

1769 CompactLogix Packaged Controllers, Revision 19

Catalog Numbers 1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E

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This publication describes enhancements, anomalies (known and corrected), and restrictions for 1769-L3x CompactLogix™ packaged controllers, revisions 19.015, 19.013, and 19.011.

Table 1 - Controllers and Firmware Revisions

Cat. No.	Major and Minor Revision No.
1769-L31 1769-L32C 1769-L32E 1769-L35CR 1769-L35E	19.015

IMPORTANT

Consider the following before upgrading the firmware on your Logix5000™ controller:

- Before updating your controller, we strongly recommend that you review information pertinent to previous major firmware revisions. For example, when updating from revision 17.xxx to 19.xxx, view information in the following publications:
 - CompactLogix Controllers, Revision 17 Release Notes, publication [1769-RN012](#)
 - CompactLogix Controllers, Revision 18 Release Notes, publication [1769-RN013](#)

Firmware release notes contain material for all minor revisions subsequent to each major revision. If your controller, for example, is at revision 17.011, and not the last minor revision, 18.015, you should view all of the information for revisions 17.011...18.015 before updating to revision 19.xxx.

Release notes are available at: <http://www.rockwellautomation.com/literature>.
- After upgrading the firmware on your module, we strongly recommend that you **retest or validate your application offline before going online.**

Compatible Software Versions

To use these firmware revisions, these minimum software versions are required.

Table 2 - Compatible Software Versions

Software	Required Version
RSLinx [®] Classic	2.057 (CPR 9, SR3)
RSLinx Enterprise	5.030 (CPR 9, SR3)
RSLogix [™] 5000	19.01.00 (CPR 9, SR3)
RSNetWorx [™] for ControlNet	10.01.00 (CPR 9, SR3)
RSNetWorx for DeviceNet	
RSNetWorx for EtherNet/IP	
Software	Required Version

Before You Begin

Before you upgrade your firmware, consider the following.

IMPORTANT

Loss of communication or power during a controller firmware upgrade may result in the controller rejecting the new firmware. If the controller firmware upgrade fails due to the conditions described, these corrective actions may be required:

- Cycle controller power and successfully complete the firmware upgrade.
- If a nonrecoverable fault occurs, return the controller for factory repair.

The preliminary actions are required before upgrading your controller firmware.

Table 3 - Before You Begin

If	Then
You are using ControlFLASH software, version 9 (CPR9 SR3) with firmware revision 19	<p>Consider the following before you install the software:</p> <ul style="list-style-type: none"> • We recommend you install RSLinx communication software, version 2.057, before you install ControlFLASH software, version 9 (CPR9 SR3). • If you install RSLinx communication software, version 2.057, before you install ControlFLASH software, version 9, you can enable or disable the FactoryTalk[®] Security platform during ControlFLASH software, version 9, installation. However, to disable the FactoryTalk Security platform, you must first uninstall ControlFLASH software, version 9, then reinstall it. • If the FactoryTalk Security platform is enabled during ControlFLASH software, version 9, installation, the software opens with a Select FactoryTalk Directory dialog box. At that dialog box, click the following: <ul style="list-style-type: none"> – Network – Local – Cancel - If you click Cancel, you must select a directory. • ControlFLASH software, version 9, only integrates the FactoryTalk Security platform in the FactoryTalk Services Platform, version 2.030 or later.
You are upgrading the firmware	<p>Allow the upgrade to complete without interruption. If you interrupt the firmware upgrade either in the software or by disturbing the physical media, you may render the packaged controller inoperable.</p> <p>During an upgrade of the CompactLogix firmware, the ControlFLASH utility displays various progress dialog boxes. The progress dialog boxes contain these status statements:</p> <ul style="list-style-type: none"> • Transmitting block . . . • Polling for power-up . . . <p>It is crucial that you do not interrupt the firmware upgrade while these progress statements display. Once the Update Status dialog box indicates that the firmware upgrade is complete, you may adjust your controller's network connection, make changes using controller-related software, or cycle controller power.</p> <p>For more information about upgrading your CompactLogix packaged controller firmware, see information posted at http://www.rockwellautomation.com/knowledgebase/</p>

