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MVI56E-LDM

ControlLogix Platform

"C" Programmable

Linux Application Development Module

January 15, 2014

QUICK START GUIDE

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MVI56E-LDM Quick Start Guide

January 15, 2014

ProSoft Technology® Product Documentation

In an effort to conserve paper, ProSoft Technology no longer includes printed manuals with our product shipments. User Manuals, Datasheets, Sample Ladder Files, and Configuration Files are provided on the enclosed CD-ROM in Adobe® Acrobat Reader file format (.PDFs). These product documentation files may also be freely downloaded from our web site: www.prosoft-technology.com

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1 Start Here

This Quick Start Guide will help you....

- set up your LDM Development Environment
- set up a sample Serial Application Program
- run the Serial Application Program

1.1 Development Environment

The MVI56E-LDM development tools run under Linux. In order to run these tools on a Windows-based machine, you must run a Virtual Machine that hosts the Linux Operating System.

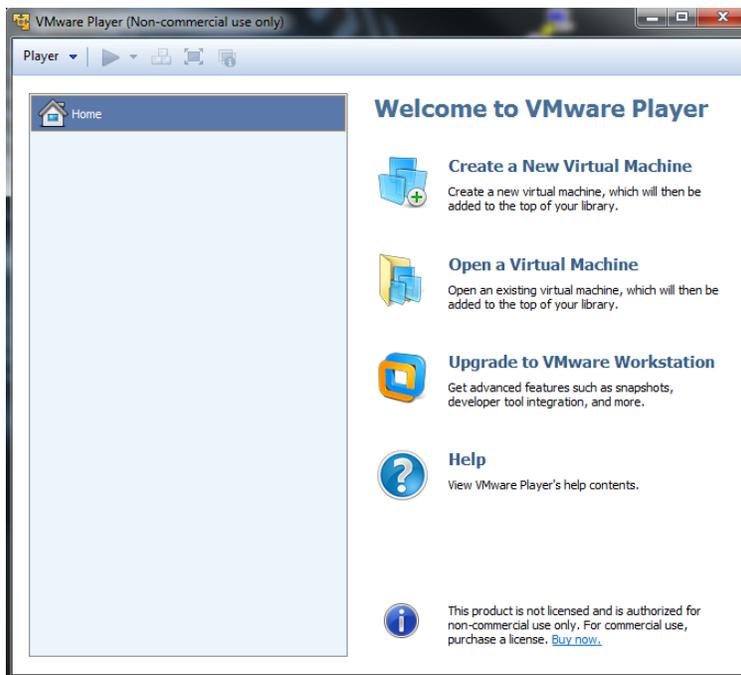
VMware provides a virtual machine player used to host the Linux Operating System. You can get it at:

<https://my.vmware.com/web/vmware/downloads>.

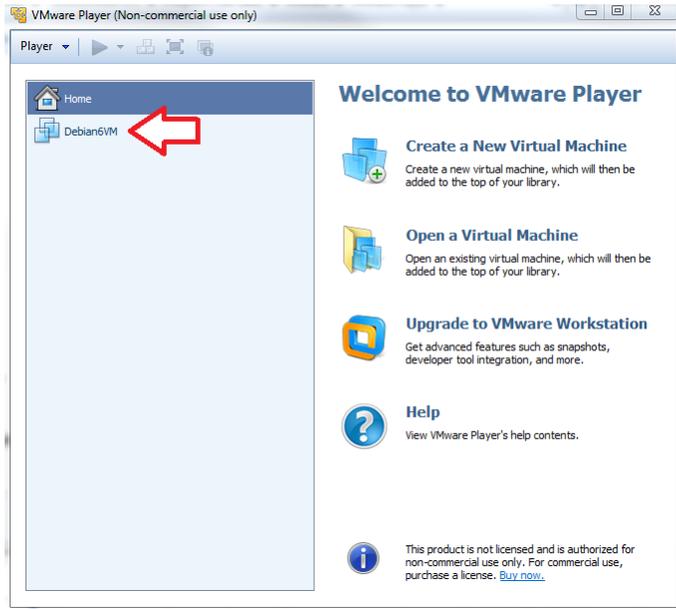
1.2 Setup

The file `Debian6VM.zip` is located on the ProSoft Product DVD shipped with the module.

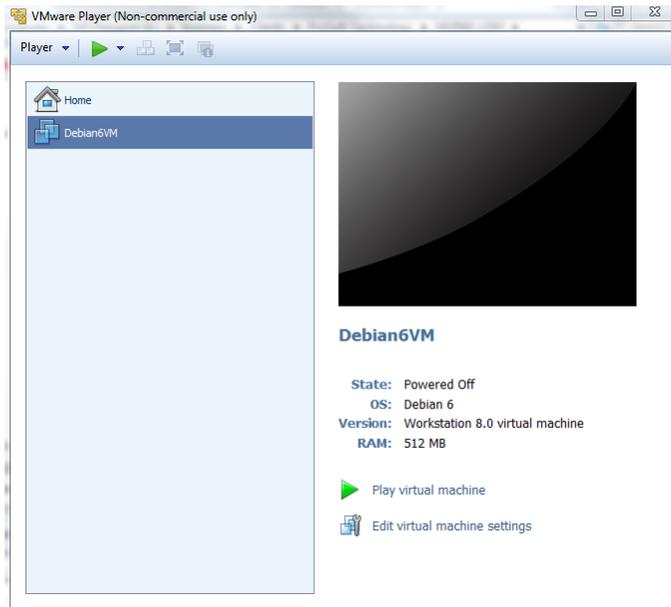
- 1 Copy this file to the VM Player image ico directory (VMware > VMware Player > ico).
- 2 Uncompress `Debian6VM.zip` into this directory.
- 3 Start the VM Player by double-clicking on its icon.
- 4 Select "Open a Virtual Machine".



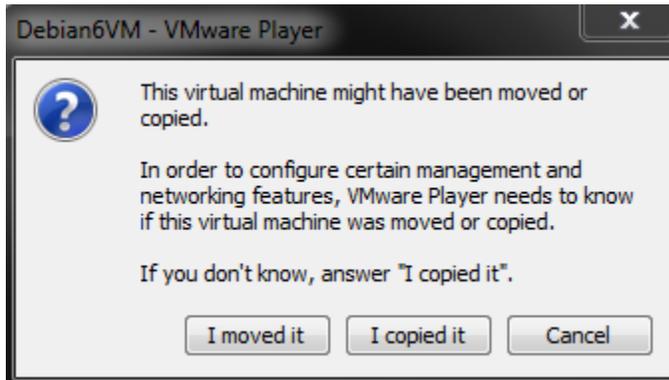
- 5 Navigate to the Debian6VM file and click on Debian6VM.vmx. The image icon appears in the left window.



- 6 Double-click on the image icon. The following screen appears:



- Click "Play virtual machine". A dialog appears asking if the virtual machine has been moved or copied. Select "I copied it".

