Installation Instructions

Allen-Bradley

SLC 5/05 Processors Firmware/Operating System ControlFLASH Upgrade

Catalog Numbers 1747-DU501

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About This Publication

This document provides instructions on how to install the ControlFLASH™ utility, setup prerequisites for preparing the system for upgrade, and instructions for upgrading your processor to the latest firmware. It does not provide information on how to configure or run applications on the following device:

1747-DU501.

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Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://www.rockwellautomation.com/literature/) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
	SHOCK HAZARD: Labels may be on or inside the equipment (for example, drive or motor) to alert people that dangerous voltage may be present.
	BURN HAZARD: Labels may be on or inside the equipment (for example, drive or motor) to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

Related Publications

For	Refer to this Document	Publication
A more detailed description on how to install and use your SLC™ 500 Modular Hardware Style Control System.	SLC 500 Modular Hardware Style User Manua	1747-UM011
A more detailed description on how to install your SLC 500 Modular Processors.	SLC 5/03, SLC 5/04, and SLC 5/05 Modular Processors Installation Instructions	1747-IN009
A more detailed description on ControlFLASH installation.	ControlFlash Firmware Upgrade Software User Manual	1756-UM105

To view and download PDF files, go to the Literature Library at http://www.rockwellautomation.com/literature.

To order printed copies, contact your Allen-Bradley® Distributor or Rockwell Automation® Sales Office.

System Requirements

- Personal computer with at least a 486 processor
- Windows NT, 2000, or XP operating system
- At least 32 MB of memory or the minimum required by the operating system
- Ethernet connection to SLC processor

Install ControlFLASH

Insert the CD-ROM of the ControlFLASH Firmware Upgrade Kit into your CD-ROM drive. The Setup Wizard appears to guide you through the installation process.

If a ControlFLASH directory does not yet exist, one is created in your Program Files directory.

IMPORTANT If an error is encountered during installation, uninstall the previous ControlFLASH firmware from the computer and try again.

Prior to Running ControlFLASH

For OS501 Series C FRN 9 and later, the SNMP Server must be enabled for the upgrade to occur. The ability to disable the SNMP Server that was added in Series C FRN 9 and later, requires RSLogix™ 500 version 6.30 or higher.

1. Save the current SLC 5/05 processor program.

IMPORTANT The user program is cleared as part of the operating system upgrade process. You must restore your program after successfully loading the operating system upgrade.

2. Note the IP address assigned to the SLC 5/05 processor. When updating the processor, use BOOTP or fixed IP address, not DHCP. The IP address may be read from the processor when you are online with RSLogix 500 software. In the Channel Configuration dialog box select the Chan. 1 – System tab. If BOOTP Enable is selected and the IP Address is 0.0.0.0, then note the Ethernet Hardware Address (located on the Ethernet Daughtercard) of the 5/05 processor, which begins with 00:00:BC).

IMPORTANT Refer to the following Rockwell Automation publications for more information on the Ethernet Communication Protocol:
- SLC 500 Instruction Set Reference Manual, publication 1747-RM001
- SLC 500 Modular Hardware Style User Manual, publication number 1747-UM011

IMPORTANT If you are not sure whether an IP address is assigned or cannot determine what the IP address is, return the 5/05 processor to initial factory conditions.

Return the SLC 5/05 Processors to Initial Factory Conditions

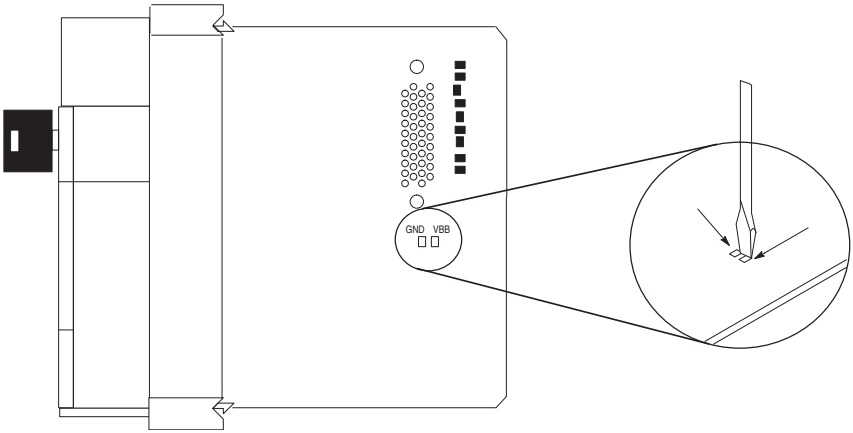
IMPORTANT If you return the processor to the initial factory conditions, the user program and communication configurations are returned to their default settings.

