be given two Data Trace Pro data loggers. These data loggers will record room temperature at an interval specified by the team over a one week period.

The data loggers are battery operated and have the capacity to log a maximum of 8000 data points. They can collect data at a frequency as often as every second or once per hour. The data logger will provide a day-time stamp along with temperature for each data point. The temperature can be recorded with a sensitivity of up to 3 decimal places. (e.g. 70 °F or 70.000 °F)

Prior to beginning the study, each data logger will need to be programmed regarding the frequency of data collection and sensitivity of the temperature recorded.

Procedure

A. Determine location of data loggers

A diagram of the room has been provided. Team #1 will be evaluating the classroom portion and Team #2 will be evaluating the laboratory portion of the room.

When determining where to locate the data logger the following should be considered:

- Number of data points, how frequently is data needed
- Sensitivity (e.g. 70 °F or 70.000 °F)
- When the room is in use versus at rest
- Location of both the intake vents and diffusers
- Security of the data logger (protection from damage)

Document the rationale for which location(s) were selected; include what was considered and why it was or was not selected.

B. Prepare data loggers to record information

The data loggers will need to be programmed regarding temperature (°F or °C) and data collection frequency (seconds, minutes, hour).

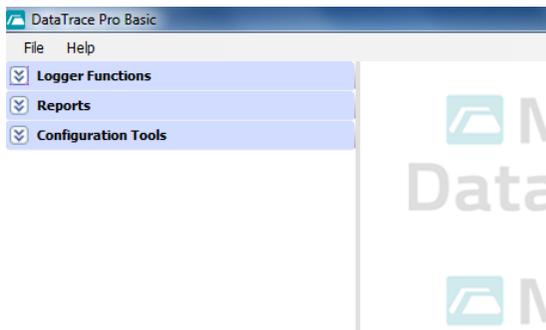
The programming station is located in Room 105.

Log onto the computer, and click on the DataPro icon.
Place the data logger in the receiver (next to the computer).
The following screen will appear

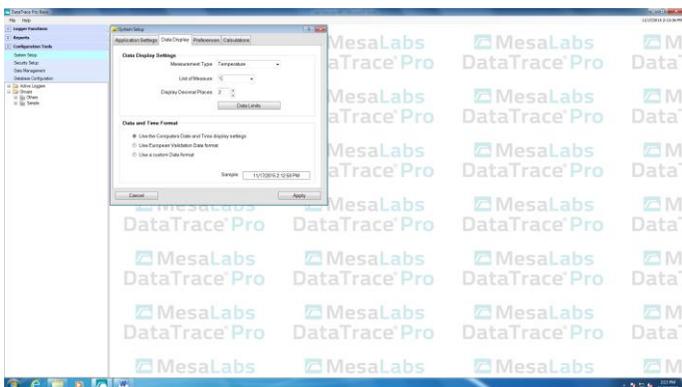


First, the data logger needs to be configured.

