

softMC Training – Module 3

Files

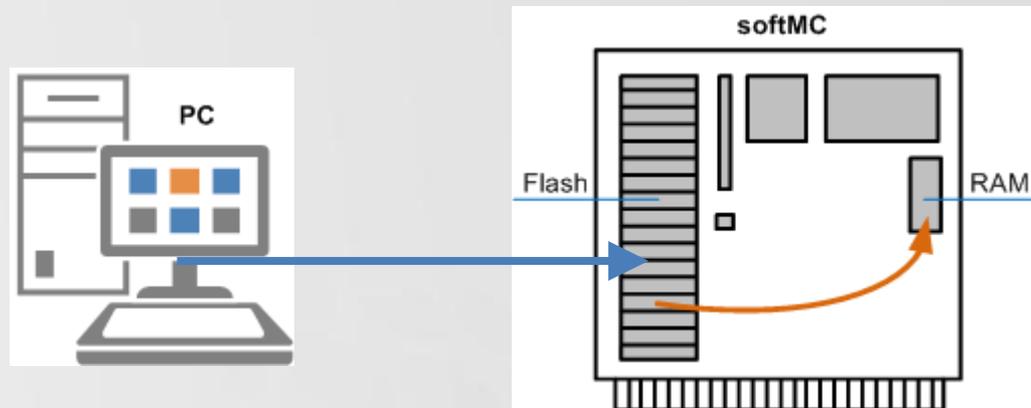


Contents

- Application, Solution and Project
- Tasks and Files
- RAM and Flash Memory
- ControlStudio File Management

Application Development

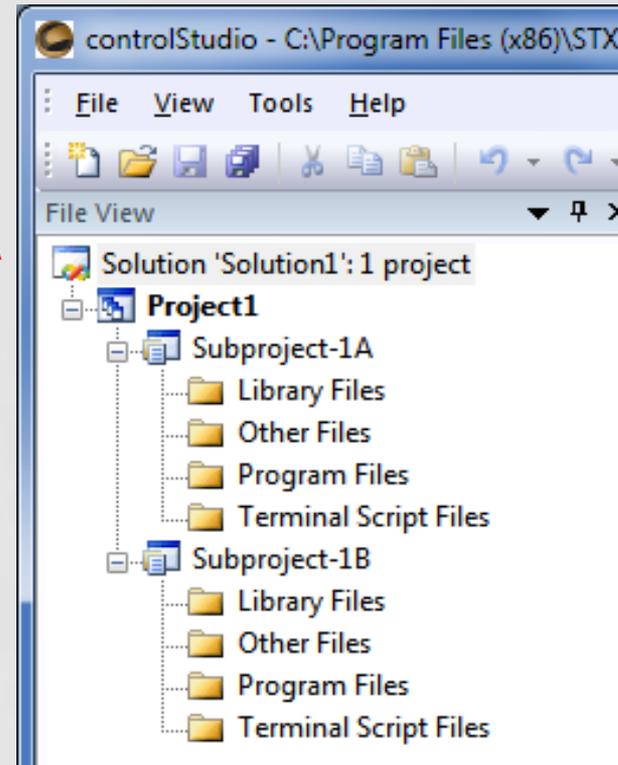
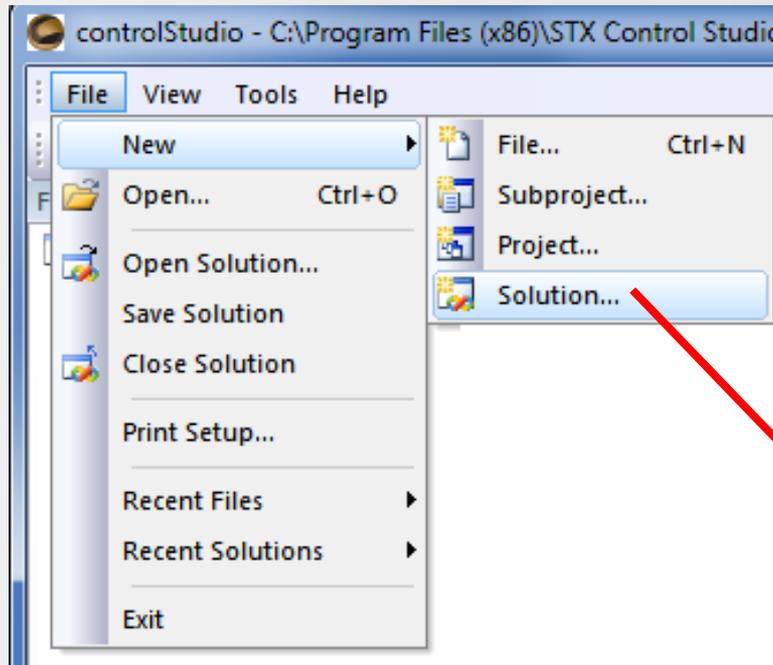
- A PC is used to develop and test the application programs that coordinate all the required motions and machine functions.
- Once complete, the PC may be removed and the softMC controller will operate standalone or within a network.



