

softMC Simulator Installation Guide

Revision 1.2





Revision History

Doc.Rev.	Date	Remarks
1.2	Dec 2017	Update softMC link use softMC 3
1.1	July 2016	Minor updates
1.0	Jan. 2015	Initial release

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Technical Support

If you need assistance with the installation and configuration of the softMC controller, contact Servotronix technical support: tech.support@servotronix.com

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1 Introduction

softMC Simulator is a software package that allows you to work on a simulated softMC using only a PC, without requiring any other hardware.

This document describes the procedure for installing the softMC Simulator.

The installation has three components:

 VirtualBox. An Oracle product, this is a cross-platform virtualization application for x86-based systems.

Cross-platform means it installs on Windows, Linux, Mac OS X and Solaris x86 computers. Virtualization software means that you can create and run multiple virtual machines (VM), running different operating systems, on the same computer at the same time.

Since the softMC is a Linux-based system, the Oracle VirtualBox allows you to simulate the softMC on a PC.

- softMC Controller Simulator (called softMC SIM). This is the virtual machine that simulates the softMC.
- ControlStudio software by Servotronix. This is a development tool for motion applications. It contains a programming editor, data recorder, debugger and monitoring tools.

This is the same software that is used with actual hardware. If it is already installed on your PC, you do not need to reinstall.

2 Installation

VirtualBox Download and Install

- 1. Go to the VirtualBox Download page: https://www.virtualbox.org/wiki/Downloads
- From the list of VirtualBox platform packages, download the install package suitable for your operation system; for example VirtualBox X.x.xx for Windows hosts.
- **3.** Install the VirtualBox.

If the VM VirtualBox Manager opens at the end of the installation, close it before continuing to the next stage of the installation.

Simulator Download and Install

- Go the softMC Simulator page on the Servotronix website: <u>http://www.servotronix.com/product/softmc3-compact-motion-controller/</u> Note: download same simulator either from softMC 3 or softMC 7
- **2.** In the Downloads section, select the **Simulation** tab, and download the compressed Simulator installation file.
- 3. Extract **softMC_SIM.7z** to a separate folder.
- 4. Double-click on the file **softMC_SIM.vbox**.
- 5. The Oracle VM VirtualBox Manager window opens.

A virtual machine named **softMC SIM** is now listed in the left pane.

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SoftHC_SIM Image: SoftMC_SIM Operating System: Linux 2.6 / 3.x (32 bit) Image: SoftMC_SIM Base Memory: 605 MB Base Memory: 605 MB Base Memory: 605 MB Boot Order: Floppy CO/DVD, Hard Disk Acceleration: VT-x/AMD-V, Nested Paging Image: SoftMC_SIM	ils 💿 Snapshots	6	Start Disca	Settings	27774 W
♥ Display Video Memory: 9 MB Remote Desktop Server: Disabled Video Capture: Controller: IDE Secondary Master: [CD/DVD] Empty Controller: SATA Port 0: MCHD_SIM-disk1.vdl (Normal, 137.00 ME) SATA Port 1: MCHD_SIM-disk2.vmdk (Normal, 1.03 GB) SATA Port 1: Motion Host Driver: Windows DirectSound Controller: ICM A G97 Image: Network Adapter 1: Intel PRO/1000 MT Desktop (Host-only Adapter, VirtualBox Host-Only Ethernet Adapter') VIDB Device Filters: 0 (0 active)	C_SIM	neral SoftMC_SIM g System: Linux 2.6 / 3.x (32 bit) stem mory: 605 MB fer: Floppy, CD/DVD, Hard Disk tion: VT-x/AMD-4, Nested Paging	a IIশ ed Off	SoftMC_ Powe	2.6
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USB Device Filters: 0 (0 active)	r)	twork 1: Intel PRO/1000 MT Desktop (Host-only Adapter, VirtualBox Host-Only Ethernet /			
		B ilters: 0 (0 active)			
Shared folders		ared folders			

- **6.** If **softMC SIM** is the only virtual machine in the list, it is automatically selected. If not, click to select.
- 7. Click Settings, then select Network.
- **8.** In the Adapter 1 tab, make sure the **Host-only Adapter** is selected, as shown in the figure below.
- **9.** Click **OK** to close the Settings dialog box.

Adapter <u>1</u> Adap Enable Network <u>A</u> ttached to: <u>N</u> ame: <u>N</u> ame:	oter <u>2</u> Adapter <u>3</u> Adapter : Host-only Adapter : VirtualBox Host-On	Adapter <u>4</u>	
	1		

 Activate the virtual softMC: click the green Start button on the toolbar. The virtual machine starts and the softMC boot sequence runs.

G SoftMC_SIM (Snapshot 1) [Running] - Oracle VM VirtualBox	
Machine View Devices Help	
You have the Auto capture keyboard option turned on. This will cause the Virtual Machine to a	utomatically capture the keyboard every 🛛 🛞
SERCOS communications OK FLASH and File system OK Froer bandler - OK	
System ClockOK TranslatorOK	
Back-EndOK Real Time SchedulerOK Entry Station(s)OK	
Task Control Block OK Built-in diagnostic OK Hardware power-up tests OK SERCOS comunications	
SERCOS communications OK SERCOS communications OK Motion module OK Iser Authorization Code specification file OK	
Hardware power-up testsOK Serial Number specificationOK User Authorization Code specification fileOK	
RecorderOK Event handlerOK FastData UDP ServerOK	
softMCsimulator login: _	
	👂 💿 🌽 🖶 📾 💷 🛛 🖉 💽 Right Ctrl 🔡

At the end of the boot sequence, a prompt to login may appear. You can ignore this prompt; no login is required.

