The
Controller

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Understanding ECON: Retrieving Analog History Files

This article is going to cover a powerful feature of ECON. ECON gives you the ability to retrieve, view and export to Excel analog signal history records. Analog signal history files such as discharge pressure, room temperature, or compressor operating conditions can be analyzed for patterns that could lead to power saving operating procedures.

Before I get into the heavy duty information of this article, we need to cover some background information. This puts everyone on the same page.

ECON (short for Engineering Console), is the software your remote computer uses to communicate with the processor running your refrigeration system. I will refer to the computer running your refrigeration as the signal server from now on. ECON is represented on your remote computer as the lower case red "e" on your computers desktop.

The other bit of background information we need to discuss are the analog history files stored on the hard drive of the signal server. The signal server records analog signal data every 15 minutes (recommended) or at your desired interval . Temperature, pressure, level and every other analog input signal is recorded and archived on your hard drive once a week. These files on your hard drive have a name that will look similar to this: **2009127.ana**. The **2009** is the year the data was recorded. By the time this article arrives, your signal server hard drive will have a few .ana files that will start with 2010. The next three numbers, **127,** represents the day of the year (typically a Sunday) the history file was created. The **.ana** file extension is used for analog history files. You are going to learn how to get these files off the hard drive, look at them in ECON, and export these data files to Excel. Excel will let you you do lots of wonderful things with the data. If you don't know how to use Excel, The Video Professor has a free lesson he will love to give you! IMPORTANT NOTE: This article is written for remote computers that have an ethernet connection to the signal server. If your remote computer communicates with the signal server via serial (9 or 25 pin connectors) communications, you can not do what I am talking about in this article.

Once you have ECON open, go to **Server** (upper left hand corner) and come down to **Project Information.** A screen will popup that looks like fig. 1 (following page). The information in the white
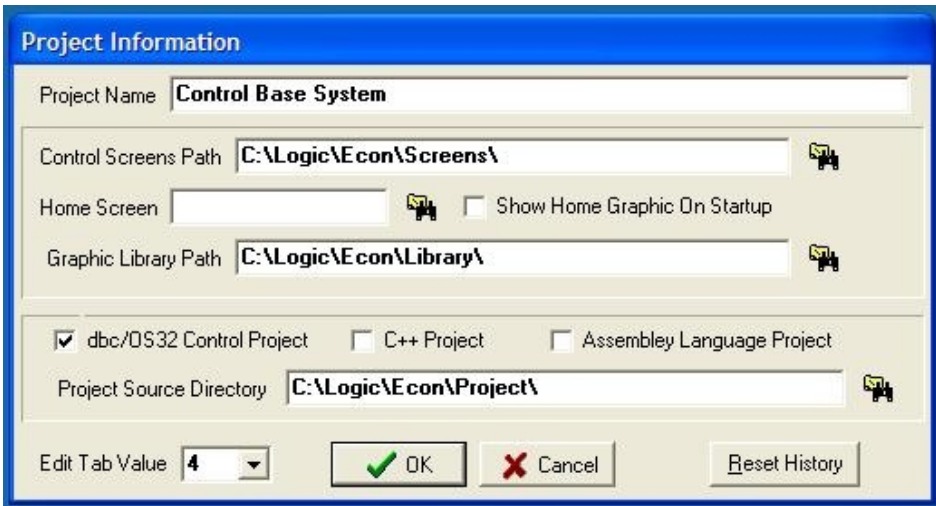
Go to the top left hand portion of your screen and and click on **Server**, then come down to **Master Information.** Select the **Database** tab. You will see the figure below:

boxes won't be exactly the same as shown. The last box labeled *Project Source Directory* is the one we are interested in. If yours doesn't match the image, it should be close. This is the location ECON will put the files it gets from the signal server, and is where other parts of ECON will go to look for the .ana file. Make a note of this file path.