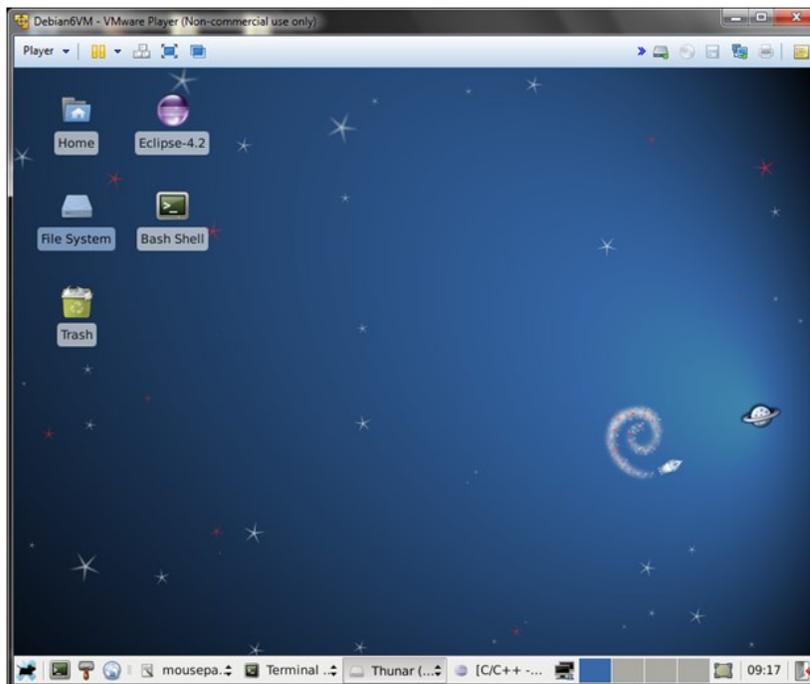


- After the image loads, the VMware Player prompts you for a username and password.

Username: **user**

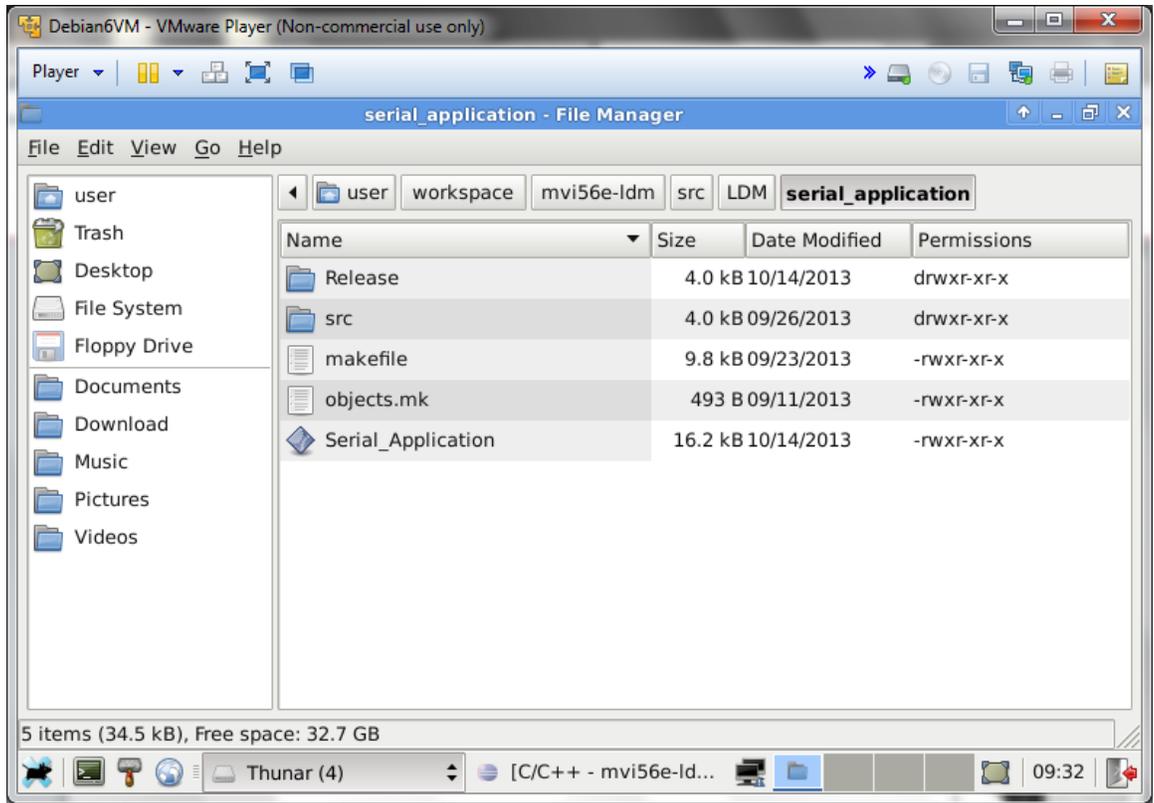
Password: **password**

The home screen appears.

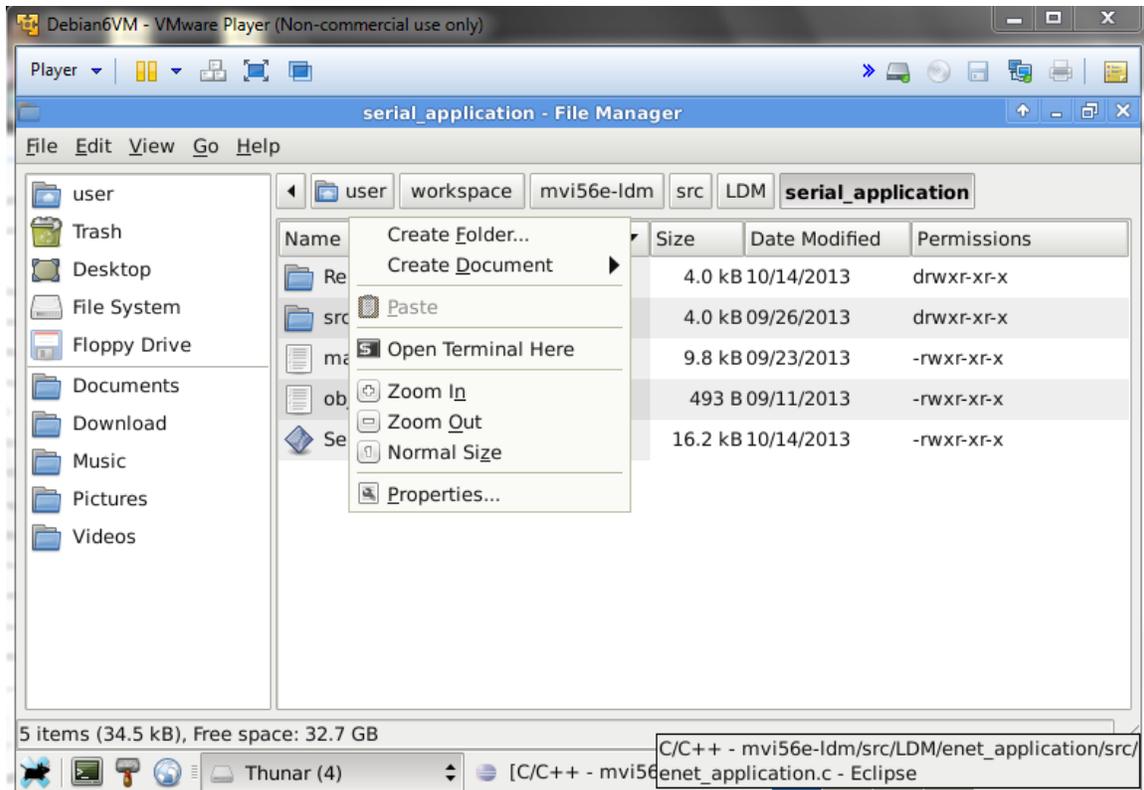


- Double-click on either the Home icon or the File System icon to navigate to the following directory:

