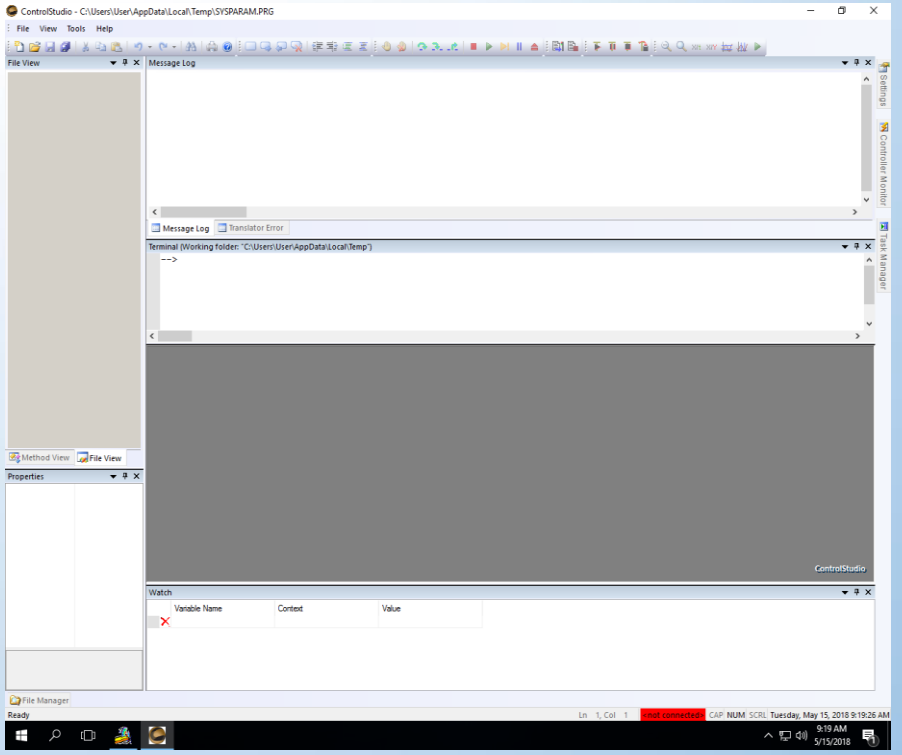
Getting to Know Control Studio

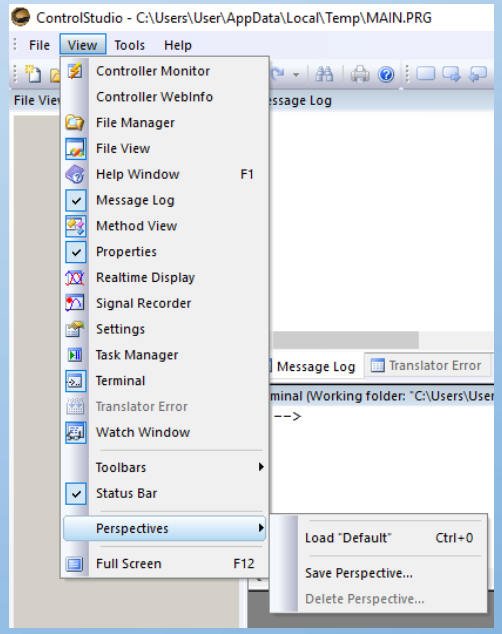
Getting to know Control Studio

- Control Studio is the integrated development environment for the softMC
- Used to write programs (tasks), debug tasks, record data
- Graphical User Interface
- Provides a command line interface (terminal) to the softMC

Getting to know Control Studio

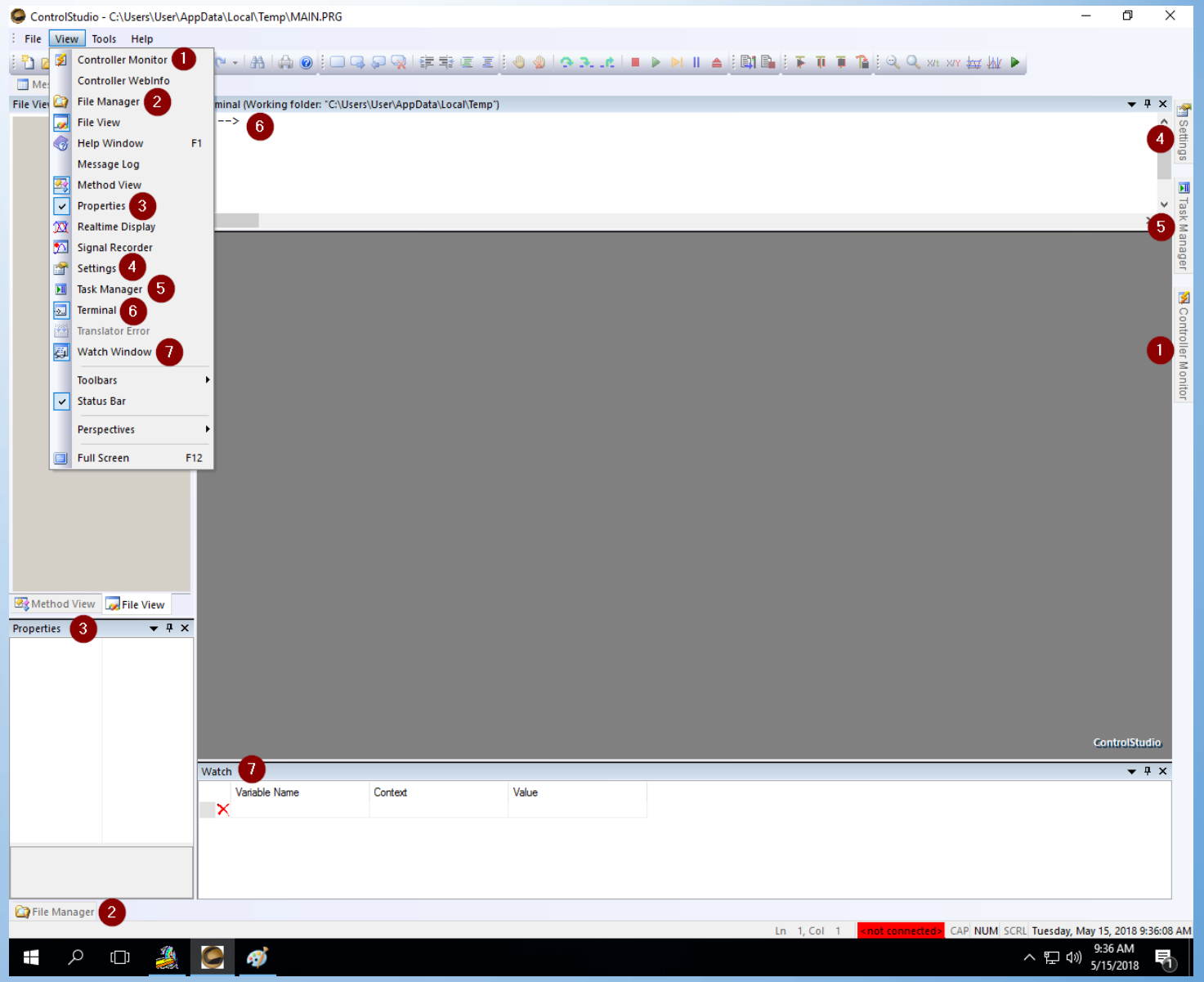
- This is the default view in Control Studio
- If your view does not look like this or if you want to go back to the default view, select View from the toolbar menu, then perspectives, then Load “Default”





