Programming Manual

Allen-Bradley

Logix5000 Controllers Nonvolatile Memory Card

Catalog Numbers 1756 ControlLogix, 1756 GuardLogix, 1768 CompactLogix, 1768 Compact GuardLogix, 1769 CompactLogix, 1789 SoftLogix, PowerFlex with DriveLogix

Allen-Bradley • Rockwell Software

Rockwell Automation

Important user information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice. If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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 consequence
Important:	Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.

	**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
	**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
	**ARC FLASH HAZARD:** Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

Summary of changes

This table contains the changes made to this revision.

Change	Topic
Added support for the ControlLogix 5370 series of controllers.	Controllers with memory card options on page 12, Other uses for a memory card on page 31.
Removed support for the 1784-CF64 CompactFlash card.	Controllers with memory card options on page 12, CompactFlash card formatting on page 13.
The knowledge base article, *Working with the CompactFlash File System on Logix5000 Controllers*, has a new article number.	Other uses for a memory card on page 31.

Table of contents

This manual shows you how to access and use a memory card in Logix5000 controllers. This manual is one of a set of related manuals that show common procedures for programming and operating Logix5000 controllers.

For a complete list of common procedures manuals, refer to the Logix5000 Controllers Common Procedures Programming Manual, publication 1756-PM001.

The term Logix5000 controller refers to any controller that is based on the Logix5000 operating system.

Studio 5000 environment

The Studio 5000 Automation Engineering & Design Environment™ combines engineering and design elements into a common environment. The first element is the Studio 5000 Logix Designer™ application. The Logix Designer application is the rebranding of RSLogix™ 5000 software and will continue to be the product to program Logix5000™ controllers for discrete, process, batch, motion, safety, and drive-based solutions.

The Studio 5000® environment is the foundation for the future of Rockwell Automation® engineering design tools and capabilities. The Studio 5000 environment is the one place for design engineers to develop all elements of their control system.

Additional resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications webpage, available at http://ab.rockwellautomation.com	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at http://www.rockwellautomation.com/literature. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

Store and load a project by using a memory card

Introduction

The memory card allows you to keep a copy of your project on the controller without the need to maintain power to the controller. You can use a memory card to store the contents of the user memory when you store the project.

Important: Remember these guidelines with a memory card.

- Changes that you make after you store the project are not reflected in the contents of the memory card.
- If you make changes to the project but do not store those changes, you overwrite them when you load the project from a memory card. If this occurs, you have to upload or download the project to go online.
- If you want to store changes, such as online edits, tag values, or a ControlNet network schedule, store the project after you make the changes.

If a computer loses power and does not have enough energy capacity, it loses the project in user memory. When this occurs, you can load the copy from the memory card to the user memory of the controller:

- Whenever it powers up.
- Whenever there is no project in the controller and it powers up.
- Anytime through the Logix Designer application.

A store or load operation from a memory card has these parameters.

Parameter	Store and Load
How much time does a store or load operation take?	Less than three minutes
What controller mode do I use to store or load a project?	Program mode
Can I go online with the controller during a store or load?	No
What is the state of the I/O during a store or load?	I/O remains in its configured state for Program mode

Controllers with memory card options

These Logix5000 controllers support a memory card for project storage.

Controller Type	Catalog Number	Firmware Revision	Supports a 1784-CF128 CompactFlash Card	Supports a 1784-SD1 or 1784-SD2 Secure Digital (SD) Card
1768 CompactLogix	1768-L43	15.*x* or later	Yes	No
	1768-L45	16.*x* or later		
1769 CompactLogix	1769-L31	13.*x* or later	Yes	No
	1769-L32E			
	1769-L32C			
	1769-L35CR			
	1769-L35E	12.*x* or later		
CompactLogix 5370	1769-L16ER-BB1B	20.*x* or later	No	Yes
	1769-L18ER-BB1B			
	1769-L18ERM-BB1B			
	1769-L24ER-QB1B	21.*x* or later		
	1769-L24ER-QBFC1B			
	1769-L26ER-BB1B			
	1769-L27ERM-QBFC1B			
	1769-L30ER	20.*x* or later		
	1769-L30ER-NSE			
	1769-L30ERM			
	1769-L33ER			
	1769-L36ERM			
ControlLogix	1756-L61	12.*x* or later	Yes	No
	1756-L62			
	1756-L63	11.*x* or later		
	1756-L64	16.*x* or later		
	1756-L65	17.*x* or later		
	1756-L73	18.*x* or later	No	Yes
	1756-L75			
	1756-L72	19.*x* or later	No	Yes
	1756-L74			
DriveLogix	5730	13.*x* or later	Yes	No

Prevent a major fault during a load

If the major and minor revisions of the project on the memory card do not match the major and minor revision of the controller, a major fault may occur during a load.

The memory card stores the firmware for projects for revision 12.0 or later. Depending on the current revision of the controller, you may be able to use the memory card to update the firmware of the controller and load the project.