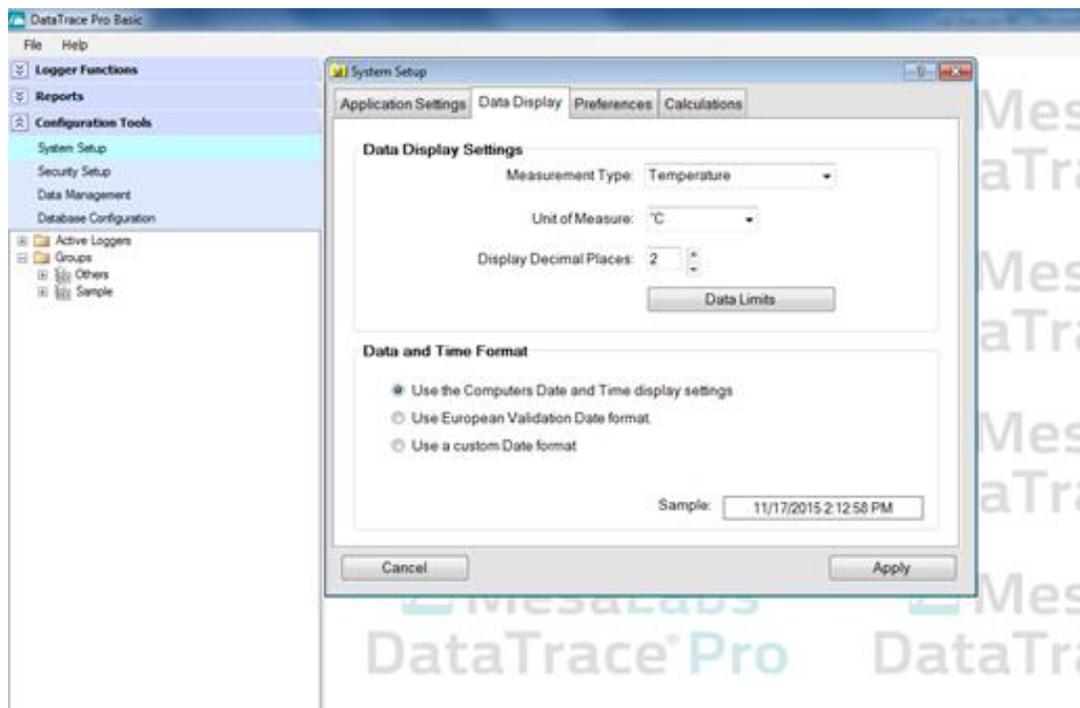
In the menu on the left, select "Configuration Tools"