Another piece of information you will need for this process is the IP (Internet Protocol) address of your Signal Server. From the main screen (the screen you get after you logon) of the signal server, hit the <**s**> key. This will get you to the command prompt (see the August 2009 issue of *The Controller*). While at the command prompt, type <**@stat n**>. You will see several lines of information. You want to look at the first line that says: Local IP = 10.0.1.36. The numbers here will be replaced by numbers that represent the IP address of your signal server. Write this down. While at the command prompt, you will also need to type the following command: <**@stat s**>. The number you see under the word **Unit** is important; write it down. Now you have the IP address and the boot device number of your Signal Server. Keep these numbers in a safe place, they are important.
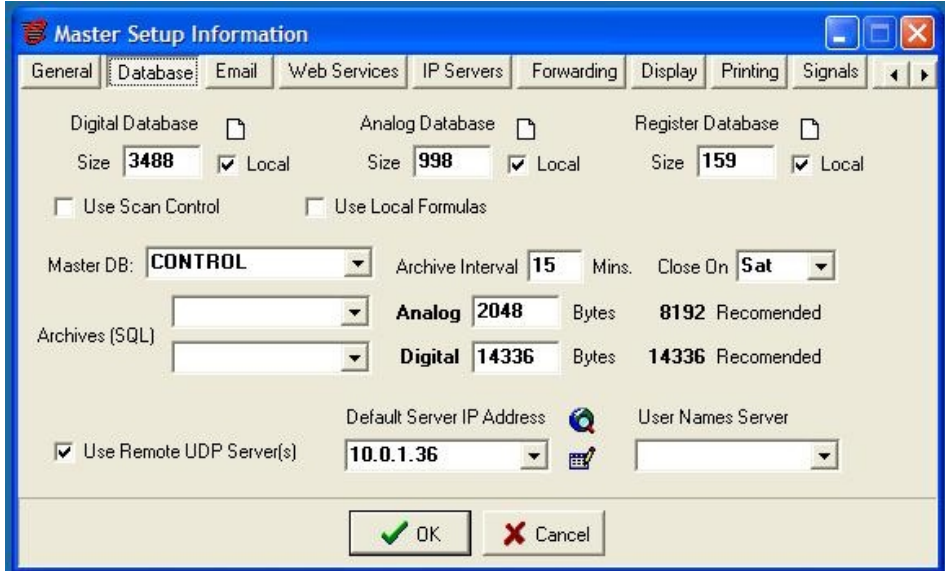
You need to get one more piece of information, while we are at the command prompt. You need the length of the history.dat record. Enter **<@stat o>** while at the command prompt. This will probably fill up your screen with several lines of text. The line you are looking for is line number 15, this is the history.dat file. Once you locate that line, look under the 'Length' column and note the number.

To return to the main screen, type <**@run 'menu1'**> and hit the <Enter> key.

On the last line you will see "Default Server IP Address". This should be the same as the IP address you noted earlier when you did the **@stat s** command. If it is not, click on the down arrow and select it from the available IP addresses. You will also see the word '**Analog**' near the middle of the screen. Enter the number (record length) you noted when you did the **@stat o** command. Enter this number in the white block between the words **Analog** and Bytes.

Now it's time to grab the .ana files from the signal server. Go to Server

(upper left hand corner of your screen) then come down to **Show Project Outline**. You will see a figure similar to below:
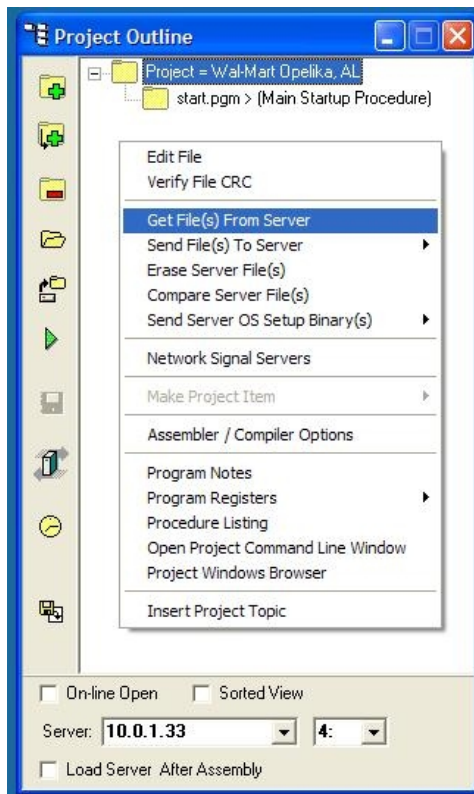
You will not see the additional pop up box in the **Project Outline** popup until you right click the mouse in the white area. DON'T DO THAT NOW THOUGH! We need to make sure the IP Server address is correct and the boot device is correct as well. These items are displayed at the bottom of the **Project Outline** popup. They are on the same line to the right of the word "Server" at the bottom. Use the drop down box to change the boot device (rightmost item) to the number you noted when you did the **@stat s** command earlier. The IP address should be correct; you set that while on the database tab earlier. Right click in the white