Read/write card data

Sample ladder logic code for the Logix Designer applications are available for using your file system on a Logix5000 controller to read and write data on a memory card. These are the files you need:

- CF_Read_Write.ACD
- CF_Read_Write_Example.ACD
- Logix-AP007B-EN-P.pdf

To access these files, see http://samplecode.rockwellautomation.com/idc/groups/public/documents/webassets/sc_home_page.hcst.

CompactFlash card formatting

The Logix Designer 1784-CF128 CompactFlash card does not have to be formatted to store controller information.

<table>
<tr><th>If the revision of your project is</th><th>Then</th></tr>
<tr><td>11.x</td><td>The CompactFlash card uses a special format.
Use only a Logix5000 controller to store a project on a CompactFlash card.
Store only a single project and no other data on a CompactFlash card.
When you store a project on a CompactFlash card, you overwrite the entire contents of the card. In other words, you lose everything that is currently on the card.</td></tr>
<tr><td>≥ 12.0</td><td>The CompactFlash card uses the FAT16 file system.<table><tr><th>If the card</th><th>Then the controller</th></tr><tr><td>Is already formatted for the FAT16 file system.</td><td>Leaves existing data.
Creates folders and files for the project and firmware.</td></tr></table>The CompactFlash card using the FAT16 file system:
Stores multiple projects and associated firmware.
If a card already contains a project with same name, a store overwrites the project on the CompactFlash card.
Loads the most recently stored project.
With a revision ≥ 12.0, you can also use a card reader to read and manipulate the files on a memory card.
See Use a memory card reader on page 29.</td></tr>
</table>

Secure digital card formatting

A Secure Digital (SD) memory card (catalog numbers 1784-SD1 (1 GB), 1784-SD2 (2 GB) that uses the FAT 16 file system does not have to be formatted when storing a project to a controller.

<table>
<tr><th>If the revision of your project is</th><th>Then</th></tr>
<tr><td>≥ 18.0</td><td>The SD card uses the FAT16 file system.<table><tr><th>If the card:</th><th>Then the controller:</th></tr><tr><td>Is unlocked.</td><td>Leaves existing data.
Creates folders and files for the project and firmware.</td></tr><tr><td>Is locked.</td><td>Does not allow writing to the card.</td></tr></table>The SD card using the FAT16 file system:
Stores multiple projects and associated firmware.
Overwrites the project on the card if it contains a project with the same name
Loads the most recently stored project.
You also can use a card reader to read and manipulate the files on a memory card.
See Use a memory card reader on page 29.</td></tr>
</table>

One 1784-SD1 card ships with each 1756-L7*x* controller.

See Store a project on page 17 for loading an SD card in the controller.

Perform firmware updates

This table outlines the options and precautions for updating the firmware of a controller that has a memory card.

If	Then
You meet all of these conditions. • The controller has a memory card. • The project on the memory card has a revision ≥ 12.0. • The project on the memory card has a **Load Image** option = **On Power Up** or **On Corrupt Memory**. • A controller in service has a revision ≥ 12.0.	Update the firmware by using one of these options. • Memory card • Logix Designer application • ControlFLASH™ software (See the **Important:** note on the next page) Follow this procedure to update the firmware and load the project by using the memory card. 1. Install the card in the controller. 2. If the **Load Image** option = **On Corrupt Memory** and the controller contains a project, before powering down, disconnect the battery or disengage the Energy Storage Module (ESM) from the controller. 3. Turn on or cycle power to the controller. Follow this procedure if you use the Logix Designer application or ControlFLASH software to update the firmware. 1. Remove the card from the controller. This prevents the controller from setting the **Load Image** option of the memory card to User Initiated during the update. 2. After the firmware update is completed, store the project to the memory card. This ensures that the revision of the project on the memory card matches the revision of the controller.
You do not meet all of the preceding conditions.	Update the firmware by using either: • Logix Designer application. • ControlFLASH software. See the **Important:** note on the next page. Take these precautions. • Before you update the firmware either: – Remove the memory card from the controller. – Check the **Load Image** option of the memory card. If it is set to **On Power Up** or **On Corrupt Memory**, store the project with the **Load Image** option set to **User Initiated**. Otherwise, a major fault may occur when you update the controller firmware. This occurs because the **On Power Up** or **On Corrupt Memory** options cause the controller to load the project from the memory card. The firmware mismatch after the load causes a major fault. • After you update the firmware, store the project to the memory card to ensure the revision of the project on the memory card matches the revision of the controller.

Important: Make sure the SD card is unlocked if set to load **On Power Up** before using the ControlFLASH software. Otherwise, the updated data may be overwritten by firmware on the SD card. An error message appears. See the ControlLogix System User Manual, publication 1756-UM001 before updating.

Also, while it is not required for operation, leave the SD card installed in the controller. The SD card saves extended diagnostic information that you can send to Rockwell Automation that provides enhanced diagnostics of your controller application and firmware should circumstances require this data.

When to load an image

You have several options for when (under what conditions) to load the project into the user memory (RAM) of the controller.