To return the processor to initial factory conditions.

ATTENTION: Do not remove the processor from the SLC 500 chassis until all power is removed from the SLC 500 power supply.

1. Remove power from the SLC 500 power supply.
2. Remove the processor from the chassis.
3. Disconnect the battery by removing the battery connector from its socket.
4. Locate the VBB and GND connections on the back of the motherboard.
5. Place a small bladed screwdriver across the VBB and GND connections and hold for 60 seconds.

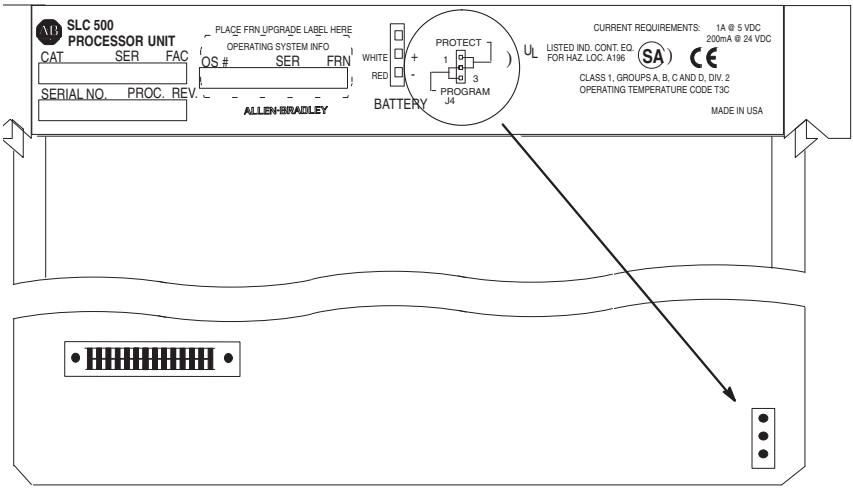
This returns the processor to the initial factory conditions.



Use ControlFLASH

ATTENTION: Do not interrupt the flash procedure. Once you have begun to download the firmware for either the daughtercard (step 18) or the motherboard (step 24), the SLC 5/05 is put into an unrecoverable state if you lose power or communications for any reason.

1. Launch the ControlFLASH application under Programs>Flash Programming Tools.
2. Verify that the J4 jumper of the SLC 5/05 processor being upgraded is set to Protect.
   The daughtercard firmware can only be updated when the J4 jumper is set to Protect.



3. Insert the SLC 5/05 processor into an SLC chassis.
4. Attach an Ethernet cable to the processor from your computer (or a hub).

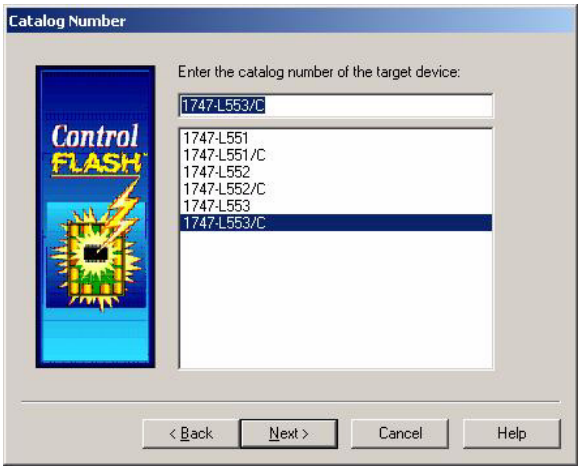
IMPORTANT If you are connecting to the SLC 5/05 processor through a hub, you can use a standard Ethernet patch cable. If you are connecting directly to the SLC 5/05 processor from your computer, you need to use an Ethernet crossover cable.