Table 3 - Before You Begin

If	Then
Your controller is connected to a DH-485 network	Disconnect it from the DH-485 network before you update the firmware of the controller. If you update the firmware of a controller while it is connected to a DH-485 network, communication on the network may stop.
<p>Important: This applies only to 1769-L32E and 1769-L35E controllers.</p> <p>You are upgrading a 1769-L32E or 1769-L35E CompactLogix controller</p>	<p>Before upgrading, we recommend you complete the following tasks before attempting to upgrade controller firmware from revision 16 or earlier to revision 19:</p> <ul style="list-style-type: none"> • First, check the status of the MS (module status) status indicator next to the Ethernet port. If it is flashing red before you begin the upgrade, additional action may be required. Contact Rockwell Automation Technical Support for more information. • Modify the Port Configuration for the Ethernet card so that the Network Configuration Type is set to Static and assign a valid IP address. • If RSWho is actively browsing the controller through an Ethernet or serial connection, close the RSWho window to stop the browse. • If other controllers are messaging to the 1769-L32E or 1769-L35E controller, take the other controllers off the network or put them in Program mode. • If there are controllers consuming tags from the 1769-L32E or 1769-L35E controller, remove them from the network. • If there are HMI devices connected to the controller, disconnect them from the network or shut them down. <hr/> <p>IMPORTANT If you cannot perform the tasks listed above before attempting a controller firmware upgrade, Ethernet traffic on the controller's Ethernet port may cause the ControlFLASH utility to time out during the firmware upgrade.</p> <p>If the timeout is not handled properly, you may render the Ethernet port on the controller inoperable, requiring you to return the controller to Rockwell Automation for repair.</p> <p>In the event that a ControlFLASH timeout occurs, the software displays an error dialog box indicating that the 'Target Device failed to report the new revision number', or that the upgrade 'Failed to begin update to the target device'.</p> <p>If those error dialog boxes display, check the MS status indicator. If the indicator is flashing red, the upgrade is still in progress and should not be interrupted. Do not cycle power to the controller while the status indicator is flashing red.</p> <p>If the upgrade completes, the controller power cycles itself and indicates the upgrade is complete with a solid green MS status indicator. The time required to complete the upgrade is dependent on the level of Ethernet traffic.</p> <p>If the controller does not complete the upgrade, the MS status indicator continues flashing red. In this case, contact Rockwell Automation Services and Support.</p> <hr/>

Enhancements

These enhancements are available when you use these firmware revisions with RSLogix 5000 software, version 19

- [Enhancements with Firmware Revision 19.013 on page 4](#)
- [Enhancements with Firmware Revision 19.011 on page 4.](#)

Table 4 - Enhancements with Firmware Revision 19.013

Cat. No.	Description
1769-L32E, 1769-L35E	Series B support for 1769-L3x controllers.

Table 5 - Enhancements with Firmware Revision 19.011

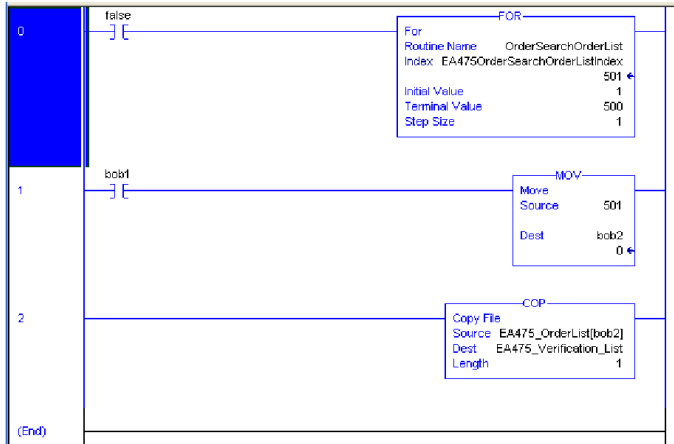
Cat. No.	Description
1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	Option to Suppress Array Faults During Postscan of SFC Actions. Use this feature to configure your application so that selected faults, that is, 4/20 and 4/83, encountered when an SFC action is postscanned, are suppressed. When the fault is suppressed, the controller uses an internal fault handler to clear it. Clearing the fault causes the postscan process to skip the instruction containing the fault and continue with the next instruction. This enhancement is valid only when SFC instructions are configured for automatic reset.

Corrected Anomalies

These anomalies have been corrected with these firmware revisions.