If you want to load an image	Then choose	Notes
Whenever you turn on or cycle the chassis power	On Power Up	• During a power cycle, online changes, tag values, and network schedules that you have not stored on the memory card are lost. • Loading from a memory card may also change the firmware of the controller. For more information, see Perform firmware updates on page 14. • You can use the Logix Designer application to load the project.
Whenever there is no project in the controller and you turn on or cycle the chassis power	On Corrupt Memory	• For example, if the battery becomes discharged or the ESM is disengaged and the controller loses power, the project is cleared from memory. When power is restored, this load option loads the project back into the controller. • Loading from a memory card may also change the firmware of the controller. For more information, see Perform firmware updates on page 14. • You can use the Logix Designer application to load the project.
Only through the Logix Designer application	User Initiated	

This table provides load option examples.

Example	Description
Load Image = On Power Up Load Mode = Program	1. You update the firmware of the controller to the desired revision. 2. You store the project for the controller on the memory card. 3. When you turn on power to the controller after installation, the project loads into the controller. 4. The controller remains in Program mode.
Load Image = On Corrupt Memory Load = Run	1. You store the project for the controller on the memory card (the major and minor revisions of the firmware in the controller match the major and minor revisions of the project on the memory card.) 2. If the battery discharges or the ESM is disengaged and power to the controller is interrupted, the project is cleared from the controller memory. 3. When power is restored, the project automatically loads into the controller and the controller returns to Run mode.
Load Image = On Power Up Load Mode = Program Revision ≥ 12.0	1. The controller fails. 2. You remove the memory card. 3. You replace the failed controller with a new controller. 4. You replace the memory card. 5. When you turn on the power, the firmware and project load into the controller. The controller remains in Program mode.
Load Image = On Power Up Load Image = Not applicable	1. You want to load a different project into your controller. 2. A memory card contains the desired project. 3. With the memory card installed in the controller, use the Logix Designer application to load the project into the controller.

Store a project

This section explains how to store a project on the memory card of the controller.

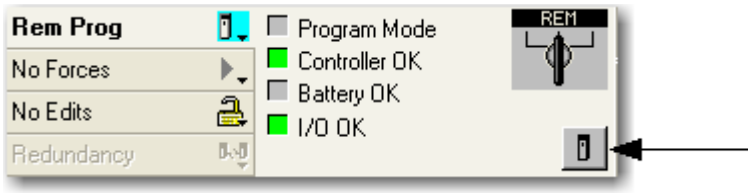
ATTENTION: During a store operation, all active servo axes are turned off. Before you store a project, make sure that this does not cause any unexpected movement of an axis.

Before you store the project:

- Make all the required edits to the logic.
- Download the project to the controller.
- Schedule your ControlNet networks.

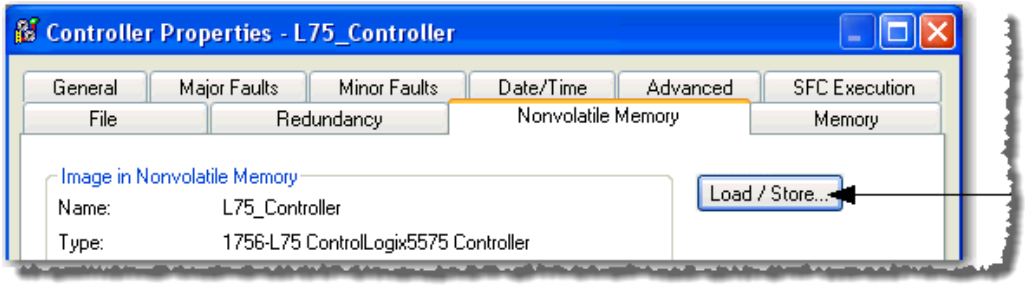
Follow these steps to store a project.

1. Go online with the controller.
2. Put the controller in **Program Mode** (Rem Program or Program).
3. On the **Online** toolbar, click the **Controller Properties** icon.



Tip: For 1756-L7*x* controllers only, *Energy Storage* instead of *Battery OK* appears beside the **Controller Properties** icon. See the ControlLogix System User Manual, publication 1756-UM001 for information on the Energy Storage Module.