area and go down to **Get Files From Server.**

After you click on Get File(s) From Server you should see the following: *Server Files Dialog Box* Your listed files will be different.
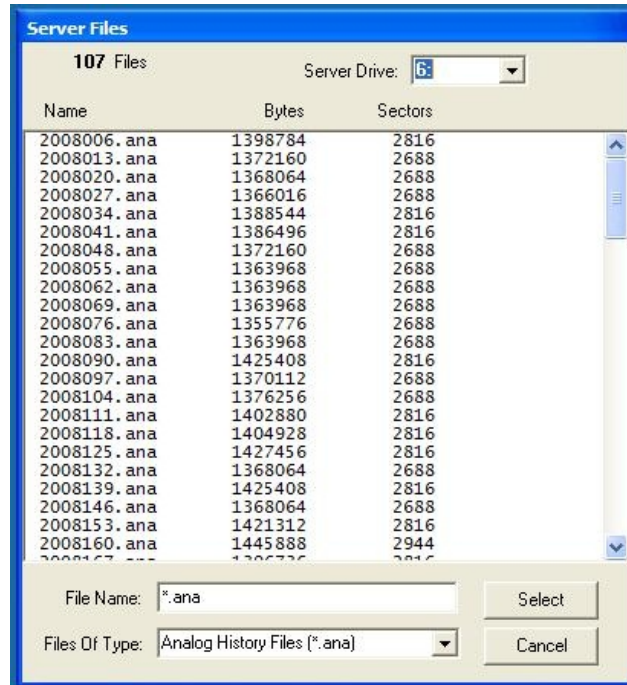
If you do not see a list of files in the white box, something is wrong. You may see something that says *Net Response Timeout or File Not Found.* If you see this, double check the server IP address and the boot device number. You may need to close this out and try again.

The last line on the <u>Server Files</u> popup says "Files of Type". You will use the drop down arrow to select *Analog History Files (*.ana).* The name of the file represents the calendar year and the day (sequential numbering) of the year the file was generated. Use the scroll bar on the right side of the popup screen to scroll to the top of this list. Select the file at the top of

the list. Hold down the <Shift> key and move to the end of the list (you may need to use the scroll bar again) and select the last file on this list. Hit the select button. All the analog history files you highlighted will begin to transfer to your remote computer. If you know you don't need all the analog history files, simply highlight the ones you are interested in.

All the *.ana files you transferred should be in the directory you noted in the first figure next to **Project Source Directory**.

Now the *.ana files are on your remote computer. You can use ECON to select the analog signals you are interested in, and export that data to an Excel spreadsheet. Go to **Server** then down to **Trending View**. The Signal Trending screen will now appear in ECON. You will see several columns on this page. They are labeled Signal 1 Values, Signal 2 Values and so on. You can choose a total of 20 analog points for one report. When you first pull the **Trending View** page up, the first element in the Signal 1 Values column should be highlighted. Click on the Folder/Binocular icon in the first line on this page. Look between the white boxes under Signal Name and Column. The Analog Database Selection screen will appear and you will be able to choose the first signal you want to plot. Highlight the signal you want to plot and hit <**Select**> in the lower

right hand corner. After you select a signal for the first column, highlight the first element in the next column to the right. Again, click on the folder/binocular icon and repeat the process of selecting signals to plot until you have selected all the signals you want to retrieve.

Once you have a signal name at the top of each column, select the data file you want to plot. Look in the upper left hand corner of the Signal Trending view and hit the <**Select Range**> button. Once you hit the select range button, you will get the History Data Selection popup. You should be able to select the file you want to display, based on the dates available in the white area of the popup. Highlight the date of interest and hit OK. This will display the data of interest. There are several tabs along the bottom that will display the data in different formats. You can also change the Y axis. Look in the

upper left hand corner of the screen for an icon that looks like a business card with a magnifying glass. Clicking on this icon will allow you to change the Y axis on the graph.

In the upper right hand corner of the screen is a green X icon. If you move the cursor over that icon, you will see Export to Excel.... This will allow you to Export the data to Excel in a comma separated value format data file. You will be prompted for a file name. The file will be put in the Project Source Directory we recorded earlier. This file has an extension of .csv.

Now you have one weeks worth of analog history data for the analog signals you chose to analyze.

The idea for this article came from Nathan Ironside at Land-O-Frost in Searcy AR. For Nates winning suggestion, he will receive, on behalf of Land-O-Frost, a MOA

switch and a temperature sensor, saving his company $70.00.

Classes:

<u>Operator level</u> classes will be offered for the following dates: Wed. Feb. 10 - Friday Feb. 13 Wed. March 10 - Friday March 13

The cost for the operating level class is $450.00. We provide lunch for those taking the class. To reserve your seat, call Kim Smith (ext.6611) or Cindy Gaffney(ext. 6612) at 770-389-4964**.**

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