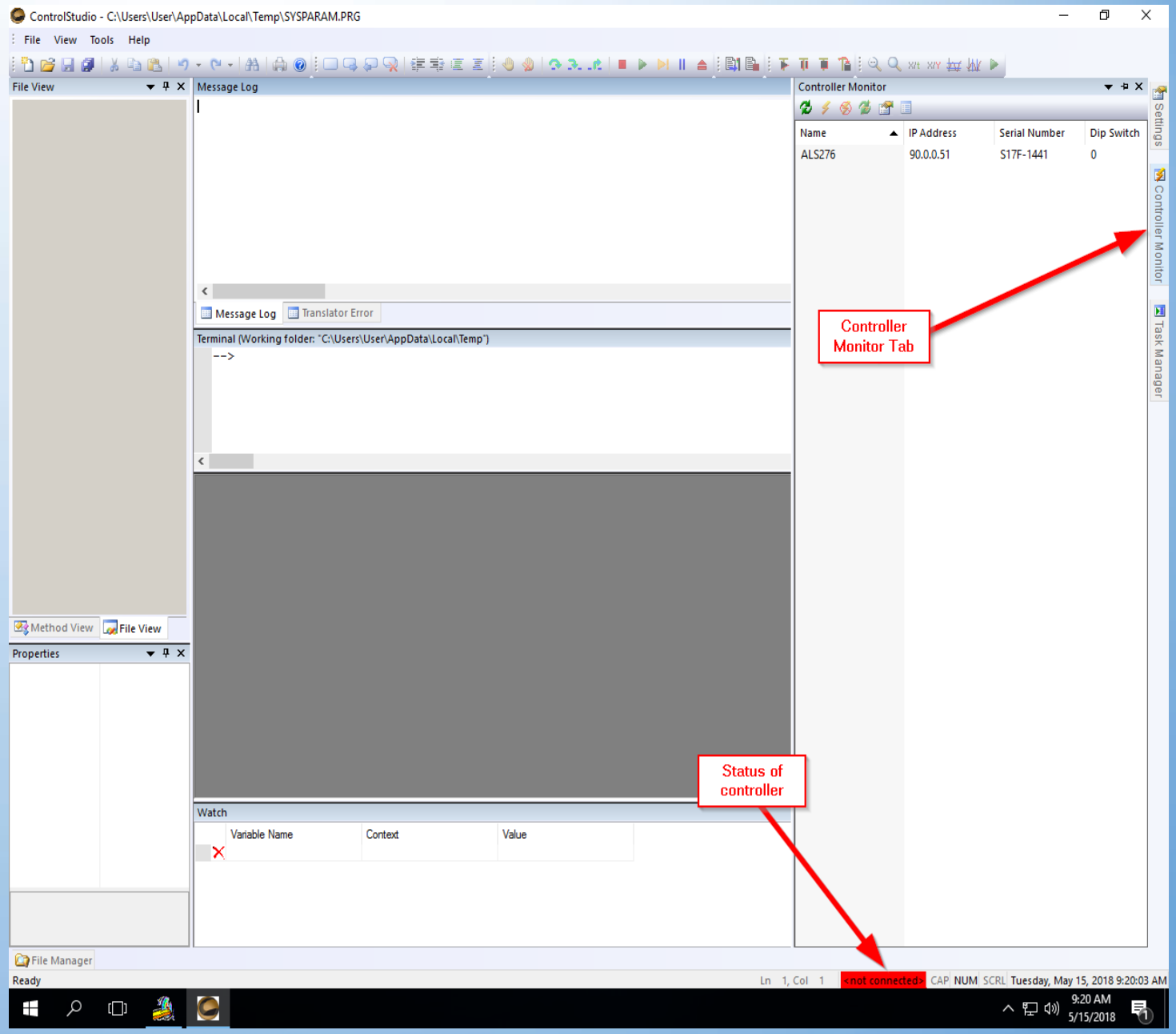
Getting to know Control Studio

- The most common windows are preloaded with the default settings.
- If you happen to close one, they can be recovered.
- Here is a numbered list of the most common windows.