4. On the **Controller Properties** dialog box, click the **Nonvolatile Memory** tab and then click **Load/Store**.

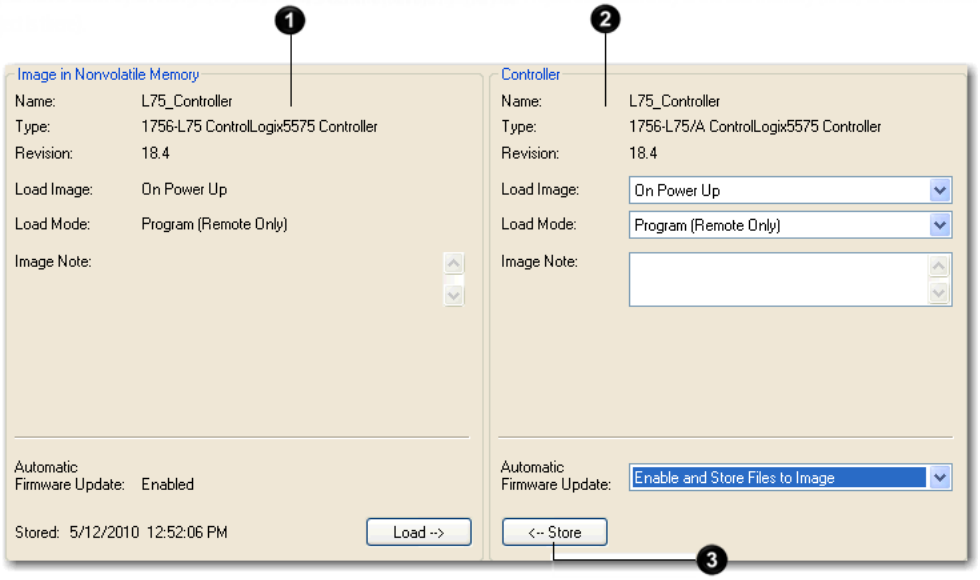


Important: At the bottom of the **Nonvolatile Memory** tab, a message appears if the CompactFlash card or SD card is empty.

A message also appears if the SD card is locked.

5. At the bottom of the **Nonvolatile Memory** tab, select **Inhibit Automatic Firmware Update** checkbox if you do not want to automatically store an image during a Save or Load operation.

6. Choose when (under what conditions) to load the project back into the user memory (RAM) of the controller.



Description	
1	The project that is currently on the memory card of the controller (if any project is there).
2	The project that is currently in the user memory (RAM) of the controller.
3	Store operation.

In the **Load Image** field, if you choose **On Power Up** or **On Corrupt Memory**, you must also choose the **Load Mode** you want to controller to go to after the load.

- Remote Program
- Remote Run

7. In the **Automatic Firmware Update** list, use the default (disable) or choose the appropriate firmware supervisor.

   For details on the firmware supervisor options, see the ControlLogix System User Manual, publication 1756-UM001.

8. Click **<-- Store**.

Important:	Store is not active if the SD card is locked.

   A dialog box asks you to confirm the store operation.

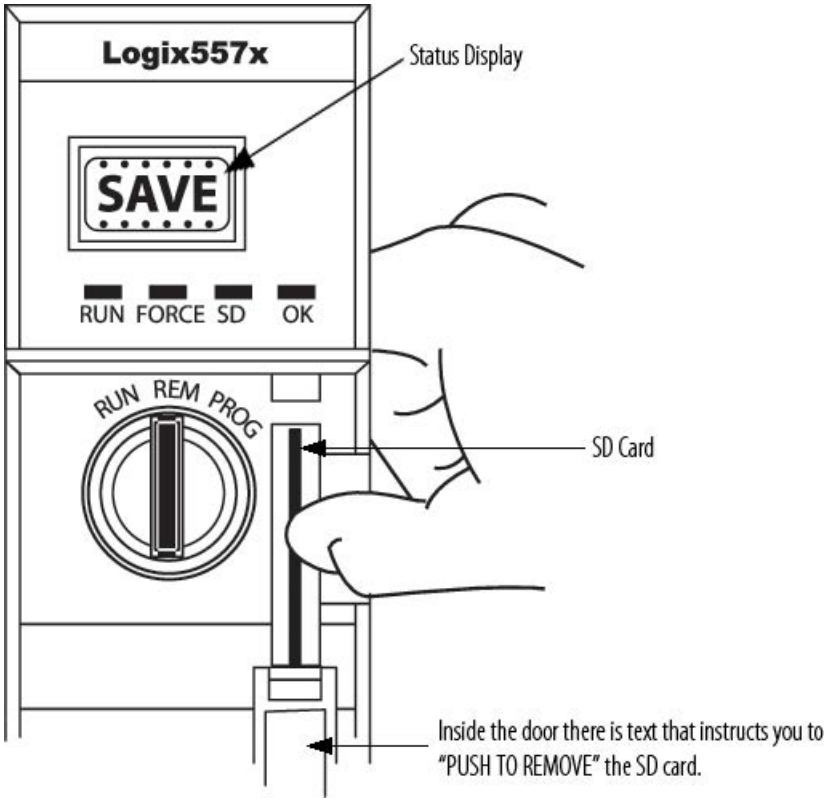
9. To store the project, click **Yes**.

   The table describes the events that occur for the memory card being used.

If using	This happens during the store
CompactFlash Card	• On the front of the controller, the OK status indicator shows the following sequence: flashing green > solid red > solid green. • Logix Designer application goes offline. • A dialog box indicates the store operation is in progress.
SD Card	• On the front of the controller, the SD and OK status indicators flash green. • The Status Display shows *SAVE*. See the illustration. • A dialog box tells you that the store is in progress.

10. Click **OK**.

When the store operation is finished, you remain offline.



For procedures on loading and removing the SD card in the card slot, see the ControlLogix System User Manual, publication 1756-UM001.