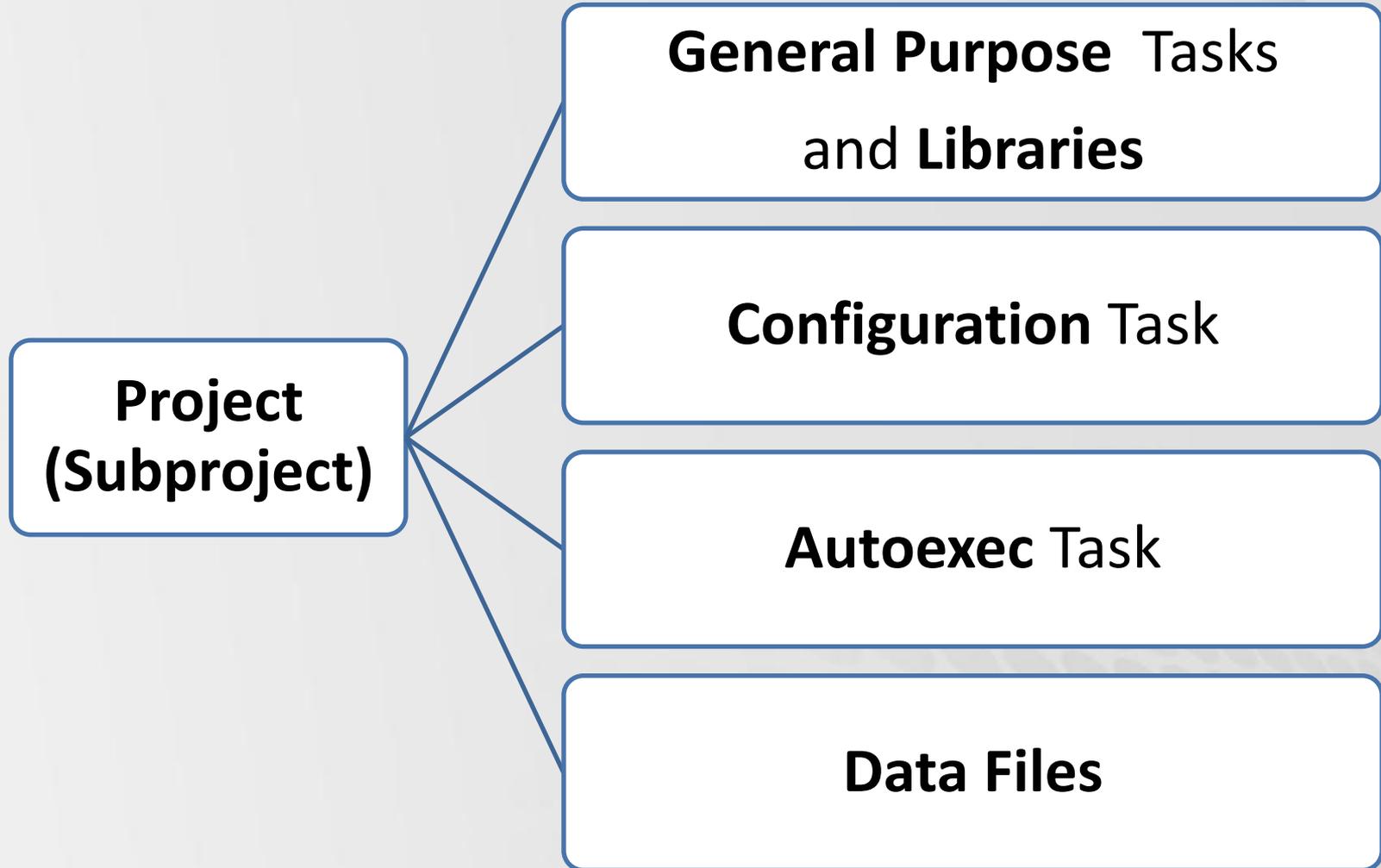
Application Files

- **Solution/Project/Subproject** – ControlStudio method for organizing application files on the PC. Not a reflection of softMC controller file system.
- **Solution** – the application
- **Project / Subproject** – the collection of files written for an application
 - **Task** (program) files
 - **Library** files
 - **Data** files

ControlStudio Application File Management



Project Structure



3 Types of Tasks

- General Purpose (***.prg**)
 - User program
 - Defines the work to be performed by the motion controller
 - Runs simultaneously with, and independently of, other tasks
- Configuration (**config.prg**)
 - Loaded and executed automatically at power up
 - Runs once
 - Used mainly to declare global objects and load all global libraries
- Auto Execute (**autoexec.prg**)
 - Loaded and executed automatically at power up
 - Runs once
 - Used to start the application tasks

General Purpose Tasks – *.prg Files

- File name is user-defined. Can contain 8 characters. Extension is always .prg
- User programs
- Defines the work to be performed by the motion controller
- Runs simultaneously with, and independently of, other tasks
- Application may have unlimited number of *.prg files (but limited to 256 tasks in softMC controller RAM)
- After a program is loaded into memory (Load command), it does not begin execution until StartTask command is issued.
- Tasks may be prioritized

Configuration Task – config.prg

- File is named **config.prg**
- Executed automatically at power up, or when **Reset All** command is issued.
- Used to declare number of axes, groups, programmable limit switches (PLS), cams, global variables and to load global libraries
- All data and structure types that are shared across tasks must be declared in the configuration task
- Cannot start other tasks