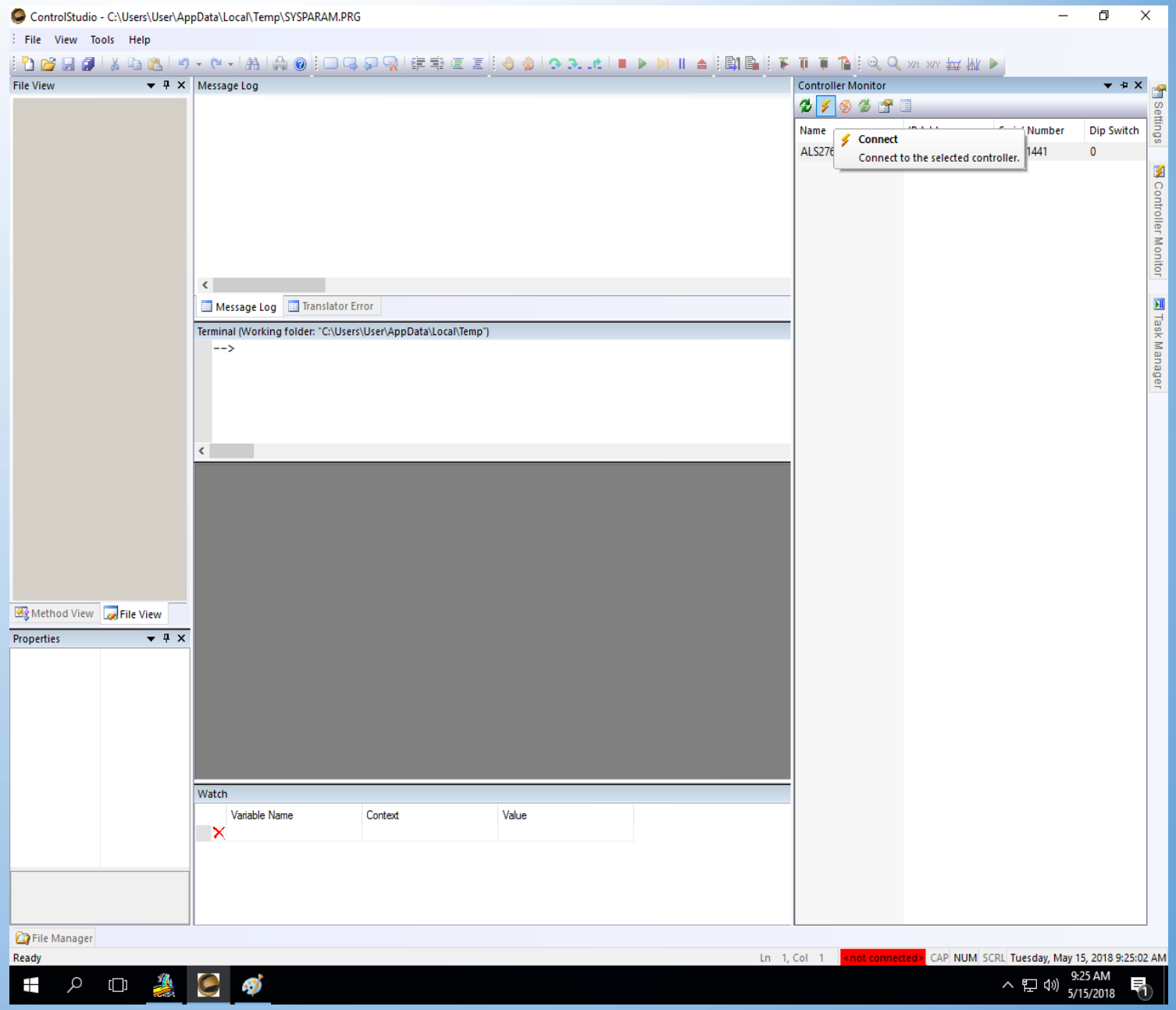
Connecting to a softMC Controller

- When you open Control Studio by default, you are not connected to a controller
- To connect to a controller, open the Controller Monitor Tab on the right.
- This will open the Controller Monitor Window



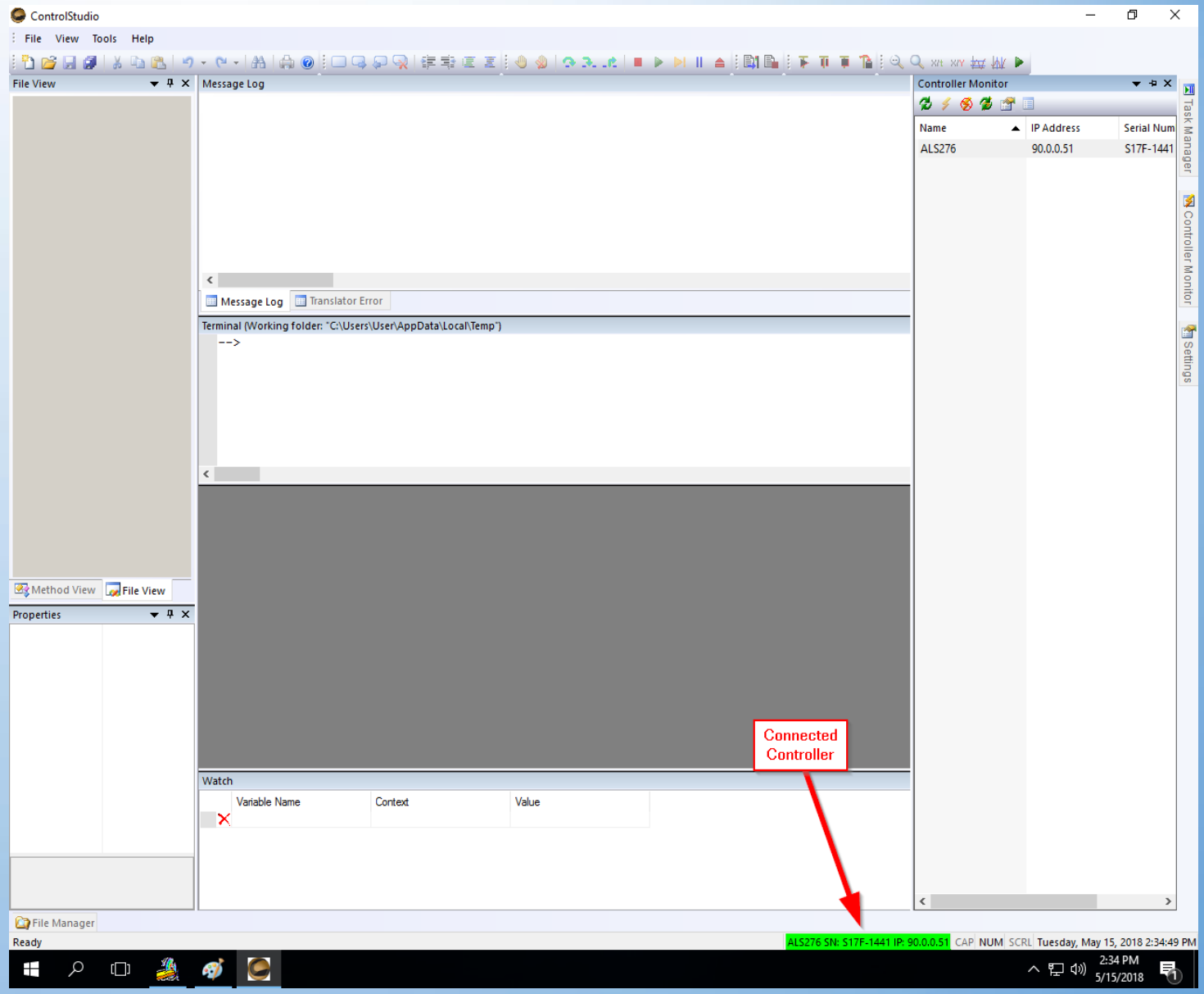
Connecting to a softMC Controller

- To connect to a controller, highlight the controller and then press the yellow lightning bolt 
- You will need to do this each time you open Control Studio