The following screen will appear

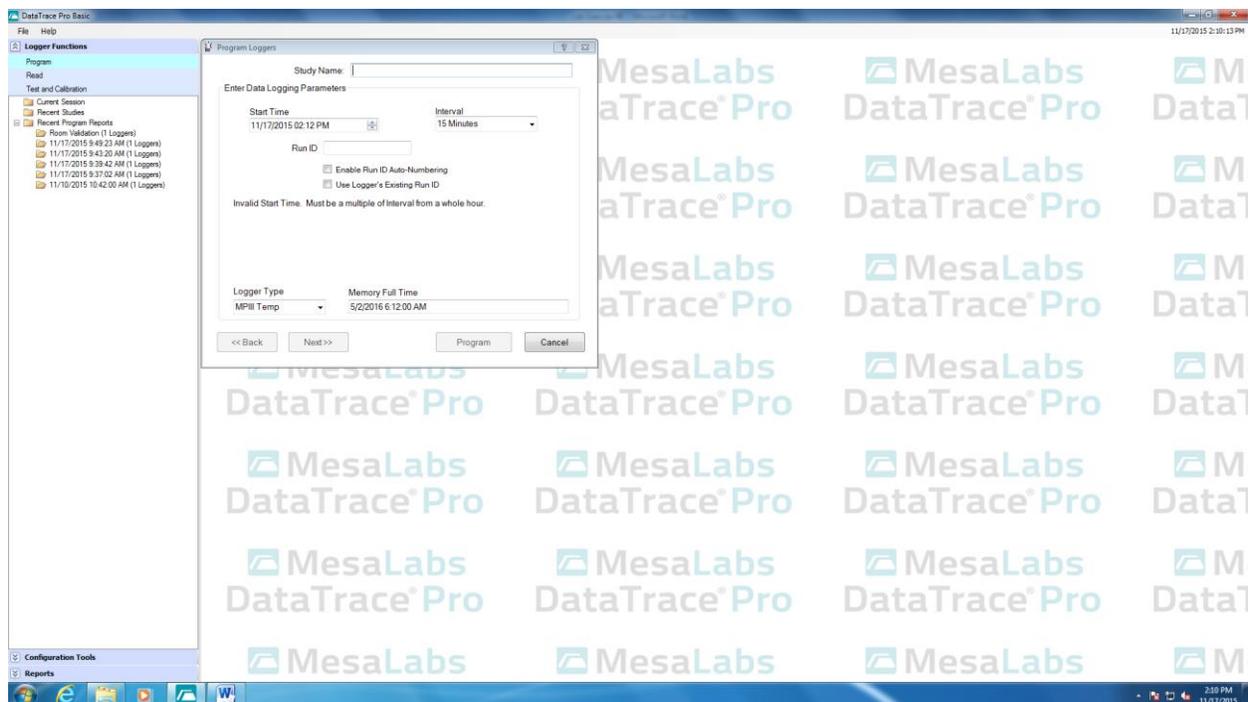


Verify that the data logger is in the receiver
Select System Set-up and the data display tab.



Be sure the temperature is in °F.
Select the sensitivity agreed to by the team.

Leaving the data logger in the receiver, it now needs to be programmed.
Select Logger Functions and the following screen will appear.



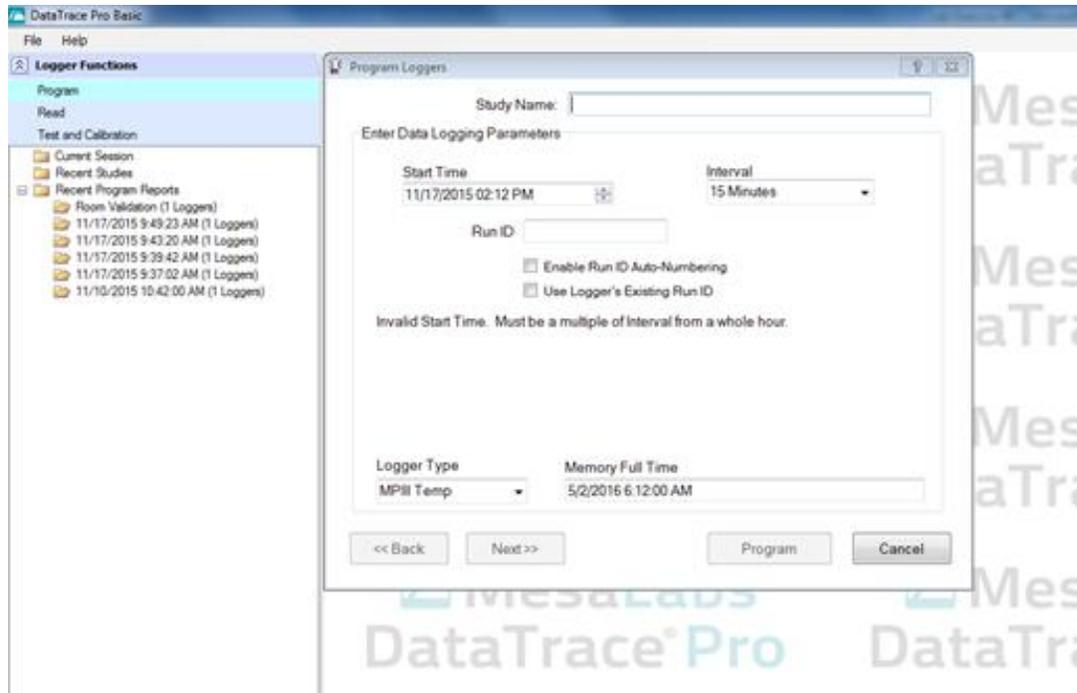
Select Program.

Enter a Study name

Select an interval and start time.

To select a start time, place the mouse pointer directly on the numbers and they should be highlighted.

Enable auto numbering



When completed click on next. The data logger will then be programmed.

C. Placement of data loggers

Once the data loggers have been programmed, return to Room 214 to place them.

Use the Velcro tape to attach them securely in place; they will remain in position until we return to class next week to retrieve the data.

Data Logger Location & Sampling Frequency RATIONALE

Number of data points, how frequently is data needed

Sensitivity (e.g. 70 °F or 70.000 °F)

Room Usage

Vent Location

Security of the data logger (protection from damage)

Other