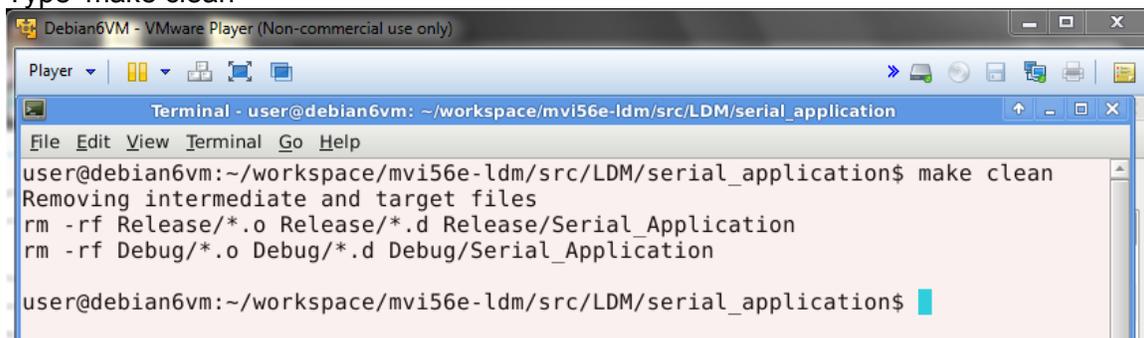
`user/workspace/mvi56E-ldm/src/LDM/serial_application`



10 Right-click on the Serial Application folder and click "Open Terminal Here".



11 Type 'make clean'



12 Type 'make'.

```

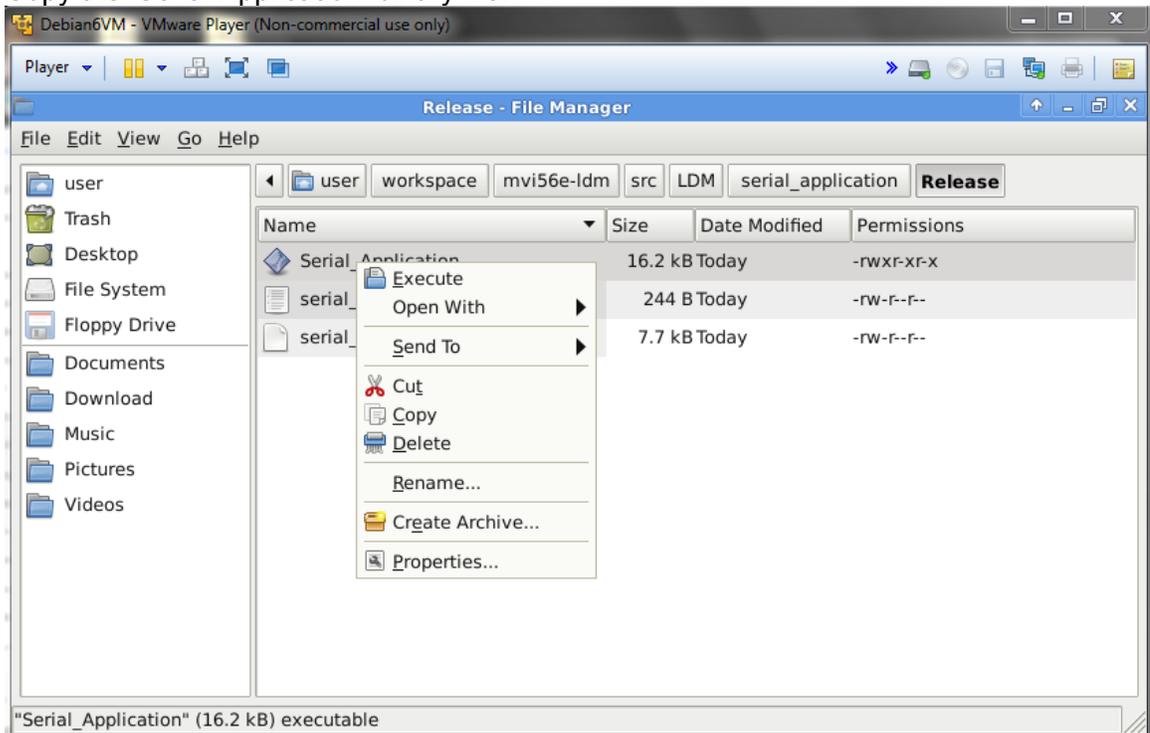
Debian6VM - VMware Player (Non-commercial use only)
Terminal - user@debian6vm: ~/workspace/mvi56e-ldm/src/LDM/serial_application
File Edit View Terminal Go Help
user@debian6vm:~/workspace/mvi56e-ldm/src/LDM/serial_application$ make clean
Removing intermediate and target files
rm -rf Release/*.o Release/*.d Release/Serial_Application
rm -rf Debug/*.o Debug/*.d Debug/Serial_Application

user@debian6vm:~/workspace/mvi56e-ldm/src/LDM/serial_application$ make
Preprocessing file: src/serial_application.c
mkdir -p Release
/opt/timesys/datm3/toolchain/bin/armv5l-timesys-linux-gnueabi-gcc -I./../lib/ocx/inc -I./inc -O0 -Wall -Wstrict-prototypes -fmessage-length=0 -MMD -MF"Release/serial_application.d" -MP -MT"Release/serial_application.d" -o"Release/serial_application.o" -c "src/serial_application.c"
Finished preprocessing: src/serial_application.c

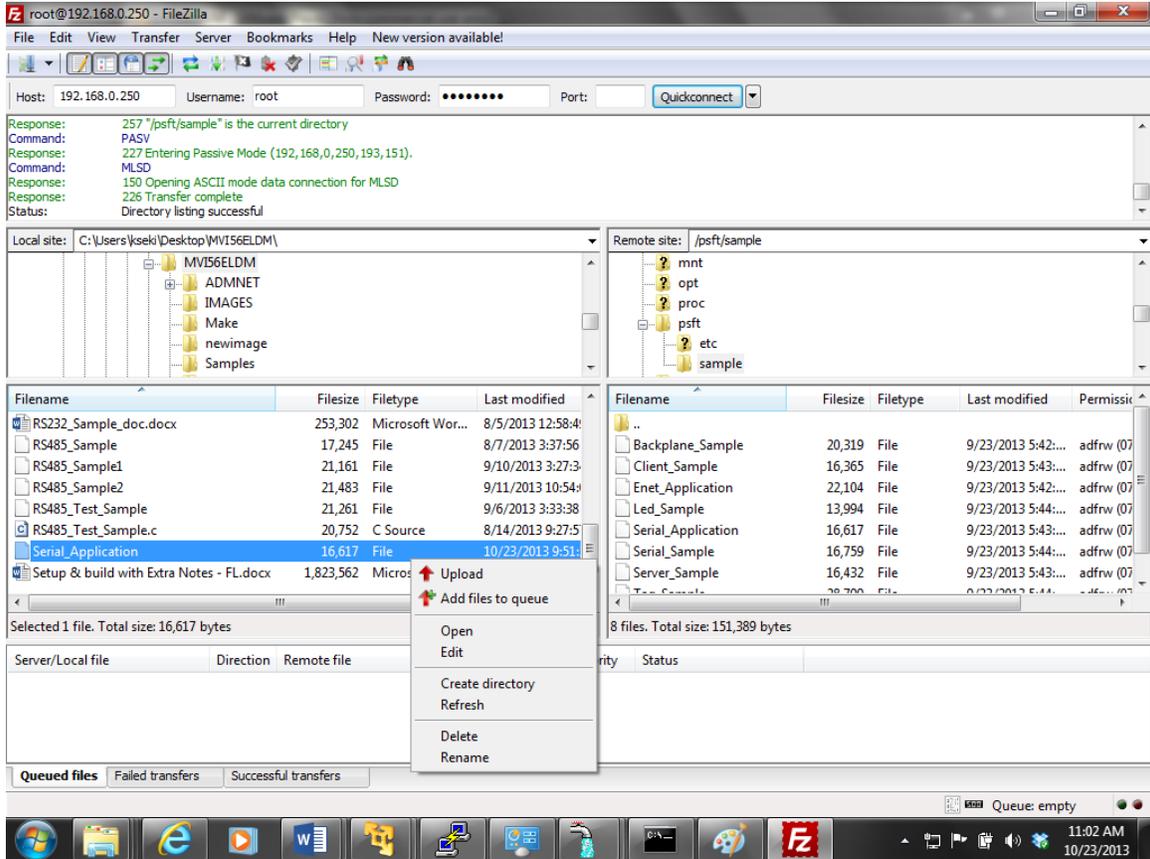
Linking target: Release/Serial_Application
Linking application::Invoking: Cygwin C++ Linker
/opt/timesys/datm3/toolchain/bin/armv5l-timesys-linux-gnueabi-g++ -o Serial_Application Release/serial_application.o -lrt -locxnapi -locxbpeng -locxbpapi -L./../lib/ocx/Release
Copy target to target directory
cp -f Serial_Application Release
Finished building target: Release/Serial_Application
    
```