Load a project

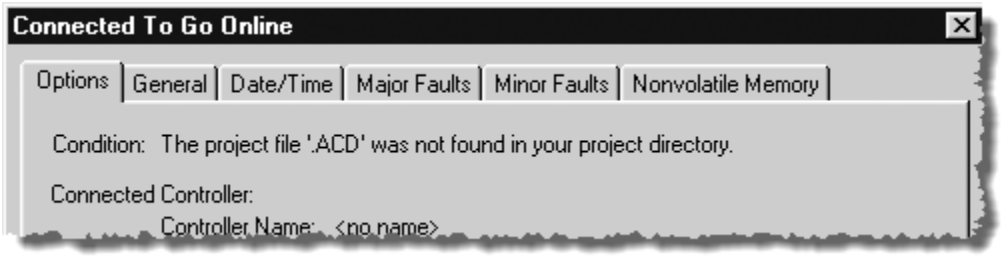
Follow these steps to use the Logix Designer application to load the project from a memory card.

ATTENTION: During a load operation, all active servo axes are turned off. Before you load a project, make sure that this does not cause any unexpected movement of an axis.

Important: Make sure the SD card is unlocked if set to load **On Power Up** before using the ControlFLASH software. Otherwise, the updated data may be overwritten by firmware on the SD card. An error message appears. See the ControlLogix System User Manual, publication 1756-UM001 before updating.

1. Go online with the controller.

2. Did the **Connected To Go Online** dialog box open?

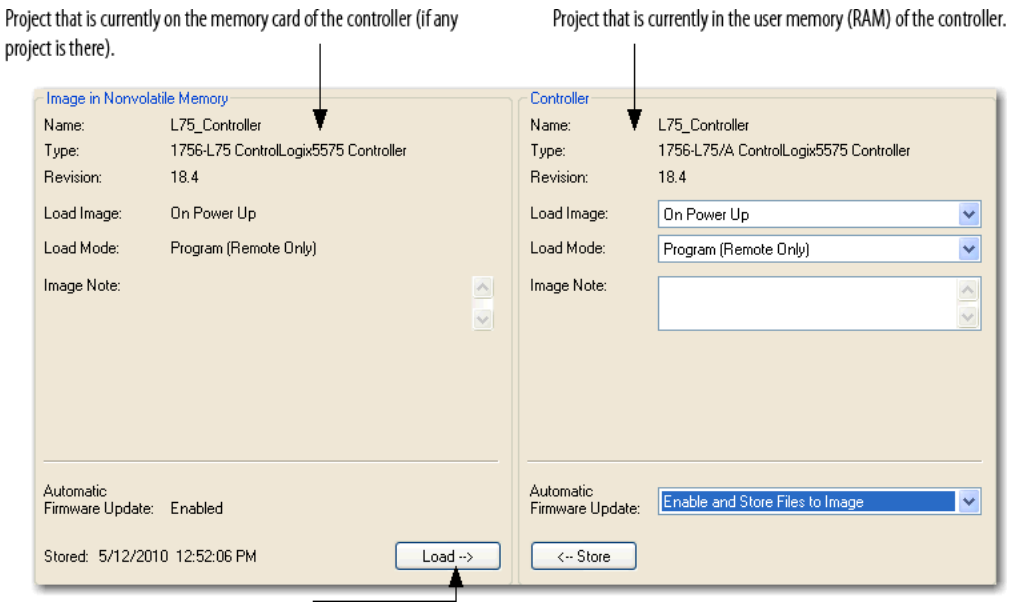


If	Then
No	a. Put the controller in **Program** mode (Rem Program or Program). b. On the **Online** toolbar, click the **Controller Properties** icon.
Yes	Put the controller in **Program** mode (Rem Program or Program). You can either: • Click the **General** tab on the **Connected To Go Online** dialog box. • Use the keyswitch on the front of the controller.

3. On the **Controller Properties** dialog box, click the **Nonvolatile Memory** tab.

4. Click **Load/Store**.

5. At the bottom of the **Image in Nonvolatile Memory** area, click **Load -->**.



A dialog box asks you to confirm the load.

6. To load the project from the memory card, click **Yes**.

The table describes the events that occur for these memory cards.

Logix Designer application goes offline.

When the load is finished, you remain offline.

If using	And the load	Then the OK status indicators display
CompactFlash Card	Does not include firmware	Solid red> solid green
	Includes firmware	Flashing red> solid red> solid green
SD Card	Does not include firmware	OK status indicator is solid green; SD status indicator flashes green. Status Display shows *LOAD*. See the illustration.
	Includes firmware	OK status indicator flashes red; SD status indicator flashes green. Status Display shows *UPDT*. See the illustration.