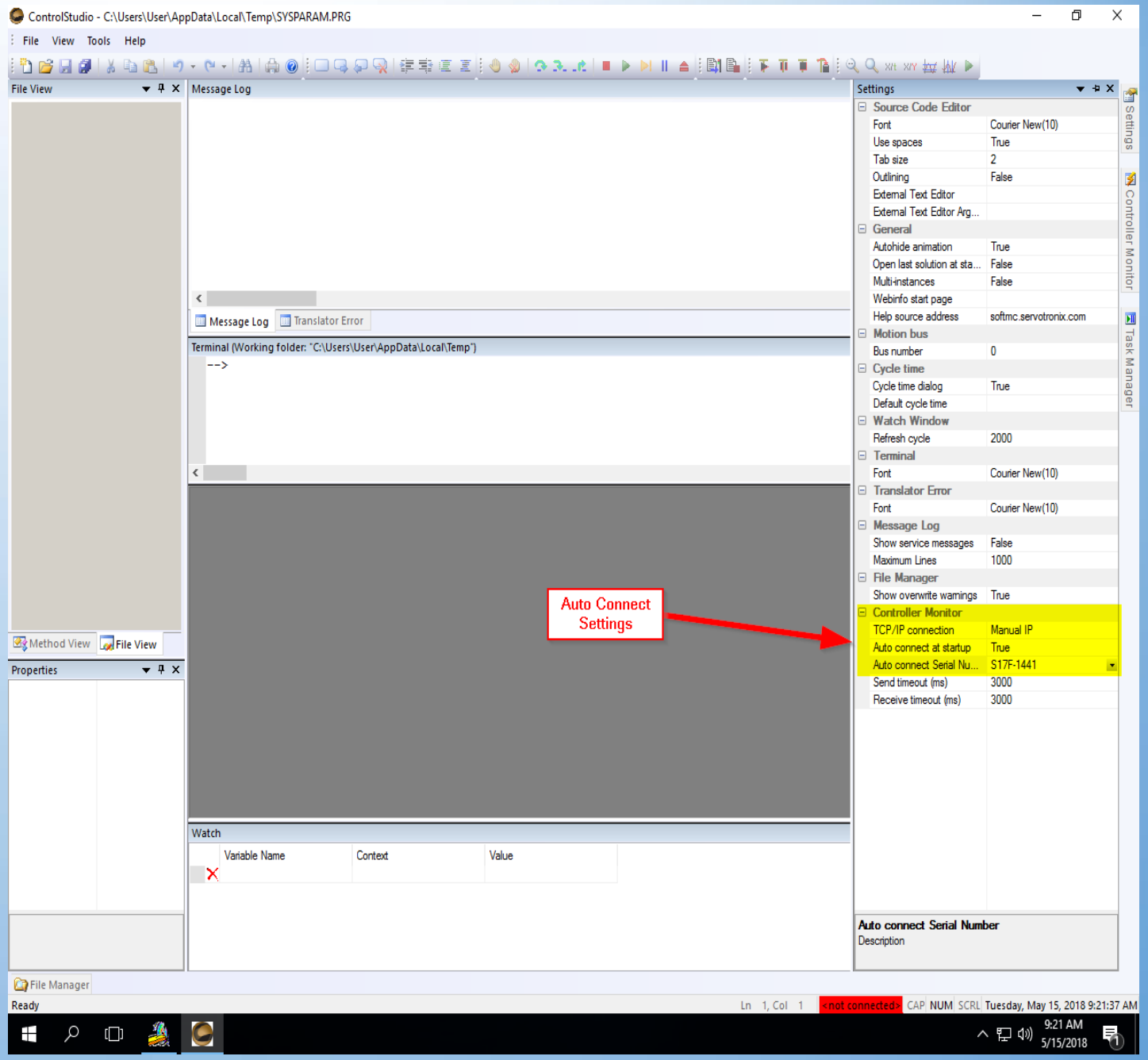
Connecting to a softMC Controller

- Once you are connected to a controller, it will show as being by turning green at the bottom
- It will also show you the serial number and IP address of the controller that you are currently connected to.



Controller Automatic Connection Settings

- To set a controller to Automatically connect, open the settings Tab
- Scroll down to the Controller Monitor section under Settings.
- Change TCP/IP connection to Manual
- Change Auto Connect at startup to True
- Change Auto Connect Serial Number once it auto populates from the controller



How to Poll Inputs

Polling inputs is done in the Terminal Window

Example for polling inputs

?sys.din.estop or
?sys.din.106

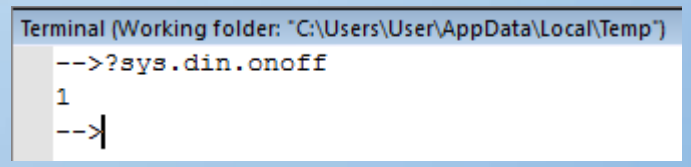
“?” will poll the input and return either a 0 or 1

0 = input is low

1= input is high

Digital Input Definitions

106 -Estop	E-Stop Detection Input
107 - SawAux	Auxiliary contact on Saw Motor Starter
108 - RemoteEstop	Remote Pendant E-Stop Detection Input
109 - OnOff	Key switch On/Off input
110 - LPS	Lumber Present Sensor - Outside L1
206 - EDS	Lumber Edge Detect Sensor - Inside L1
207 - SI1	Door Safety Interlock
209 - MS3_Aux_Conv	Aux MS3 - Conveyor motor starter
210 - L2LPS	Lumber Present Sensor - Inside L2

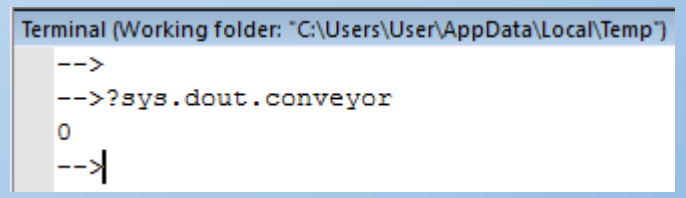


How to Poll Outputs

- Polling Outputs is done in the Terminal Window
- Example for polling outputs
- ?sys.dout.sawcoil or
- ?sys.dout.603
- “?” will poll the output and return either a 0 or 1
- 0= Output is Off
- 1= Output is On

Digital Output Definitions

603 – SawCoil	MS1 - Saw Motor Starter
505 - Sweeper_L	Sweeper
504 - InkJetOut	Inkjet Output
503 - Conveyor	Conveyor Motor Starter
405 - L1_Pusher	Pusher bar solenoid control
404 - L2_Pusher	L2 Pusher bar solenoid control
403 - RedLamp	Red status lamp on HMI
305 - YelLamp	Yel status lamp on HMI
304 - GrnLamp	Grn status lamp on HMI

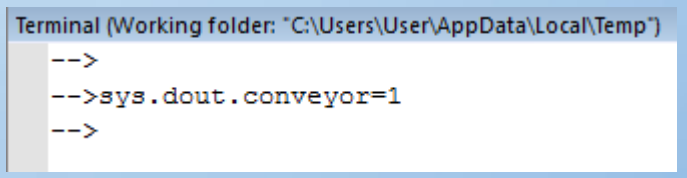


How to Fire Outputs

- Firing Outputs is done in the Terminal Window
- Example for Firing outputs
- sys.dout.L1_Pusher=1 or
- sys.dout.405
- 0= Output is Off
- 1= Output is On

Digital Output Definitions

603 – SawCoil	MS1 - Saw Motor Starter
505 - Sweeper_L	Sweeper
504 - InkJetOut	Inkjet Output
503 - Conveyor	Conveyor Motor Starter
405 - L1_Pusher	Pusher bar solenoid control
404 - L2_Pusher	L2 Pusher bar solenoid control
403 - RedLamp	Red status lamp on HMI
305 - YelLamp	Yel status lamp on HMI
304 - GrnLamp	Grn status lamp on HMI