This creates a 'Serial_Application' binary file in the user/workspace/mvi56e-ldm/src/LDM/serial_application/Release folder and also in the user/workspace/mvi56e-ldm/src/LDM/serial_application folder.

13 Copy the 'Serial Application' binary file.

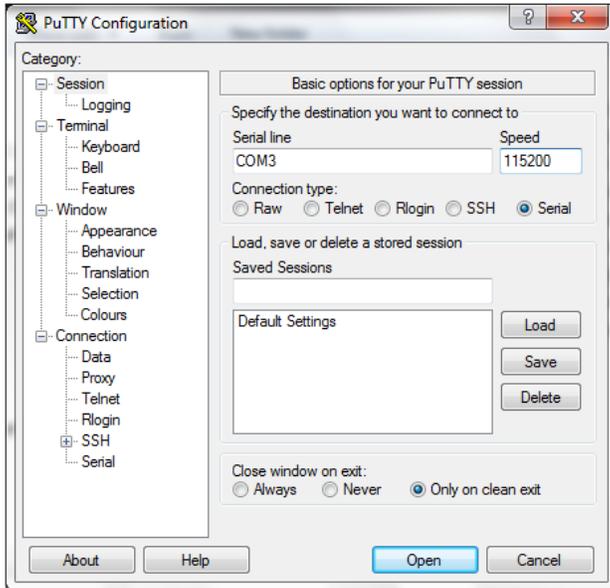


- 14 Paste the file where you can access it using an ftp client.
In this example, FileZilla is used for the ftp client.
- 15 Open an ftp client and upload the file to the MVI56E-LDM module in the /psft/sample directory.

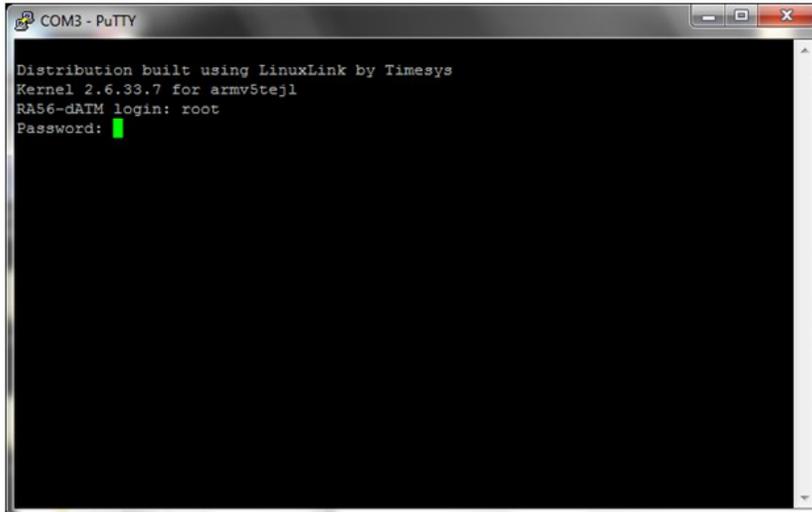


1.3 Configuring Serial Communication

- 1 Establish a connection to the module. In the following example, PUTTY is being used.
Note: You can download PUTTY for free at <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>.
- 2 Open PUTTY.



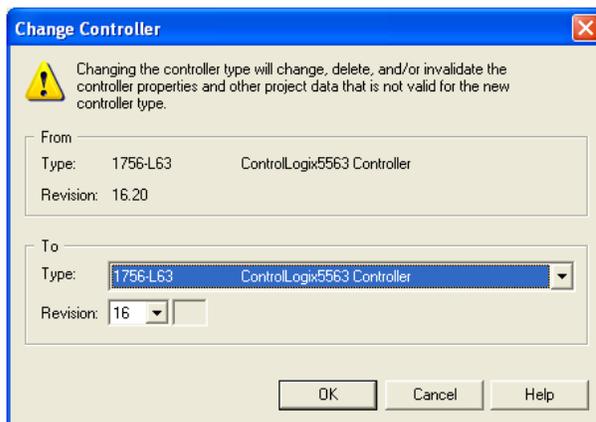
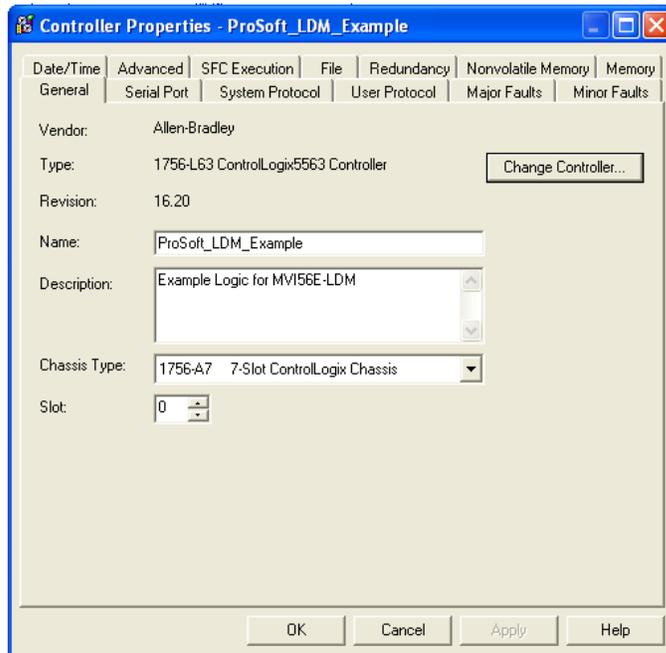
- Set the Speed to 115200
 - Set the appropriate COM port
 - Ensure that the Connection Type is set to Serial.
- 3 Click Open. The Putty session opens.
 - 4 Enter your login and password. RA56-daTM login: root, Password: password.