5. Apply power to the chassis.
6. Verify that the SLC 5/05 processor key switch is in the PROG or REM PROG (RUN LED indicator not illuminated) mode.

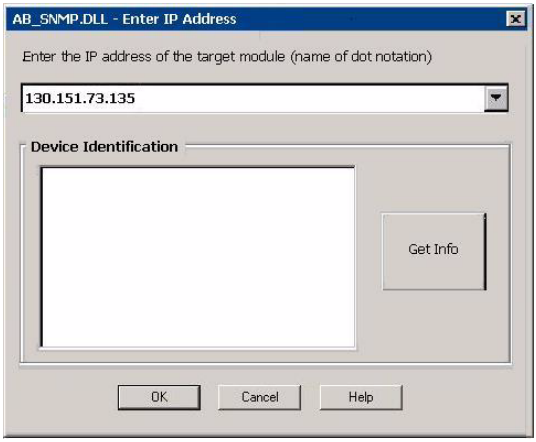
   The Welcome to ControlFLASH dialog box appears.

7. Click Next.

8. Select the appropriate catalog number from the Catalog Number dialog box and click Next. For Series C Processors, select catalog numbers that are followed by a '/C'.



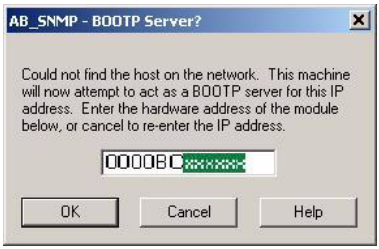
The AB_SNMP.DLL – Enter IP Address dialog box appears.



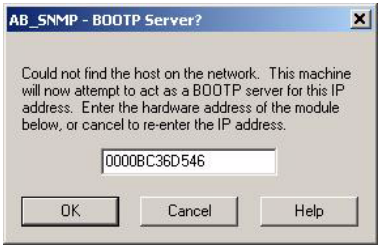
9. Enter the IP address for the processor.

IMPORTANT Use the IP address that was noted in step 2 of the section, Prior to Running ControlFLASH on page 3. If the processor has been reset to Initial Factory Conditions, use an available IP address assigned by your network administrator.

10. Click the Get Info button.
If the IP address was previously configured in the processor, go to step 12.
The AB_SNMP – BOOTP Server dialog box appears, indicating that this IP address has not been configured into the processor.



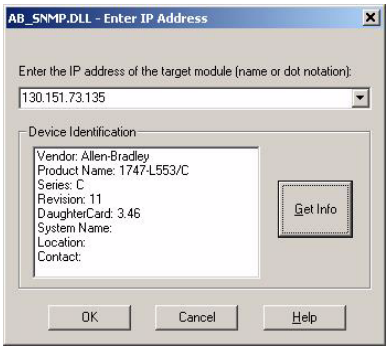
11. Enter the hardware address of the SLC 5/05 processor that is being upgraded and click OK. The hardware address is noted in step 2 of the section, Prior to Running ControlFLASH, on page 3.



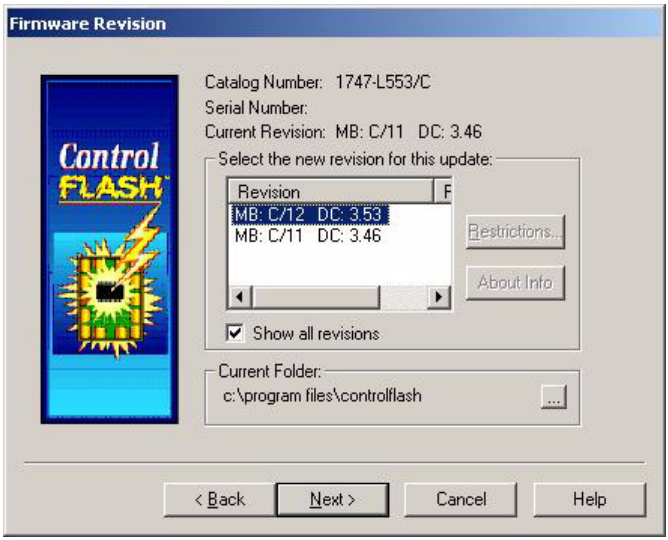
The AB_SNMP – BOOTP Server Running dialog box may take several seconds or minutes to appear.