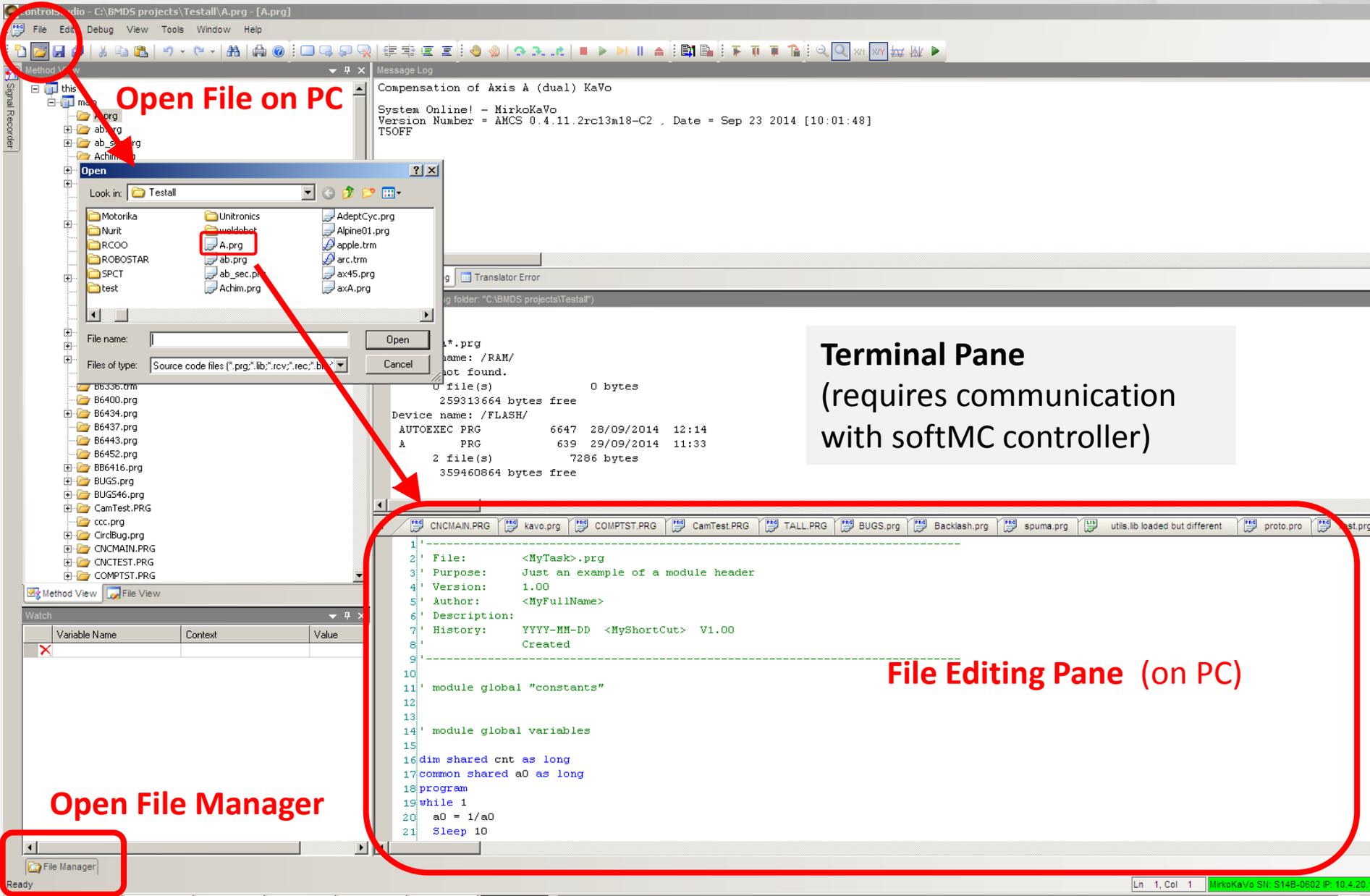
AutoExecute Task – autoexec.prg

- File is named **autoexec.prg**
- Executed once at power up, just after Configuration task
- Used to start other tasks in the system
- For safety considerations, do not start motion from the AutoExec task
- To run AutoExec automatically on power up , use the command **Program Continue** (instead of just **Program**)

IO.DAT File

- IO.DAT can be used to automatically start config.prg and autoexec.prg
- softMC starts these file during boot
- **Example of IO.DAT:**
DIP=0xFF
INP=0x00

ControlStudio – File Open/Edit

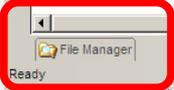


Open File on PC

Terminal Pane
(requires communication
with softMC controller)

File Editing Pane (on PC)

Open File Manager



ControlStudio – File Manager

ControlStudio - C:\BMD5 projects\Testall\A.prg - [A.prg]

Method View

- this
 - main
 - A.prg
 - ab.prg
 - ab_sec.prg
 - Achim.prg
 - AdeptCyc.prg
 - Alpine01.prg
 - apple.trm
 - arc.trm
 - ax45.prg
 - axA.prg
 - axtmd.prg
 - b.prg
 - B100062.prg
 - B2464.prg
 - B60241.prg
 - B60242.PRG
 - B6034.prg
 - B6297.prg
 - B6328.PRG
 - B6336.prg
 - B6336.trm
 - B6400.prg
 - B6434.prg
 - B6437.prg
 - B6443.prg
 - B6452.prg
 - BB6416.prg
 - BUGS.prg
 - BUGS46.prg
 - CamTest.PRG
 - ccc