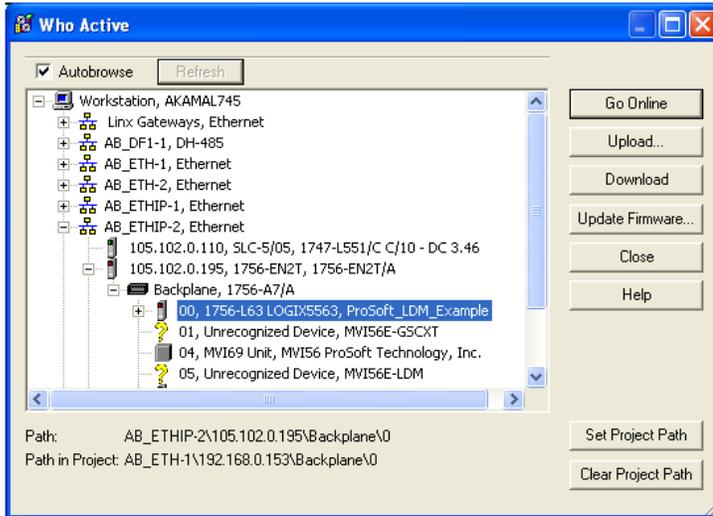
- 5 Keep PUTTY open while you set up the ControlLogix5000 as described in the next section.

1.4 Setting Up the ControlLogix 5000

- 1 Open the MVI56E-LDM.ACD program and change the appropriate chassis type to match your hardware and firmware.



- 2 Download MVI56_LDM.ACD file in the ControlLogix processor by choosing Communications > Who Active > Download.



1.5 Serial Application Sample

Serial_Application shows an example of how the LDM module can be used to communicate to an end device to transmit/receive ASCII strings from the ControlLogix5000 processor through the backplane to the LDM module on the bottom serial port (default application port). This same sample program will stream ASCII data into the module from the end device on the same serial port and send the data to the backplane to the controller tags of the ControlLogix.

Send out number of bytes entered in Write_Byte_Cnt Controller tag continuously after the Serial_App_Sample_WriteTrigger tag has been triggered from the default application port. Streams in ASCII data from the end device into the Controller tag Local:1:I.Data.

Note: Use HyperTerminal or a similar program to perform the following steps.

- 1 Open HyperTerminal.
- 2 Enter a name and choose an icon for the connection.

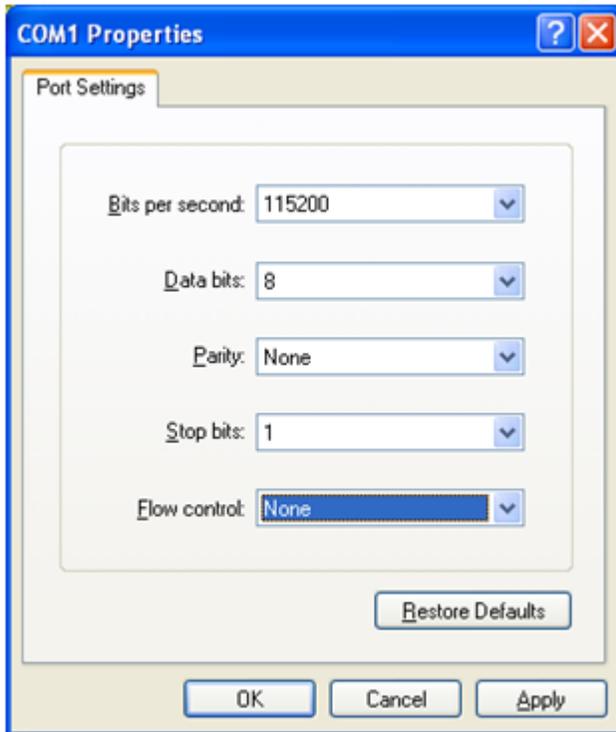


- 3 Choose the appropriate COM port.

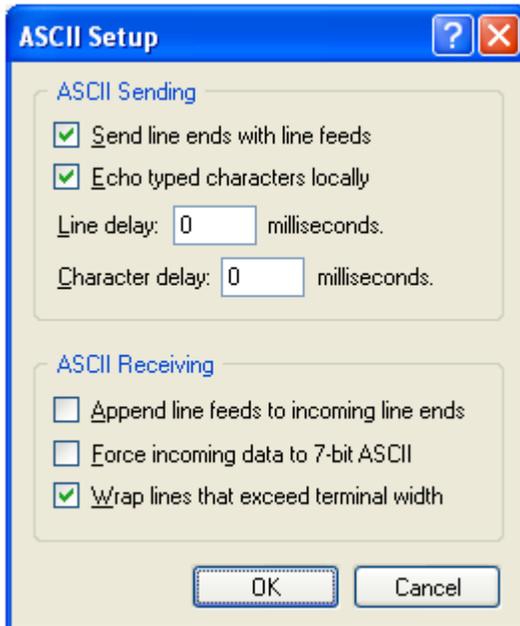


- 4 Use the following settings for the Serial_Application program.
 - Bits per second: 115200
 - Data bits: 8
 - Parity: None
 - Stop bits: 1

Flow Control: None



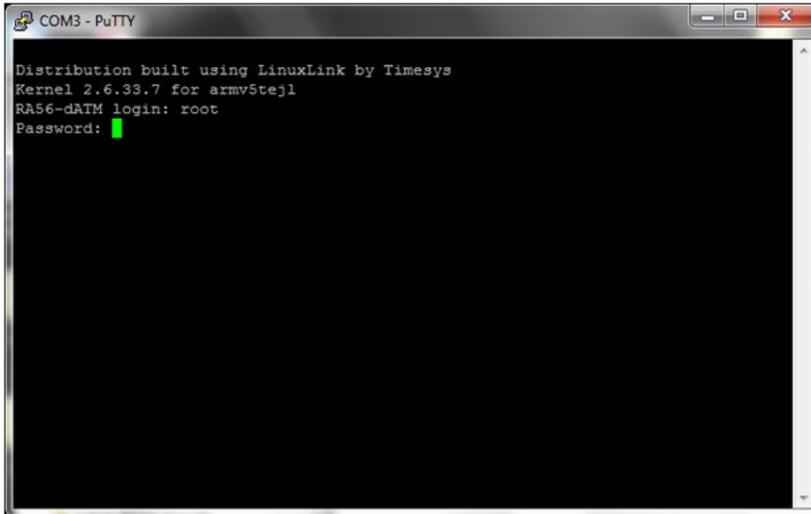
- 5 Under the ASCII Setup, check the 'Echo typed character locally'. This will allow you to see the stream data being sent to the LDM module on the HyperTerminal screen.
- 6 Click OK, but keep HyperTerminal open since it will be used again after you complete the following sections.