The virtual softMC is now ready for use with ControlStudio.

- **Note**: If the virtual machine does not open, you should contact your IT support, and ask to enable Virtualization in your PC BIOS.
- **11.** You can minimize the VM VirtualBox window, but do not close it. You can also minimize the VM VirtualBox Manager window.

ControlStudio Download and Install

If ControlStudio is not already installed, do the following.

- Go the softMC page on the Servotronix website: <u>http://www.servotronix.com/product/softmc3-compact-motion-controller/</u> Note: download same ControlStudio either from softMC 3 or softMC 7
- 2. In the Downloads section, select the Software tab, and download the compressed **softMC ControlStudio GUI** installation file (ControlStudio-GUI.zip).
- **3.** Run the **ControlStudioSetup** executable file to install ControlStudio on your computer.
- **4.** When installation is complete, start ControlStudio from the software icon on your desktop.

ControlStudio opens.

ControlStudio -		
Eile Edit Debug View Tools	Window Help	
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File View 👻 🗘 🗙	Translator Error	🕶 🛛 🗙 🛶
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		+ Sont
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	Terminal Working folder: "C\Users\owner\AppData\Loca\Temp")	• 4 × 5
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Stelhod View File View		
File Manager		
Ready	Ln 1, Col 1 CAP NUI	יום חמישי 14 אוגוסט SCRL 08:29:57 2014 יום חמישי

Note: If ControlStudio opens without Terminal and/or programming panes, go to the View menu, and select Perspectives > Load Default.

ControlS	tudio	
File Vie	w Tools Help Controller Monitor Controller WebInfo File Manager File View Help Window F1 Message Log Method View Properties Realtime Display Signal Recorder Settings Task Manager Terminal Translator Error Watch Window	Image: Image
~	Toolbars Status Bar	
	Perspectives	Load "Default" Ctrl+0 Save Perspective Delete Perspective

3 ControlStudio Simulator Setup

- 1. Launch ControlStudio if it is not already open.
- 2. Hover the mouse cursor on the **Settings** tab at the upper right of the screen. The Settings pane slides open.

Set	ttings	▼ + ×	P
	Source Code Editor		S
	Font	Courier New(10)	ettir
	Use spaces	True	sBL
	Tab size	2	
	Outlining	False	3
	External Text Editor		0
	External Text Editor Arg		1 at
	General		Olle
	Autohide animation	True	er N
	Open last solution at sta	False	9
	Multi-instances	False	to
	Webinfo start page		
	Help source address	softmc.servotronix.com	H
	Motion bus		H
	Bus number	0	sk
	Cycle time		a
	Cycle time dialog	True	nag
	Default cycle time		ger
	Watch Window		
	Refresh cycle	2000	
	Terminal		
	Font	Courier New(10)	
	Translator Error		
	Font	Courier New(10)	
	Message Log		
	Show service messages	False	
	Maximum Lines	1000	
	File Manager		
	Show overwrite warnings	True	
	Controller Monitor		
	TCP/IP connection	Dedicated	
	Auto connect at startup	False	
	Auto connect Serial Nu		
	Send timeout (ms)	3000	
	Receive timeout (ms)	3000	

3. Set the TCP/IP Connection to Automatic IP.



- **4.** Hover the mouse cursor on the **Controller Monitor** tab at the right side of the screen. The Controller Monitor pane slides open.
- 5. Click the **Refresh** (controller list) button.

Controller Monitor			▼ ₽ X	Se Se
Name	IP Address 👻	Serial Number	Dip Switch	ttings
				📉 Controller Monitor
	Refreshing controller lis	1 t.		Task M

The simulated softMC appears in the pane as **No name** and/or serial number **S01A-999**.

Controller Monit	or		▼ + × 🚽
79 🗲 🍯 🎓	🚰 🔲		
Name	IP Address	 Serial Number 	Dip Switch
No name	192.168.56.102	S01A-999	0
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6. Select the softMC [No name], and then click the **Connect** button.

Control	ler N	Ionitor				▼ † X	~
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Name	4	Connect			Number	Dip Switch	tings
No nai		Connect t	o the selected cont	roller.	-999	0	
· · ·							🔀 Controller Monitor

Once Control Studio is connected to the softMC, the name and IP of the softMC are highlighted in green at the bottom of the screen.

No name SN: 501A-999 IP: 192.168.56.101 CAP NUM SCRL 16:56:17 2015

7. You can now control and query the simulated softMC.

For example, go to the Terminal window, and verify the softMC firmware version:

```
At the --> prompt, enter: ?ver
```

```
Terminal (Working folder: "C:\Users\owner\AppData\Local\Temp")
-->?ver
Version Number = SIM 0.4.13.1rc1-C2 , Date = Oct 6 2014 [12:41:10]
-->
```

8. Again in Terminal, enter the command: reset all

Reset all unloads all currently loaded program and library files, and runs the CONFIG.PRG configuration file.

In the softMC Simulator, the configuration file defines a system with 4 axes.

Message Log
MC Tutoring - 4 Axes system
< III
III Message Log III Translator Error
Terminal (Working folder: "C:\Users\owner\AppData\Local\Temp")
>?ver
Version Number = SIM 0.4.13.1rc1-C2 , Date = Oct 6 2014 [12:41:10]
>reset all
>

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