You may need to wait several seconds or minutes before you are returned to the AB_SNMP.DLL – Enter IP Address dialog box. Within a few seconds, the Device Identification box displays the processor's current revision information.

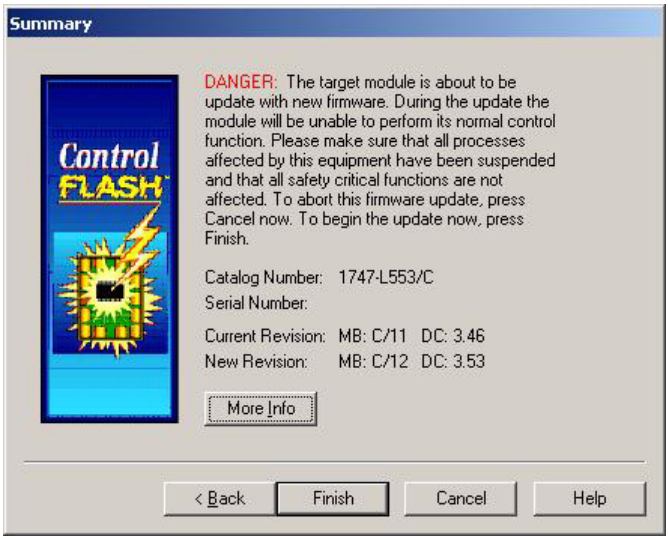
12. Click OK.



13. Select the appropriate revision from the Firmware Revision dialog box and click Next.

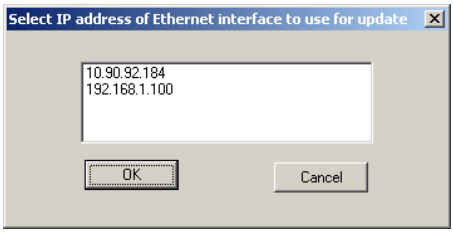


The Summary dialog box appears.



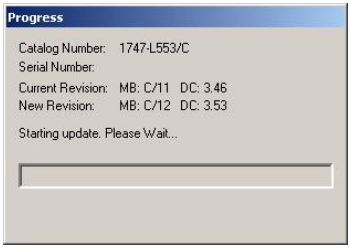
14. Click Finish.
The ControlFLASH dialog box appears.

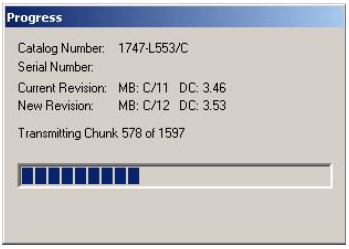
15. Click Yes.
If your PC has more than one Ethernet interface installed, the following dialog box displays the assigned IP addresses of each of the listed Ethernet interfaces. Proceed to the next step.
If your PC does not have more than one Ethernet interface installed, go to step 18.

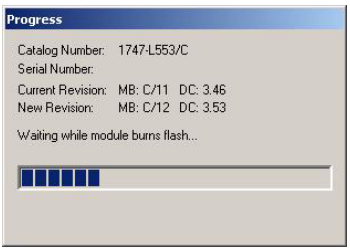


16. Highlight the IP address of the PC Ethernet interface that connects to the Ethernet network hosting the target processor.

17. Click OK.
18. You may need to wait several seconds before the Progress dialog box appears.
A typical sequence is shown below. While the download is in progress, the ENET LED changes from a solid green to flashing green to solid red and then turns solid green again. When the daughtercard update is complete, the ENET LED flashes green. The download process of the daughtercard firmware can take up to approximately two minutes.