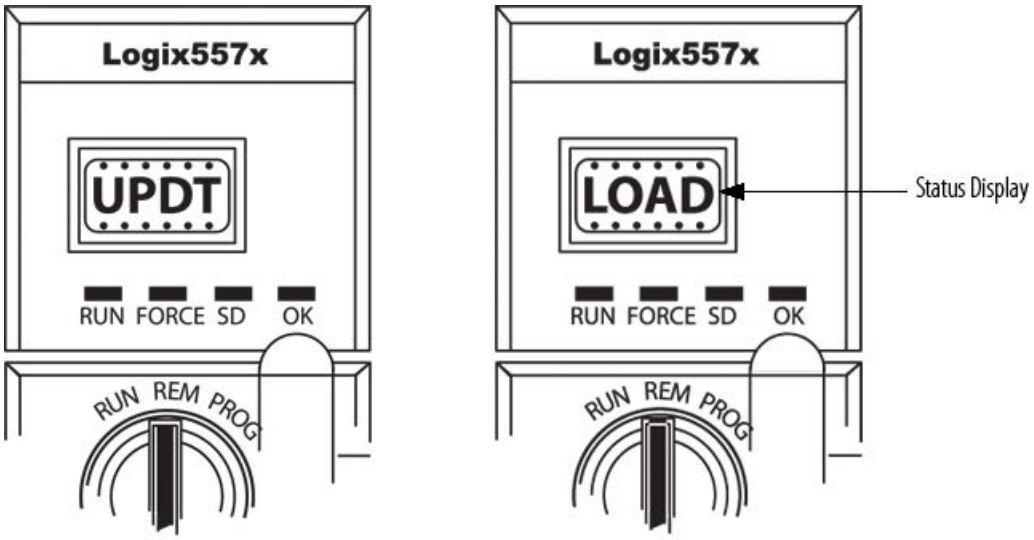


Figure 1: Load and Update Examples on the Status Display

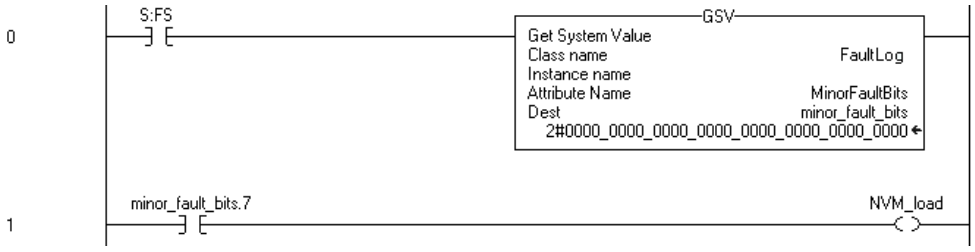
Check for a load

When the controller loads a project from a memory card, it:

- Logs a minor fault (type 7, code 49).
- Sets the FaultLog object, MinorFaultBits attribute, bit 7.

If you want your project to flag that it loaded from a memory card, use this logic.

On the first scan of the project (S:FS is on), the GSV instruction gets the FaultLog object, MinorFaultBits attribute, and stores the value in minor_fault_bits. If bit 7 is on, the controller loaded the project from its memory card.



Where	Is
Minor_fault_bits	Tag that stores the FaultLog object, MinorFaultBits attribute. Data type is DINT.
NVM_load	Tag that indicates that the controller loaded the project from its memory card.

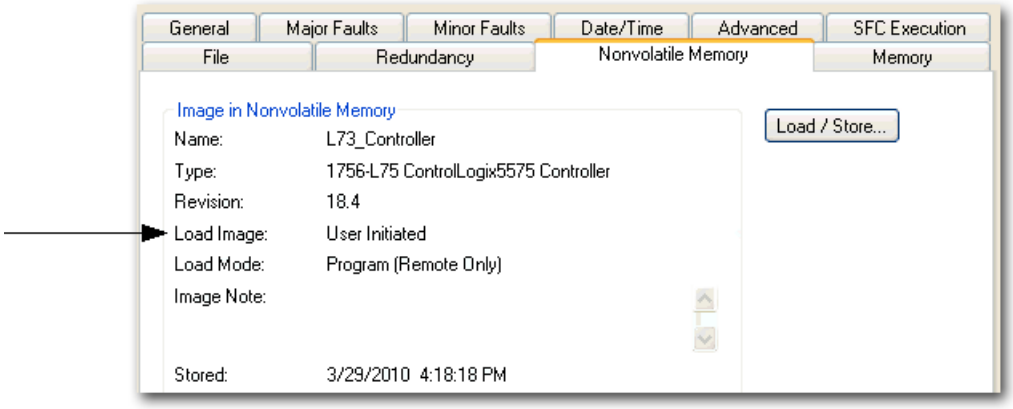
Clear a memory card

Follow these steps to remove a project from a memory card.

1. Go online with the controller.
2. On the **Online** toolbar, click the **Controller Properties** icon.

Tip: For 1756-L7x controllers only, *Energy Storage* instead of *Battery OK* appears adjacent to the controller properties icon. See the ControlLogix System User Manual, publication 1756-UM001, for information on the Energy Storage Module.

3. On the **Control Properties** dialog box, click the **Nonvolatile Memory** tab.



4. Is **Load Image** set to **User Initiated**?

If	Then
No	Go to Change the load image option on page 24.
Yes	Go to Clear the project from the controller on page 25.

Change the load image option

1. On the **Nonvolatile Memory** tab, click **Load/Store**.
2. From the **Load Image** list, choose **User Initiated**.
3. Click **<- Store**.

   Important: Store is not active if a SD card is locked.

   A dialog box asks you to confirm the store operation.
4. To store the project, click **Yes**.

   A dialog box indicates the store operation is in progress.
5. Click **OK**.

   Wait until the OK status indicator on the front of the controller is steady green. This indicates the store operation is finished.