Message Log

Compensation of Axis A (dual) KaVo

System Online! - MirkoKaVo
Version Number = AHCS 0.4.11.2rc13m18-C2 , Date = Sep 23 2014 [10:01:48]
T50FF

Terminal (Working folder: "C:\BMD5 projects\Testall")

```
--->  
--->dir A\*.prg  
Device name: /RAM/  
File not found.  
0 file(s) 0 bytes  
259313664 bytes free  
Device name: /FLASH/  
AUTOEXEC PRG 6647 28/09/2014 12:14  
A PRG 639 29/09/2014 11:33  
2 file(s) 7286 bytes  
359308664 bytes free  
--->load a.prg
```

- (1) List of all folders on PC
- (2) List of all files in the folder in which currently selected file resides (typically this folder contains all the project files)
- (3) List of all files currently in flash memory. If PC is not connected to controller, this section is blank.

File Manager

Testall

- B6327
- B6328
- B6400
- B6433
- B6443
- B6452
- Backup
- Backup0
- KavoBoris
- KlausT
- linux
- Mazor
- Motorika
- Nurit
- RCOO
- ROBOSTAR
- SPCT
- test
- Unitronics
- weldohnt

Name	Type	Size	Last Modified
a2000.cnc	CNC File	47 KB	
A.prg	Motion Controll...	1 KB	
ab.prg	Motion Controll...	6 KB	
ab_sec.prg	Motion Controll...	7 KB	
Achim.prg	Motion Controll...	1 KB	
AdeptCyc.prg	Motion Controll...	6 KB	
Alpine01.prg	Motion Controll...	24 KB	
APPLE0.cnc	CNC File	47 KB	
APPLE.cnc	CNC File	47 KB	
apple.trm	Terminal Script ...	1 KB	
arc.trm	Terminal Script ...	1 KB	
ax45.prg	Motion Controll...	6 KB	
axA.prg	Motion Controll...	1 KB	
axtmd.prg	Motion Controll...	5 KB	
B2464.prg	Motion Controll...	4 KB	
B6034.prg	Motion Controll...	8 KB	
B6297.prg	Motion Controll...	3 KB	
B6328.PRG	Motion Controll...	2 KB	