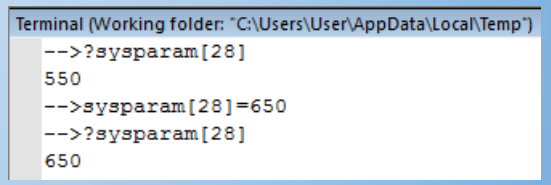
System Parameters

Use to be DNVRAM

- Polling a System Parameter
- ?sysparam[28]
- How to change a System Parameter
- Sysparam[28]=650

Default System Parameter List

SYSPARAM[1] = 21.5	L1 home offset
SYSPARAM[2] = -0.002268	A1 home offset
SYSPARAM[3] = -10.43	T1 home offset
SYSPARAM[4] = -0.016	B1 home offset
SYSPARAM[5] = -2.405342	Z1 home offset
SYSPARAM[6] = -13	L1 retract distance
SYSPARAM[7] = 14	Blade diameter- Not Used
SYSPARAM[8] = 70	Waste eject distance
SYSPARAM[9] = -1.85	Z1 rest position
SYSPARAM[10] = 5.25	Z1 down position
SYSPARAM[11] = 45	Eject piece distance
SYSPARAM[12] = 3	PLS print distance
SYSPARAM[13] = 10	PLS print width – Not Used
SYSPARAM[14] = 15000	Load wait time – Not Used
SYSPARAM[15] = 3.517170	L1 scale factor for RB (SB 3.757686)
SYSPARAM[16] = 3.517170	L2 scale factor for RB (SB 3.757686)
SYSPARAM[17] = -2.2	Z1 safe position – Not Used
SYSPARAM[18] = 36	Rip valley
SYSPARAM[19] = 2	Bevel hardware type – 2 Non Adjustable
SYSPARAM[20] = 1	2 – 10 Amp L1 & L2 Drives
SYSPARAM[21] = 1	1 - Plunge bevel
SYSPARAM[22] = 12000	Sweeper delay time (to open)
SYSPARAM[23] = 2500	Sweeper hold time
SYSPARAM[24] = 1	1 – B1 100 to 1 gearbox
SYSPARAM[25] = 1200	Ink jet dotsize
SYSPARAM[26] = 400	A1 calibration torque
SYSPARAM[27] = 400	B1 calibration torque
SYSPARAM[28] = 550	T1 calibration torque
SYSPARAM[29] = 1050	Z1 calibration torque
SYSPARAM[30] = 0	Automatic infeed system ,value > 0 enables infeed system
SYSPARAM[31] = 1	Bevel pivot x pt calculated
SYSPARAM[32] = 1	Bevel pivot y pt calculated
SYSPARAM[33] = 3.0	Measured x pt in dec in
SYSPARAM[34] = -.625	Measured y pt in dec in
SYSPARAM[60] = 0	Printer orientation 0=upside down (default), 1=normal



How to Change Print Controller Type

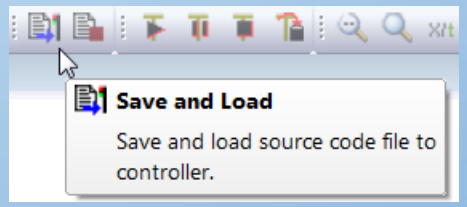
- Open your Autoexec.prg that is running on the controller
- Go to line 103 and you should find the first line for print controller settings.
- Comment and uncomment the appropriate lines for your controller type.
- After you make the changes, use the save and load button on the Toolbar for the changes to take effect

Matthews DOD2002A Controller

```
103  'Open COM2 BaudRate=19200 Parity=0 DataBits=8 StopBit=1 XonOff=0  As #1 'V84i Baurate=19200"
104  Open COM2 BaudRate=9600 Parity=0 DataBits=8 StopBit=1 XonOff=0  As #1 'DOD2002 baurate=9600
105
106  Try
107    Close #1
108    Catch else
109  End Try
110  'Open COM2 BaudRate=19200 Parity=0 DataBits=8 StopBit=1 XonOff=0  As #1 'V84i Baurate=19200"
111  Open COM2 BaudRate=9600 Parity=0 DataBits=8 StopBit=1 XonOff=0  As #1 'DOD2002 baurate=9600
```

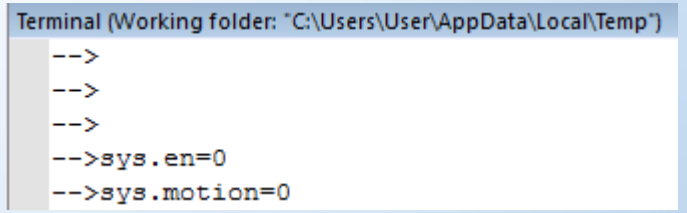
Matthews V84i Controller

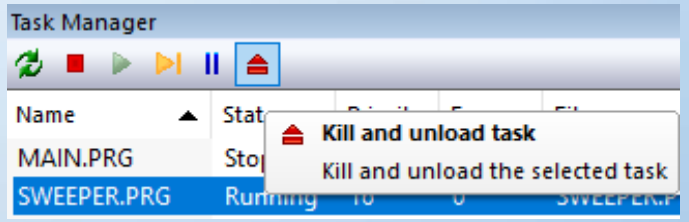
```
103  Open COM2 BaudRate=19200 Parity=0 DataBits=8 StopBit=1 XonOff=0  As #1 'V84i Baurate=19200"
104  'Open COM2 BaudRate=9600 Parity=0 DataBits=8 StopBit=1 XonOff=0  As #1 'DOD2002 baurate=9600
105
106  Try
107    Close #1
108    Catch else
109  End Try
110  Open COM2 BaudRate=19200 Parity=0 DataBits=8 StopBit=1 XonOff=0  As #1 'V84i Baurate=19200"
111  'Open COM2 BaudRate=9600 Parity=0 DataBits=8 StopBit=1 XonOff=0  As #1 'DOD2002 baurate=9600
```

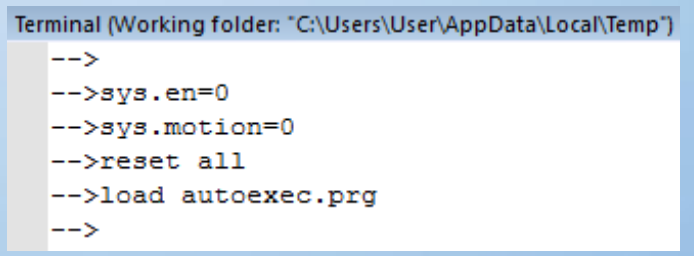


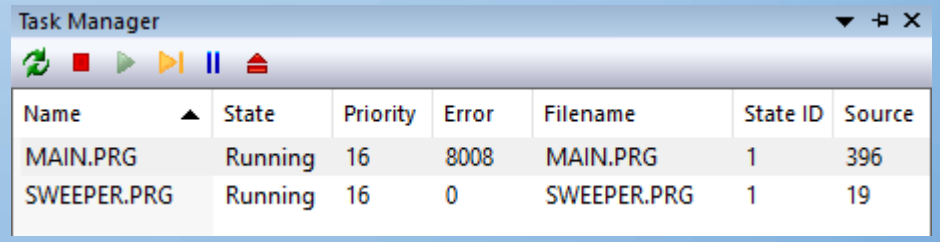
How to warm boot the controller

- In the terminal window, type the following commands
- sys.en=0
- sys.motion=0
- Go to the task manager, then kill and unload both tasks
- Enter the next string of commands
- reset all
- load autoexec.prg