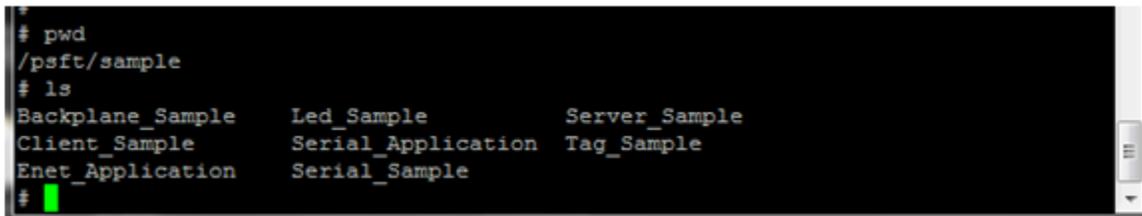
- 7 Use PUTTY or Telnet to log into the module.

RA56-dATM login: root

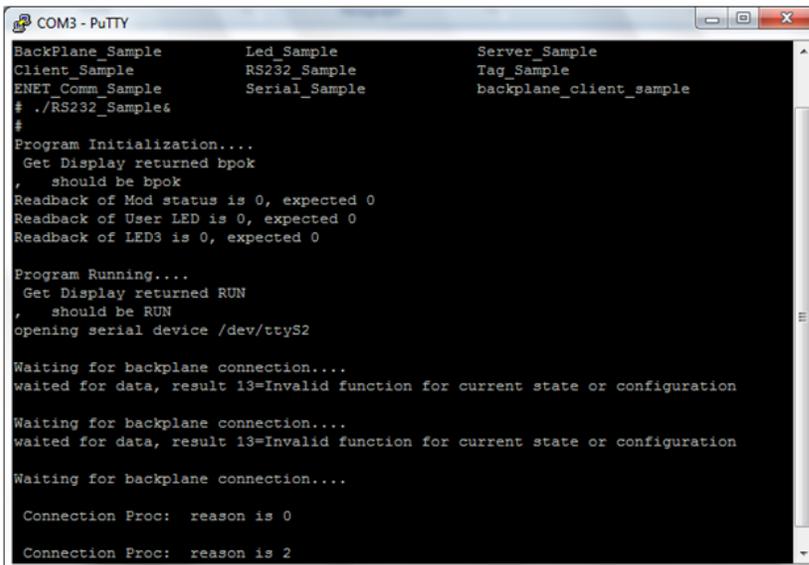
Password: password



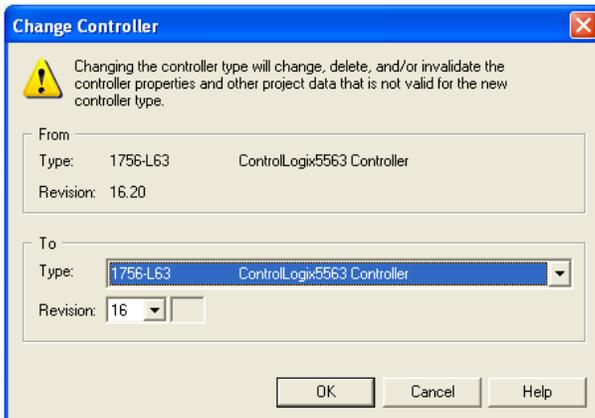
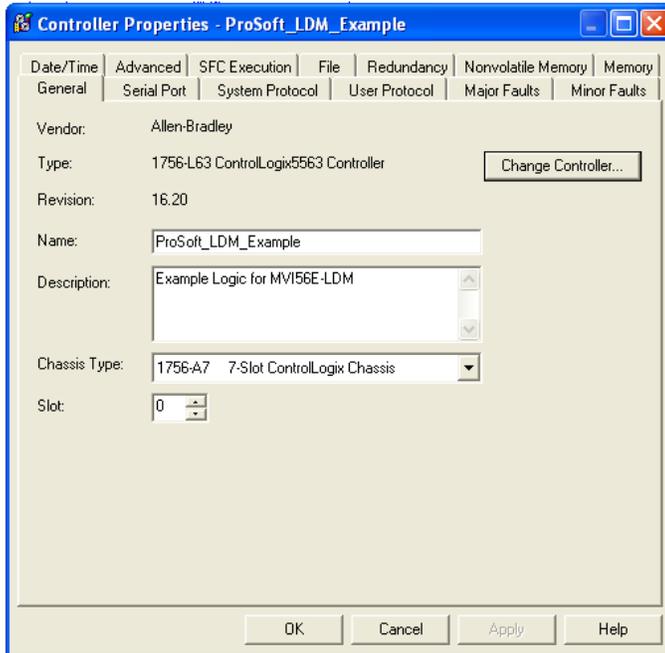
- 8 Change the directory to /psft/sample.



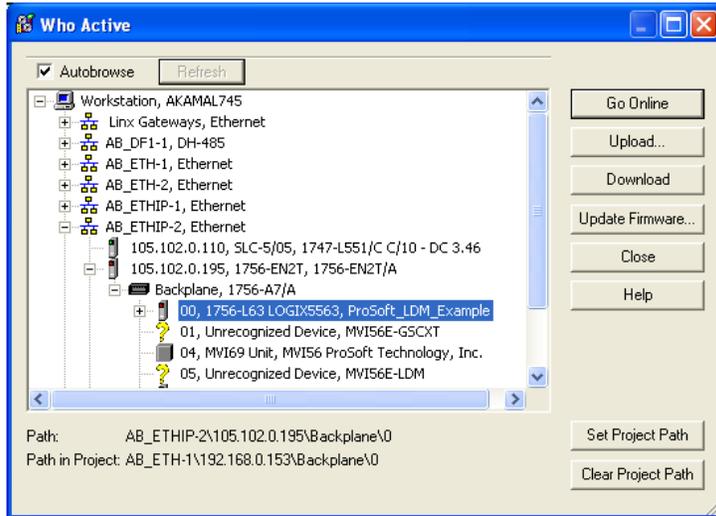
- 9 Type './' and the name of the sample program that you want to run. In this example, './Serial_Application&'.