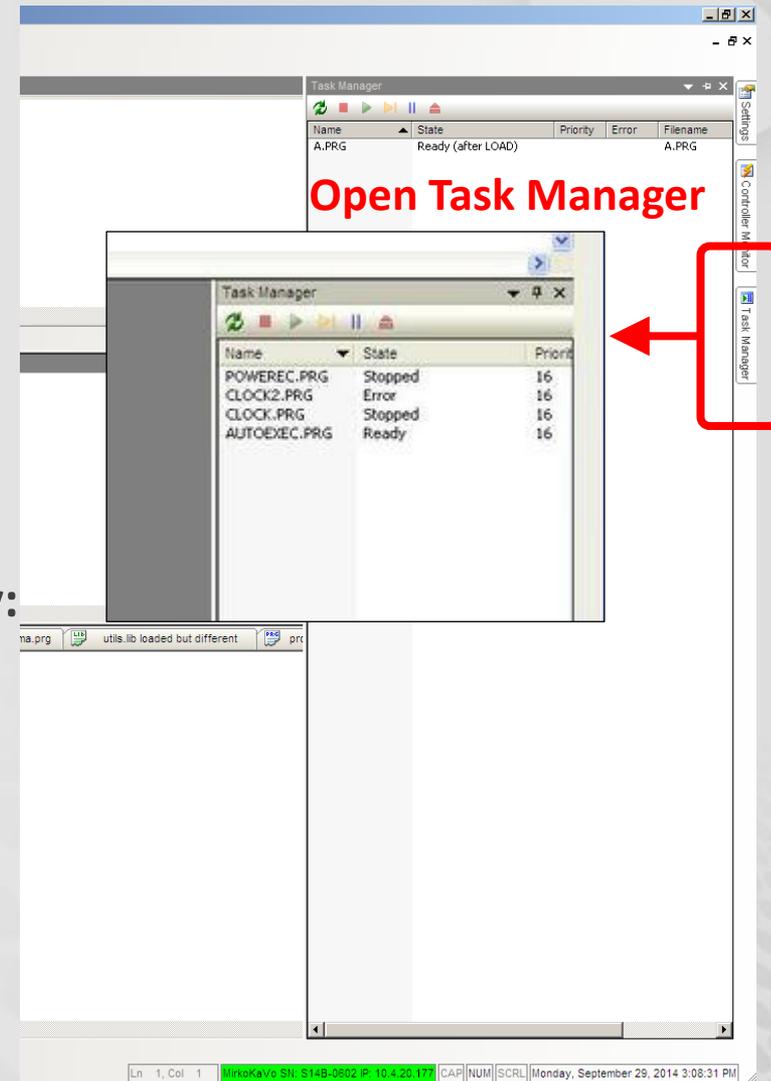
MirkoKaVo SN: S14B-0602 IP: 10.4.20.177

Name	Type	Size	Last Modified
9999053	CNC	31280	6/15/2014 9:47 AM
A	PRG	639	9/29/2014 11:33 ...
A2000	CNC	47260	9/21/2014 5:05 PM
A300	CNC	68170	9/21/2014 5:05 PM
AFREPORT	LIB	6636	9/28/2014 12:14 ...
AUTOEXEC	PRG	6647	9/28/2014 12:14 ...
BACKLASH	PRG	1306	9/29/2014 10:04 ...
BECKFORT	PRG	622	9/28/2014 3:16 PM
BUZZ3SEC	PRG	583	9/28/2014 12:14 ...
CANDRIVE	LIB	125418	9/28/2014 12:14 ...
COMPAXA	PRG	2378	9/29/2014 10:39 ...
COMINT	PRG	633	9/28/2014 12:14 ...
COMM	LIB	55512	9/28/2014 12:14 ...
CONFIG	PRG	26556	9/28/2014 12:14 ...
CSE_SPAR	PRG	19252	9/28/2014 12:14 ...
CSE_UPAR	PRG	5448	9/28/2014 12:14 ...
EMBER_OK	PRG	363	9/28/2014 12:14 ...
ERRHACT	PRG	1978	9/28/2014 12:14 ...

File Manager Pane

ControlStudio – Task Manager

- Task Manager shows the tasks that are loaded into **RAM** memory
- (Terminal) Show list of **tasks** in **RAM**:
`?tasklist`
- (Terminal) Show list of **files** in **flash memory**:
`dir`



Moving Files

Task files must be in RAM for execution

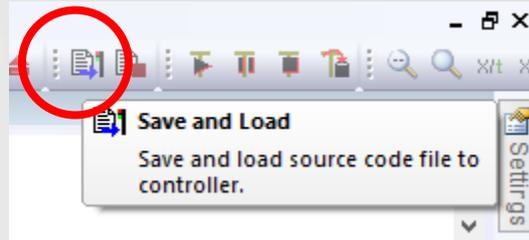
- **Send** command: transfer from **PC** to the softMC **flash memory**
- **Load** command: transfer from softMC **flash memory** to softMC **RAM**
- **Retrieve** command: transfer from softMC **flash memory** to **PC**

Note: **Send** and **Retrieve** are ControlStudio instructions, not MC-Basic commands

- Files in flash memory remain in memory during power cycle
- Files in RAM are erased during power cycle



Save and Load Button



Save and Load button executes 4 actions on the active task file (tab) in the **File Editing** pane

While Task is Running

- Kills task
- Saves latest version on PC
- Sends file from PC to flash
- Loads to RAM

While Task is being Edited

- Saves latest version on PC
- Sends file from PC to flash
- Loads to RAM

END