Clear the project from the controller

If your application allows you to clear a project, follow these steps.

1. With power still applied to the controller, disconnect the battery or other energy storage module from the controller.
2. Cycle the power to the chassis.
3. Reconnect the battery or other energy storage module to the controller.

   For more information, see these publications.

   - ControlLogix Energy Storage Modules Installation Instructions, publication 1756-IN616.
   - ControlLogix System User Manual, publication 1756-UM001.

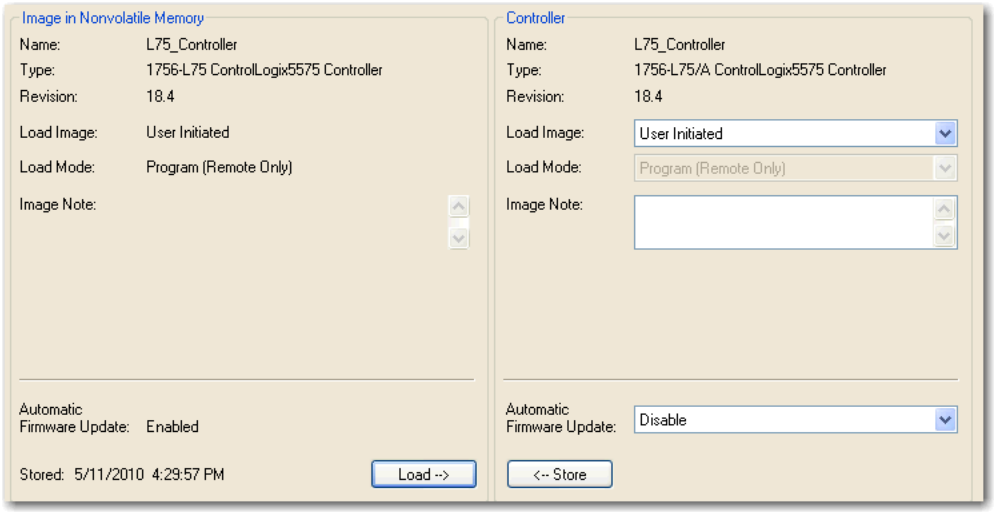
Store the empty image

1. Go online with the controller.

   The **Connected To Go Online** dialog box opens.

2. On the **Controller Properties** dialog box, click the **Nonvolatile Memory** tab.

3. Click **Load/Store**.



4. At the bottom of the **Controller** area, click **<--Store**.

   Important: Store is not active if a SD card is locked.

   A dialog box asks you to confirm the store operation.

5. Click **Yes** to store the project.

   The table describes the events that occur for the memory card being used.

If using	This happens during the store operation
CompactFlashCard	• On the front of the controller, the OK status indicator displays the following sequence: flashing green> solid red> solid green. • Logix Designer application goes offline. • A dialog box indicates the store is in progress.
SD Card	• On the front of the controller, the SD and OK status indicators flash green. • The Status Display shows *SAVE*. See Store a project on page 17. • Logix Designer application goes offline. • A dialog box tells you that the store operation is in progress.

6. Click **OK**.

   When the store operation is finished, you remain offline.

Use a memory card reader

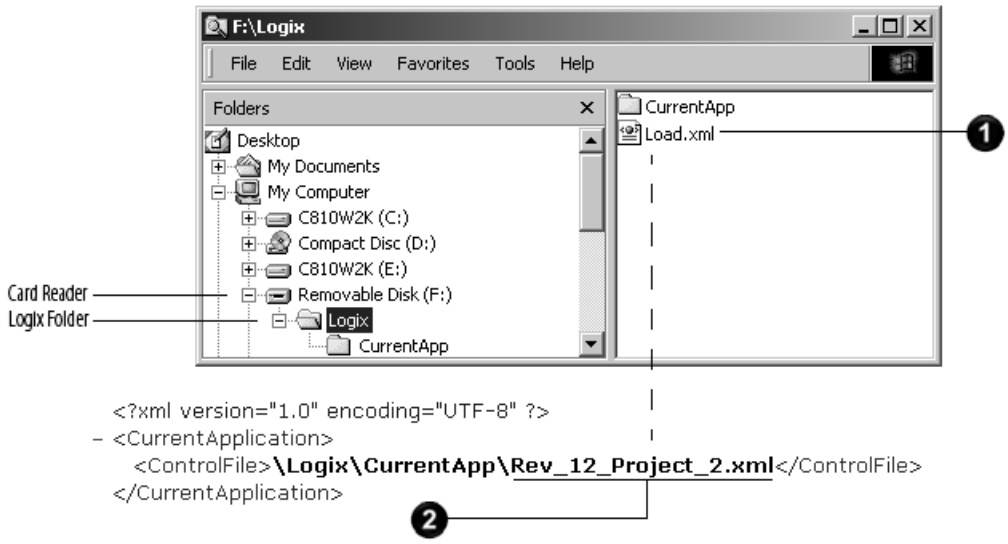
Introduction

A sample controller project that reads and writes a memory card is available with the Logix Designer application. In the application, from the **Help** menu, choose **Vendor Sample Projects** to display a list of available sample projects.