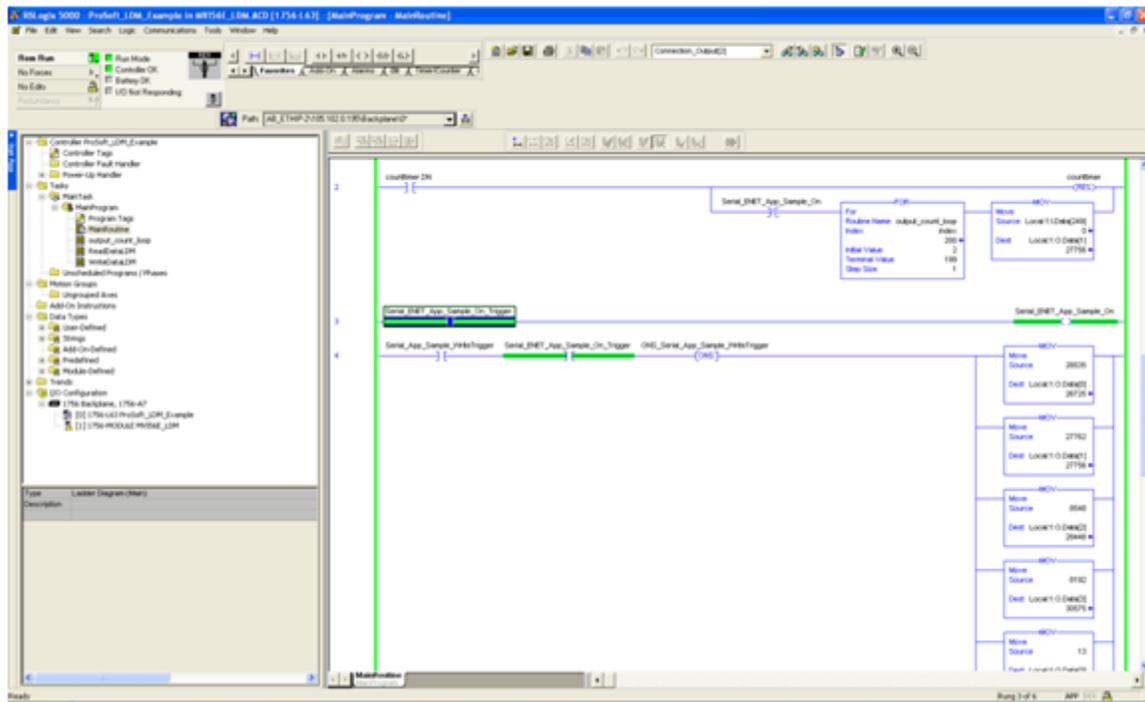
- 10 Keep PUTTY or Telnet open and set up the ControlLogix5000 program as described in the section entitled Setting Up the Control Logix 5000.
- 11 Open the MVI56E-LDM.ACD program and change the appropriate chassis type to match your hardware and firmware.



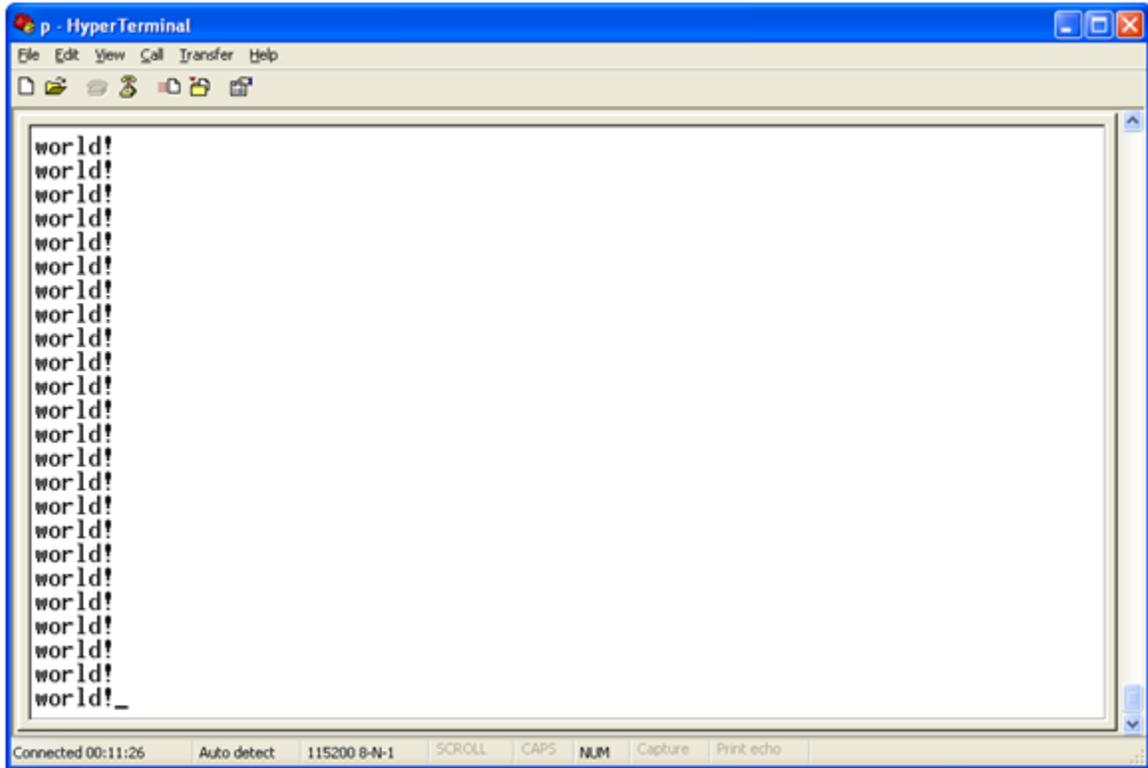
- 12 Download the MVI56E-LDM.ACD file in the ControlLogix processor by choosing Communications > Who Active > Download.



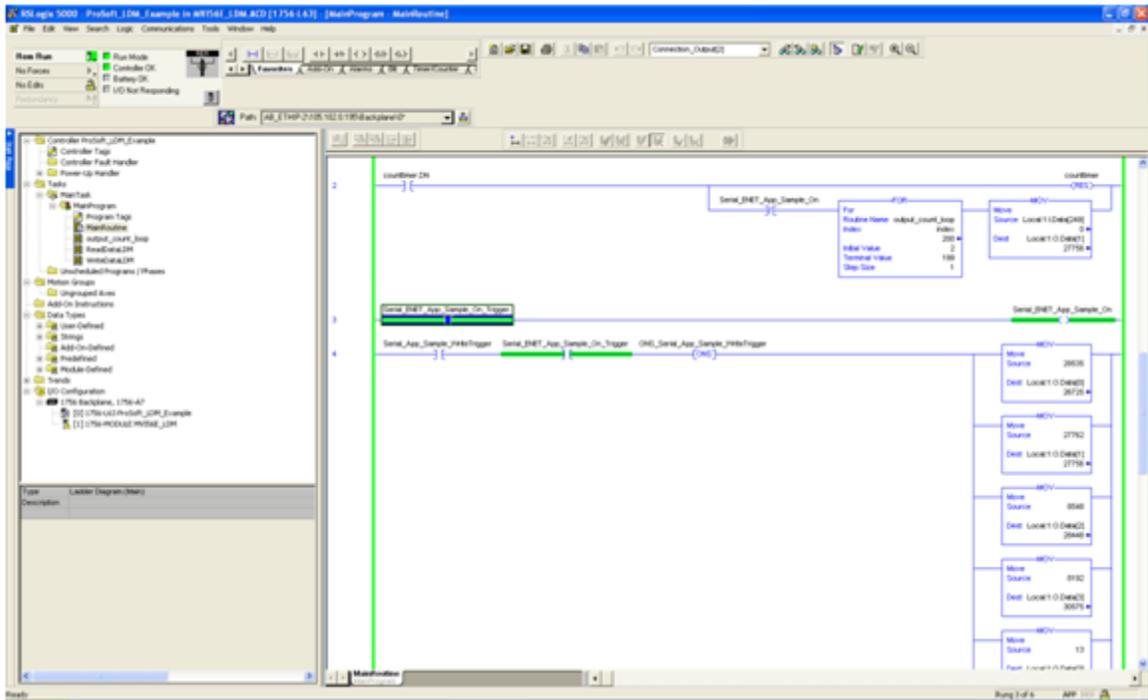
- 13 Trigger 'Serial_ENET_App_Sample_On_Trigger' by right-clicking on the Controller tag and choosing 'Toggle Bit'.