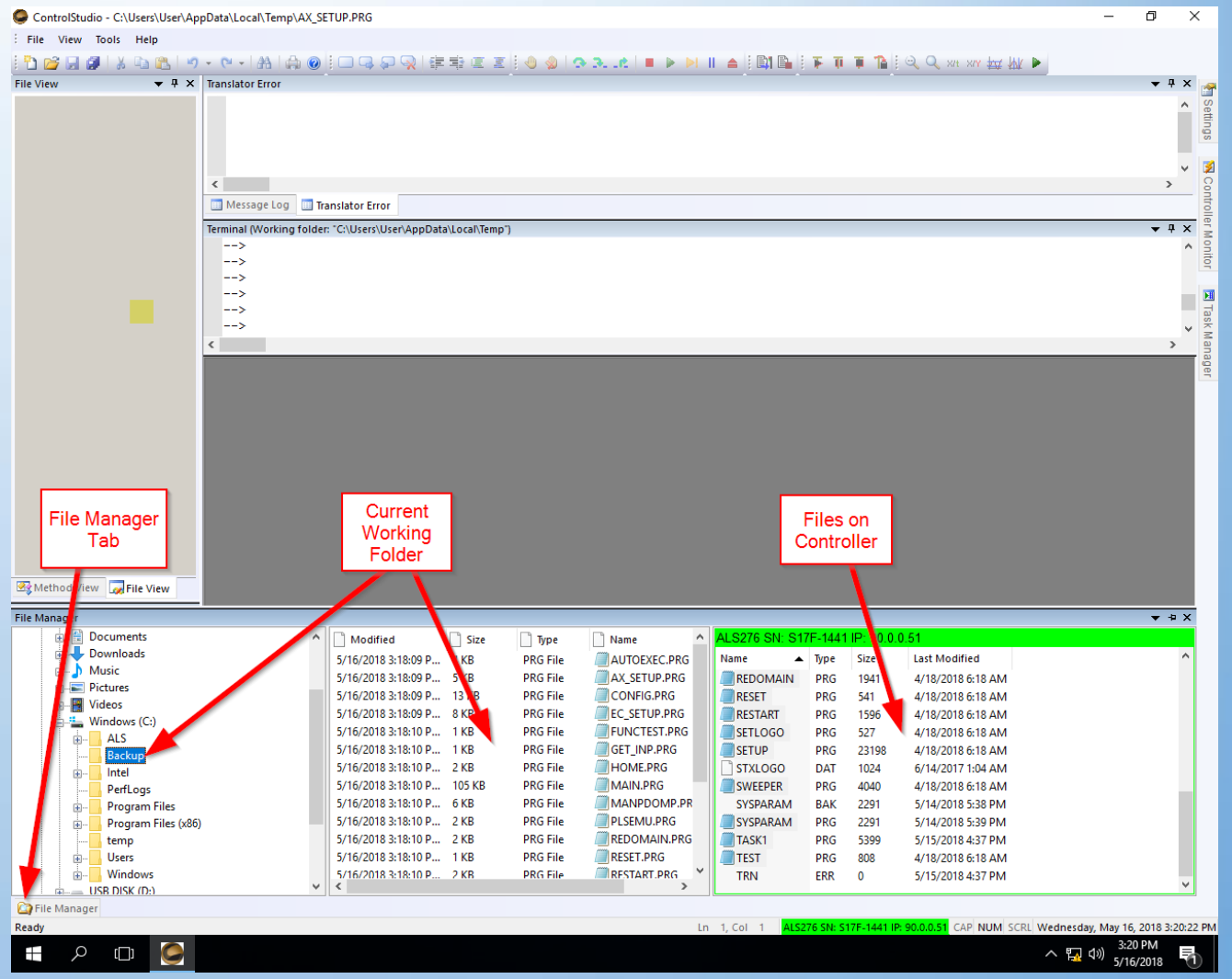






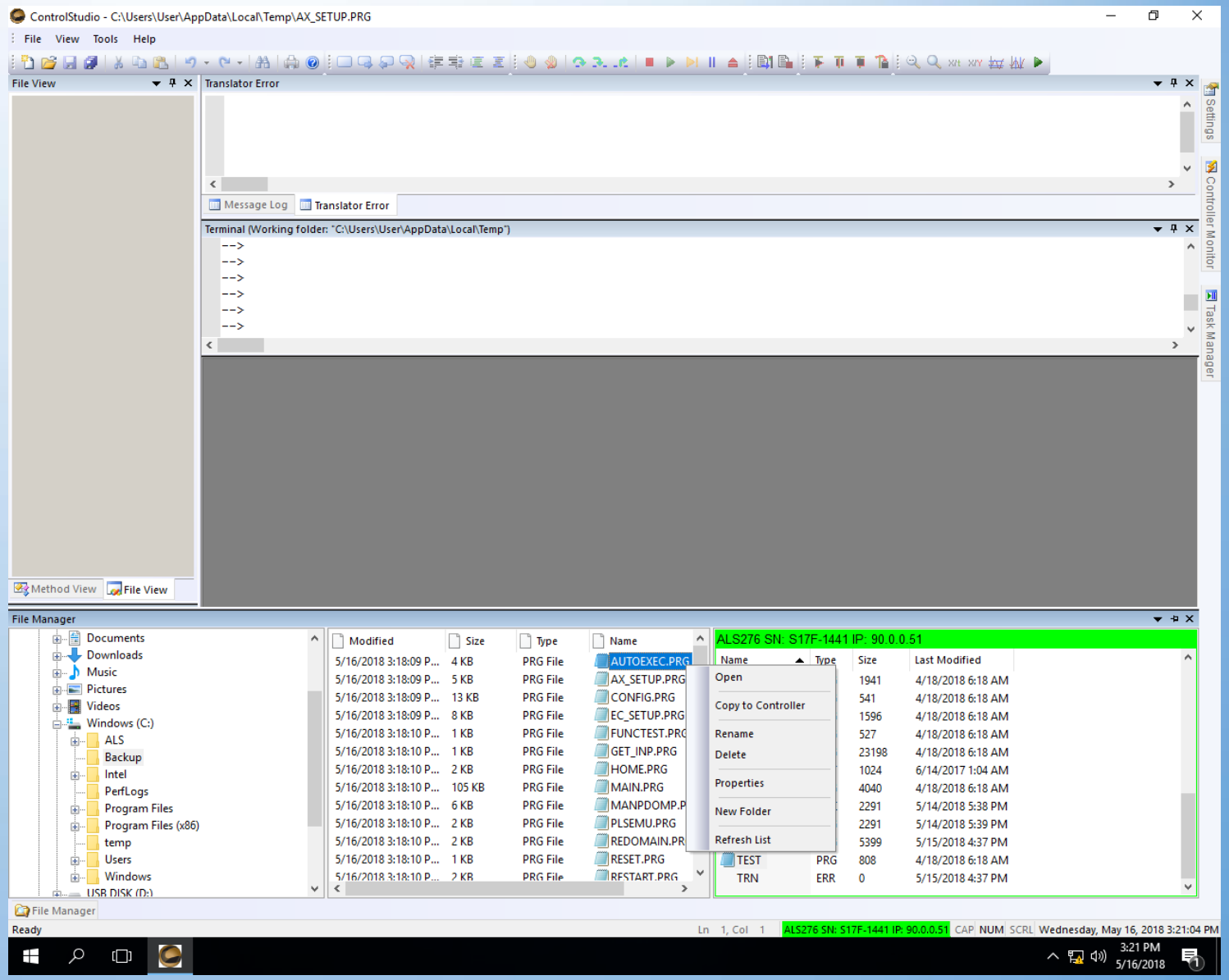
How to Load and Backup Controller

- All functions to backup or load a controller is done through the File Manager
- There are three windows
- First is your Directory Tree
- Next is your Current Working Folder
- Third window is the files that are currently on the controller



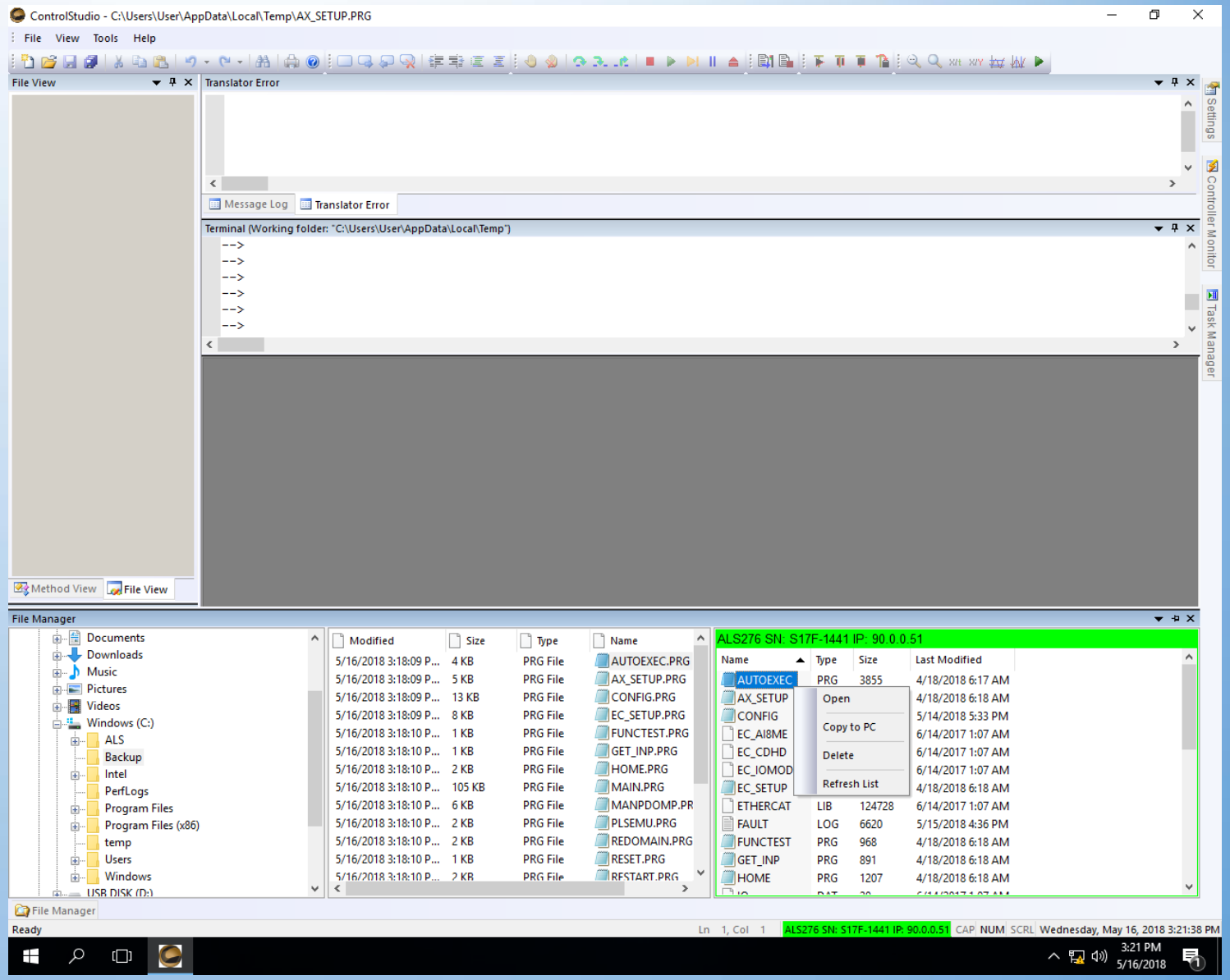
How to load a file to the controller

- Navigate to the file you want to load
- Highlight the file in the current working directory, then right click on it
- Select Copy to Controller
- If the file is in use, you will have to kill the tasks using the file
  - sys.en=0
  - sys.motion=0



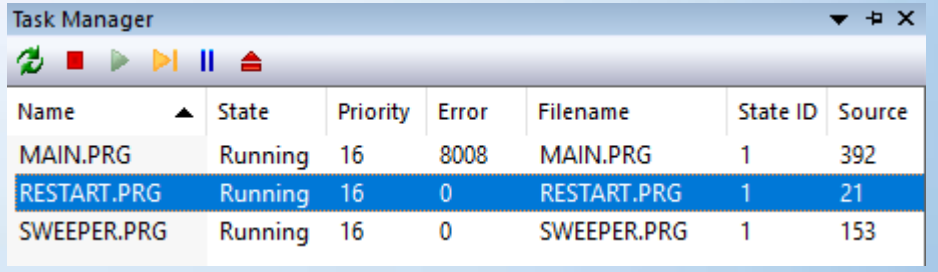
How to backup a file from the controller