Change which project loads

A memory card can store multiple projects. By default, the controller loads the project that you most recently stored, according to the load options of that project.

To assign a project to load from the memory card, edit the **Load.xml** file on the card by following the steps that match the numbers in the illustration.



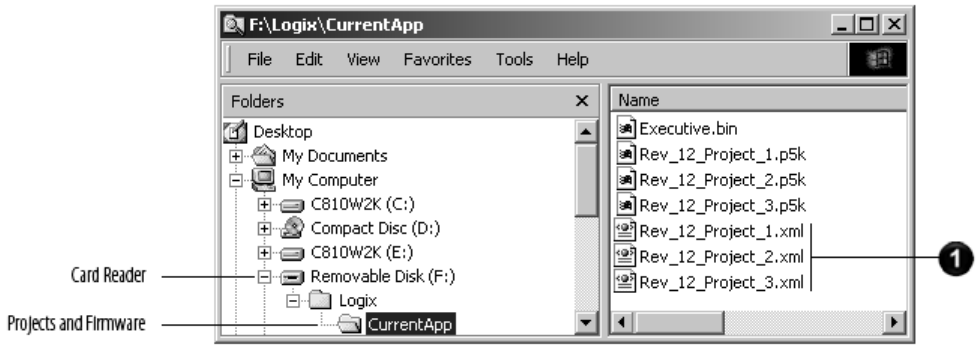
	Description
1	To change the project that loads from the card, use a text editor to open the **Load.xml** file.
2	Edit the name of the project that you want to load. • Use the name of an XML file that is in the CurrentApp folder. • In the CurrentApp folder, a project is comprised of an XML file and a P5K file.

Change the load parameters

When you store a project to a memory card, you define:

- When to load the project (On Power Up, On Corrupt Memory, User Initiated).
- What mode to set the controller (if the keyswitch is in REM and the Load mode is not User Initiated).

To assign a project to load from the memory card, edit the **Load.xml** file on the card by following the steps that match the numbers in the illustration.




```
<?xml version="1.0" encoding="UTF-8" ?>
- <Controller>
  - <ExecutiveLoadOption>
      <ExecFile>\Logix\CurrentApp\Executive.bin</ExecFile>
    </ExecutiveLoadOption>
  - <ProgramLoadOption>
      <ProgramLoadMode>CORRUPT_RAM</ProgramLoadMode>
      <LoadFile>\Logix\CurrentApp\Rev_12_Project_2.p5k</LoadFile>
    </ProgramLoadOption>
  - <ControllerModeOption>
      <ControllerMode>RUN</ControllerMode>
    </ControllerModeOption>
  </Controller>
```

	Description
1	To change the load parameters for a project, use a text editor to open the XML file with the same name as the project.
2	Edit the Load Image option of the project.

To set the Load Image option to:	Then enter:
On Power Up	ALWAYS
On Corrupt Memory	CORRUPT_RAM
User Initiated	USER_INITIATED

3. Edit the Load Mode option of the project (does not apply if the Load Image option is User Initiated).

To set the Load Mode option to:	Then enter:
Program (Remote Only)	PROGRAM
Run (Remote Only)	RUN

Other uses for a memory card

For these controllers, you can use the memory card to store data and controller projects.

- 1756 ControlLogix controllers, revision 13 and later
- 1756-L7x ControlLogix controllers, firmware revision 18 and later
- 1756 GuardLogix controllers, revision 18 and later
- 1769-L32E CompactLogix controllers, serial number SS0QZ000 and later
- 1769-L35E CompactLogix controllers, serial number SS0OR9GE and later
- CompactLogix 5370 controllers, revision 20 and later

Observe these examples:

- A PanelView terminal changes tag values in a controller project. If a controller loses power, and is not battery backed up, it loses the program running in the controller and the values changed by the PanelView terminal. Use the memory card and logic in the project to store tag values as they change. When the project reloads from the memory card, it can check the memory card for any saved tag values and reload those into the project.
- Store a collection of recipes on the memory card. To change a recipe, program the controller to read data for the new recipe from a memory card.
- Program the controller to write data logs at specific time intervals.

You can also use a memory card reader to read and write memory cards. This method writes tag values in binary. You can read the data with any text editor, but the data displays as the ASCII equivalent of the binary data.

For more information, see the sample projects available with the Logix Designer application. In the application, from the **Help** menu, choose **Vendor Sample Projects** to display a list of sample projects.

You can also see the 28539 Technical Note Working with the CompactFlash File System on Logix5000 Controllers from the MySupport Knowledgebase. Access this database by clicking the Knowledgebase link from http://www.rockwellautomation.com.

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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 and application notes, sample code, and links to software service packs. You can also visit our Support Center at https://rockwellautomation.custhelp.com for software updates, support chats and forums, technical information, FAQs, and to sign up for product notification updates.

In addition, we offer multiple support programs for installation, configuration, and troubleshooting. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/services/online-phone.

Installation assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support 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 available at http://www.rockwellautomation.com/locations, 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.

Documentation feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the feedback form, publication RA-DU002.

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