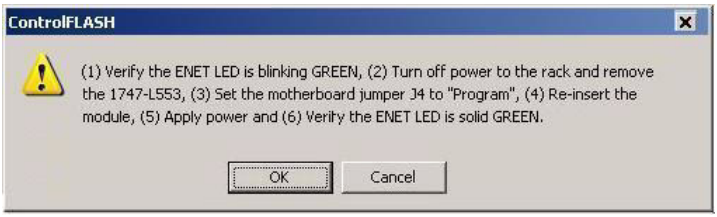
19. When the message 'Waiting while module burns flash...' and all progress bars are displayed, check the AB_SNMP dialog box. Open it from your taskbar if it does not appear automatically.

    The AB_SNMP dialog box prompts you to turn off power, remove the processor, move the jumper to Program, re-insert the processor, and apply power.

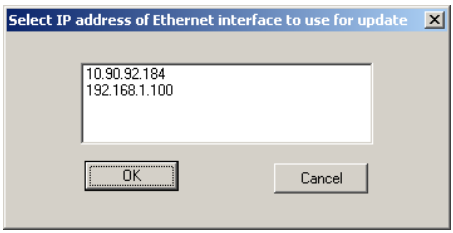
ATTENTION: Do not remove the processor from the SLC 500 chassis until all power is removed from the SLC 500 power supply

20. Wait for the ENET LED to turn solid green.

21. Click OK.



22. If your PC has more than one Ethernet interface installed, then the following dialog box displays the assigned IP addresses of each of the listed Ethernet interfaces. Proceed to the next step.
If your PC does not have more than one Ethernet interface installed, go to step 24.

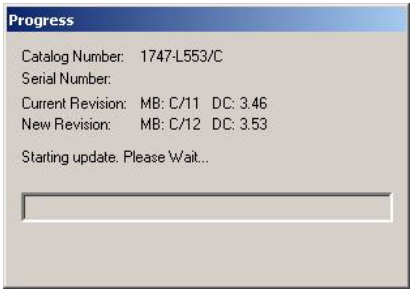


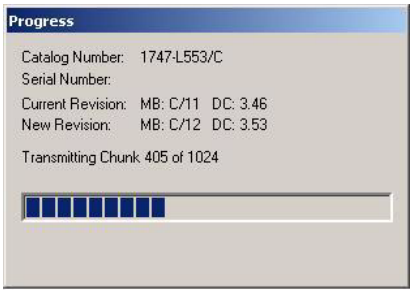
23. Highlight the IP address of the PC Ethernet interface that connects to the Ethernet network hosting the target processor. Click OK.

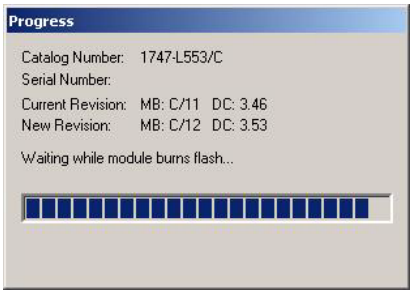
24. The AB_SNMP – BOOTP Server Running dialog box may appear.

A Progress dialog box is displayed again. A typical sequence is shown starting below. While the download is in progress, the RUN and FLT LED indicators remain off. The other four LED indicators – RS232, ENET, FORCE, and BATT – turn on and off in a walking bit sequence. When

the update is complete, these four LED indicators remain on together. The download process of the firmware takes approximately 3 minutes.







25. Open the AB_SNMP dialog box from the task bar if it does not appear automatically. Follow the dialog box prompts to do the following:
    - Verify the LEDs have stopped flashing.
    - Turn off power to the chassis.
    - Remove the processor.

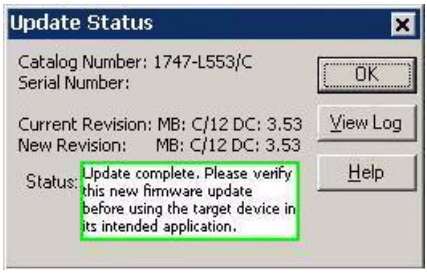
ATTENTION: Do not remove the processor from the SLC 500 chassis until all power is removed from the SLC 500 power supply.

- Set the motherboard jumper J4 back to Protect.
- Re-insert the processor.
- Apply power to the chassis.