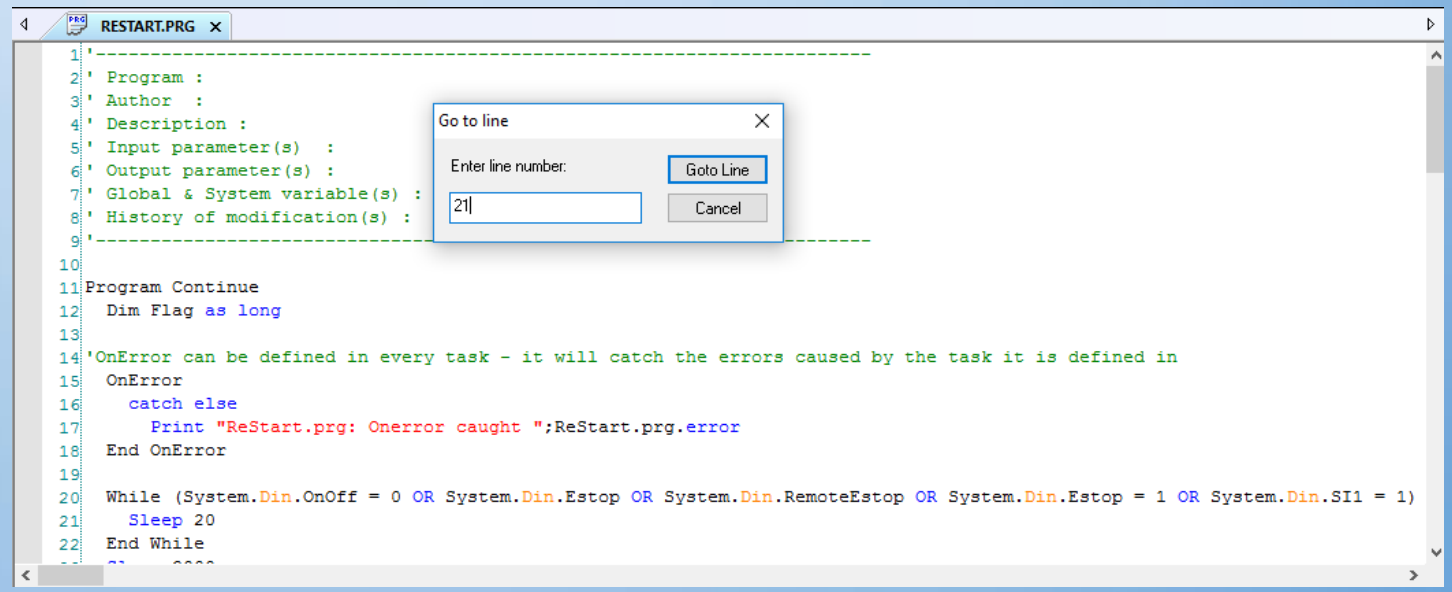
- Navigate to the file you want to backup on the controller
- Highlight the file in the controller and select copy to PC
- This will copy the file to where you are navigated in at the working directory



How to find the line a program is stopping on

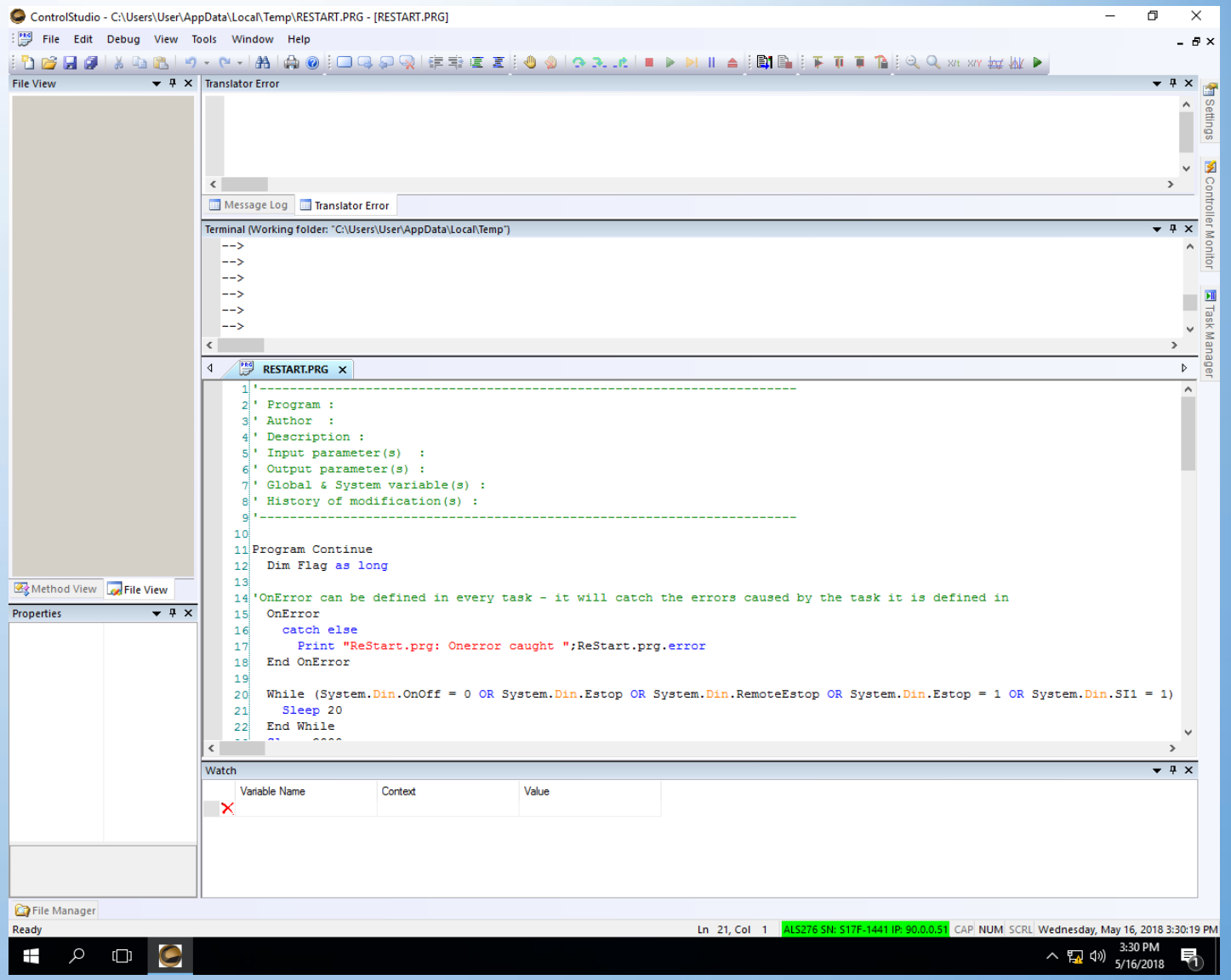
- Open the task manager and find the task that is stopping.
- In this case, the restart.prg is stopping on line 21
- Open the restart.prg from the controller using the file manager
- When inside the restart.prg, press Ctrl + G





How to find the line a program is stopping on

- Line 21 shows the saw is at a sleep state.
- If you look at line 20, you will see the saw thinks it is in an Estop state or the key switch is off.
- Check your Estops and key switch.
- Poll your Estops and key switch inputs.



Servotronix online help

http://softmc.servotronix.com/wiki/Welcome