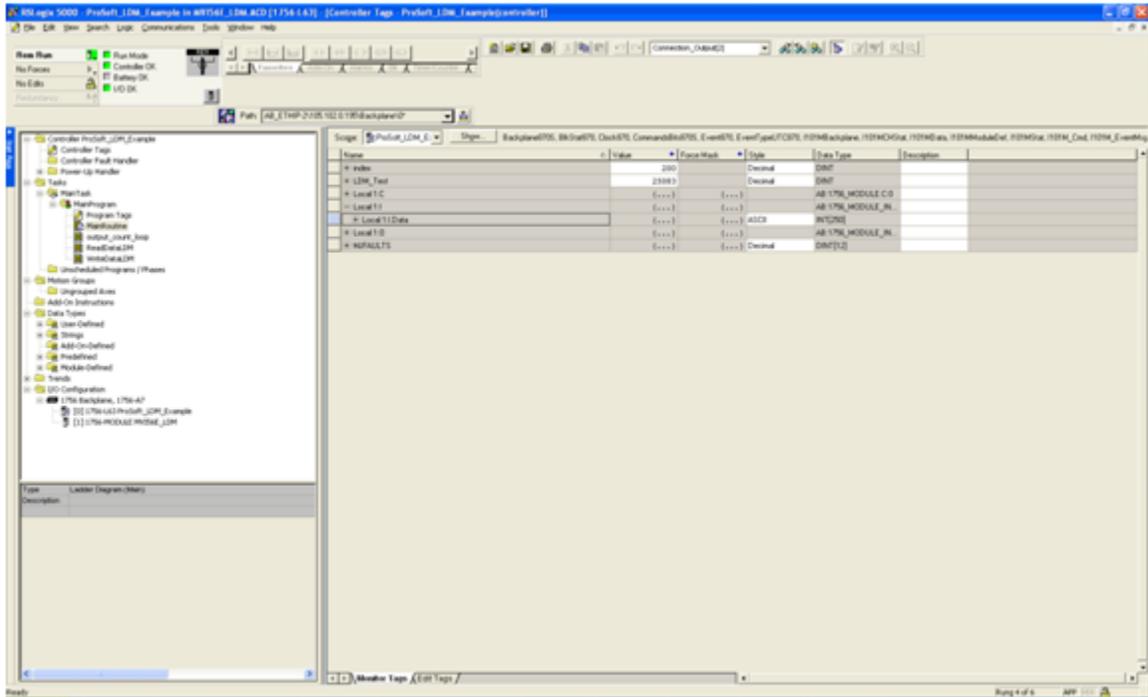
This allows the MVI56E-LDM module to send out the text 'world!' to the console.



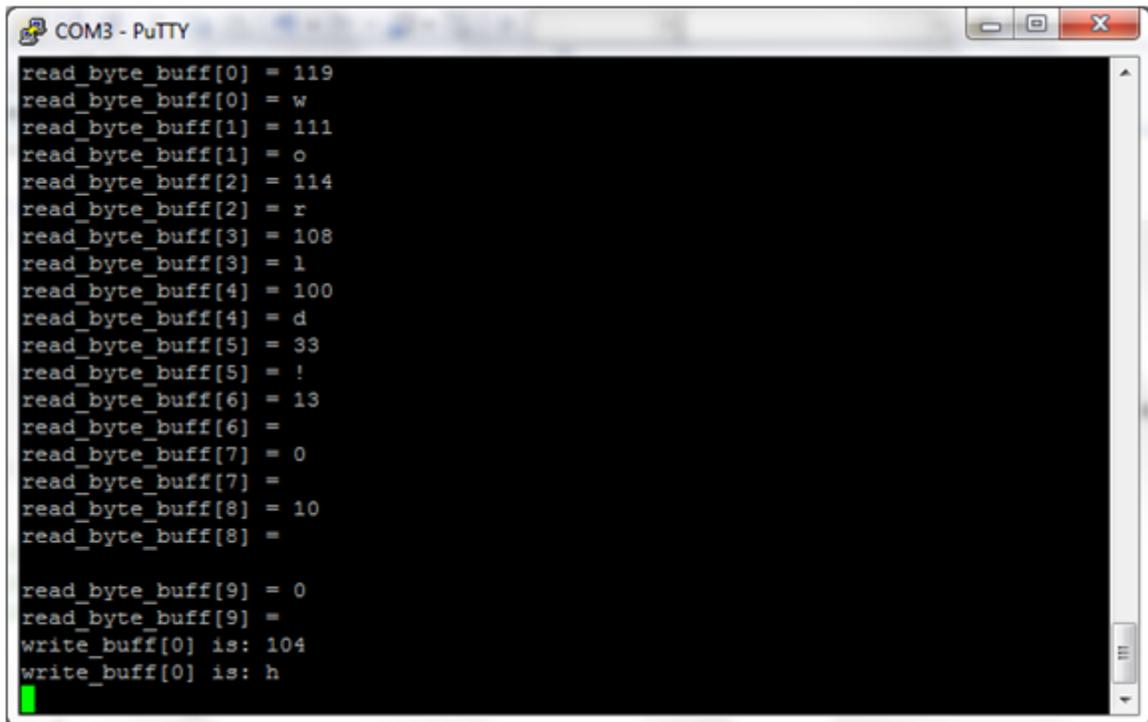
You can view how the stream of data is accepted by the LDM module by untoggling the Serial_App_Sample_WriteTrigger and typing a string of characters on the console.



You can see the letter 'h' in the location 'Local:1:I.Data'. Make sure that the Style column in the ControlLogix is set to ASCII.



You can also observe this on the console port as well.



2 Support, Service & Warranty

Contacting Technical Support

ProSoft Technology, Inc. (ProSoft) is committed to providing the most efficient and effective support possible. Before calling, please gather the following information to assist in expediting this process:

- Product Version Number
- System architecture
- Network details

If the issue is hardware related, we will also need information regarding:

- Module configuration and associated ladder files, if any
- Module operation and any unusual behavior
- Configuration/Debug status information
- LED patterns
- Details about the serial, Ethernet or fieldbus devices interfaced to the module, if any.

Note: For technical support calls within the United States, an after-hours answering system allows 24-hour/7-days-a-week pager access to one of our qualified Technical and/or Application Support Engineers. Detailed contact information for all our worldwide locations is available on the following page.

Internet	Web Site: www.prosoft-technology.com/support E-mail address: support@prosoft-technology.com
Asia Pacific (location in Malaysia)	Tel: +603.7724.2080, E-mail: asiapc@prosoft-technology.com Languages spoken include: Chinese, English
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2.1 Warranty Information

For complete details regarding ProSoft Technology's TERMS & CONDITIONS OF SALE, WARRANTY, SUPPORT, SERVICE AND RETURN MATERIAL AUTHORIZATION INSTRUCTIONS please see the documents on the Product CD/DVD or go to www.prosoft-technology.com/warranty

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