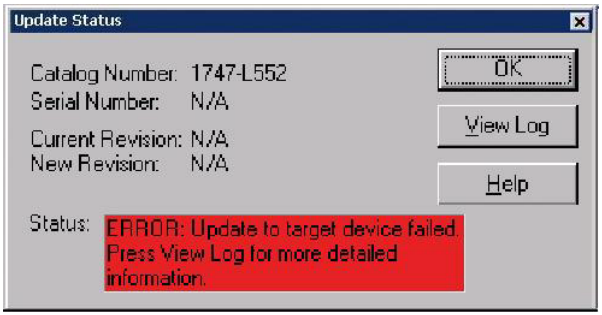
26. Once you have re-applied power, wait for the ENET LED indicator to turn solid green. Click OK.

The AB_SNMP – BOOTP Server Running dialog box may appear.

The Update Status dialog box appears. If the update was successful, the status text box is green and has an appropriate message.



If the update was not successful, the status text box is red and has an appropriate message.



27. Click OK and you are returned to the Welcome to ControlFLASH dialog box.

28. You may either continue upgrading additional SLC 5/05 processors by clicking Next, or you may exit the program by clicking Cancel. If you click Cancel, you are asked to verify that you want to end the update session.

After Successfully Updating Your SLC 5/05 Processor

1. Remove power from the SLC 500 power supply and remove the processor from the chassis.

ATTENTION: Do not remove the processor from the SLC 500 chassis until all power is removed from the SLC 500 power supply.

2. Apply the enclosed operating system upgrade label to the SLC 5/05 processor nameplate.
3. Re-insert the processor into the chassis and apply power.
4. Restore your program to the processor.

ControlFLASH Error Messages

There are three error messages you can receive.

- Invalid Catalog Number
- Target Module Not in Proper State for Programming
- Failed to Receive Initial TFTP Request from Target

Invalid Catalog Number

The following error message is displayed if:

- the ControlFLASH tool is unable to match the processor to the catalog number that was selected in the catalog Number dialog box, or
- the tool is unable to identify the processor type selected because the J4 jumper is in the Program position.

To clear this error:

1. Click OK.

2. Click Cancel to go to the Catalog Number dialog box. You may either:
- select the correct catalog number in the dialog box, and proceed with the update, or

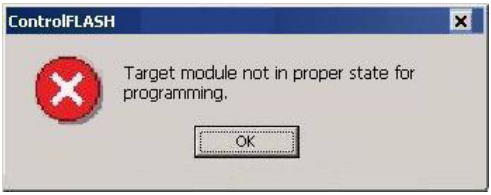
- power down the processor and check the J4 jumper position.

ATTENTION: Do not remove the processor from the SLC 500 chassis until all power is removed from the SLC 500 power supply.

3. Restart the firmware upgrade procedure in the Use ControlFLASH section.

Target Module Not in Proper State for Programming

The following dialog box appears when this error occurs:

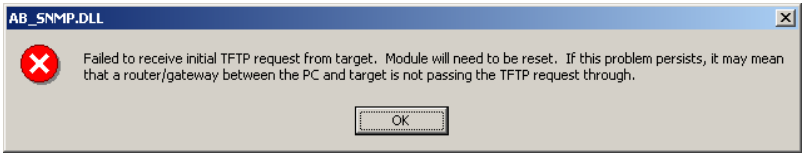


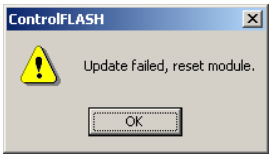
To clear this error:

1. Place the SLC 5/05 processor into PROG mode.
2. Ensure that DHCP is not selected.
3. Restart the firmware upgrade process at the beginning of the Use ControlFLASH section. If the error occurs again, power-cycle the SLC 5/05 processor and restart the firmware upgrade process.

Failed to Receive Initial TFTP Request from Target

The following dialog boxes appear in the sequence shown when this error occurs.





To clear this error:

1. Connect the processor's Ethernet port directly to the PC Ethernet port using a crossover cable, or disable or uninstall any firewall VPN or virus protection software running on the PC.
2. Power-cycle the processor.
3. Restart the firmware upgrade process.

Notes:

Notes:

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://www.rockwellautomation.com/support/, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/support/.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html, or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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