- [Corrected Anomalies with Firmware Revision 19.015 on page 4](#)
- [Corrected Anomalies with Firmware Revision 19.013 on page 5](#)
- [Corrected Anomalies with Firmware Revision 19.011 on page 5](#)

Table 6 - Corrected Anomalies with Firmware Revision 19.015

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	<p>CORRECTED: If a FOR instruction is scanned true, and an instruction has an index out of range that references a UDT or a multi-dimensional array, the controller will fault. Clearing the fault and returning to Run mode will cause a non-recoverable major fault.</p> 

Lgx00135466, Lgx00118590

Table 6 - Corrected Anomalies with Firmware Revision 19.015

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	<p>CORRECTED: Your controller might experience an anomaly when browsing the 1769 CompactBus or through a 1769-SDN on the 1769 CompactBus. Signs of the anomaly are as follows.</p> <ul style="list-style-type: none"> • Browsing of the DeviceNet network will not occur. • Browsing of the local 1769 CompactBus will not occur. • Messages targeted to I/O modules on the local 1769 CompactBus will continuously error. • Messages to devices on DeviceNet will continuously error. <p>Once the controller has entered this state, the only way to correct the anomalous behavior is to do the following.</p> <ol style="list-style-type: none"> 1. Power down the controller. 2. Remove the battery. 3. Let the controller set for approximately five minutes. 4. Reconnect the battery. 5. Redownload the application. <p style="text-align: right;">Lgx00135035, Lgx00129484</p>
	<p>CORRECTED: When using the IOT (Immediate Output) instruction with a CompactLogix controllers data integrity anomalies on the 1769 CompactBus may occur.</p> <p>When using the IOT instruction there is the potential that data integrity anomalies will be seen. These data integrity anomalies will occur for one RPI.</p> <p>For example:</p> <p>An IOT instruction is used with an 1769-OB16 module. The 1769-OB16 module outputs are wired back to a 1769-IQ16F module. When the IOT instruction is trigger for the 1769-OB16 module, the input values that are seen for the 1769-IQ16F module may not match the values sent by the 1769-OB16 module for one RPI. This does not occur every time the IOT instruction is executed.</p> <p style="text-align: right;">Lgx00133424, Lgx00132827</p>

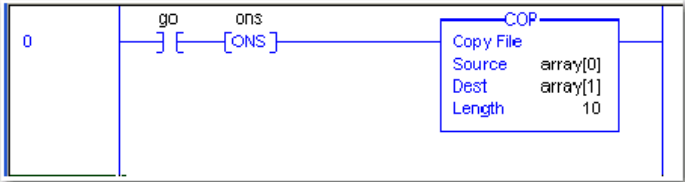
Table 7 - Corrected Anomalies with Firmware Revision 19.013

Cat. No.	Description
1769-L32E, 1769-L35E	<p>CORRECTED: Connection timeout events between the embedded NetLinX module and the controller were not handled correctly. When this occurred, connection resources and memory resources related to RSLinx optimized communication packets were not released. This resulted in the controller running out of connection and memory resources over time.</p> <p style="text-align: right;">Lgx00115842</p>

Table 8 - Corrected Anomalies with Firmware Revision 19.011

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	<p>CORRECTED: Controller may fail to transition from Run mode to Program mode when some MSG instruction types are used.</p> <p>The failure to transition to Program mode occurs after the controller receives an 0x13 error code, that is, Configuration Data too Short. When a transition request is made after the controller receives an 0x13 error code, the controller acknowledges the request but never completes the transition.</p> <p>Either of the following conditions cause this anomaly to occur:</p> <ul style="list-style-type: none"> • Controller executes SLC Typed Write message with the Number of Elements exceeding 108 bytes • Controller executes SLC Typed Read message with the Number of Elements exceeding 118 bytes <p>The controller remains in Run mode until power is cycled.</p> <p style="text-align: right;">Lgx00113381, Lgx00109216</p>
	<p>CORRECTED: Serial port UART may stall during communication between a controller and a device.</p> <p>This anomaly may have manifested itself in the following conditions when a controller is connected to another device, such as a PanelView™ terminal, through its serial port:</p> <ul style="list-style-type: none"> • Communication through the serial port stops completely. • The controller's RS-232 status indicator turns solid green. <p>Execute either of the following tasks to resume communication over the serial port connection:</p> <ul style="list-style-type: none"> • Cycle power to the controller. • Change the serial port configuration, for example, the node number. <p>For more information about this anomaly, see the Technical Note titled Serial Port UART Appears To Be Stalling #67950, in the Technical Support Knowledgebase available at http://www.rockwellautomation.com/knowledgebase/.</p> <p style="text-align: right;">Lgx00113379, Lgx00106893</p>

Table 8 - Corrected Anomalies with Firmware Revision 19.011 (Continued)

Cat. No.	Description																																																
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	<p>CORRECTED: The Copy File (COP) Synchronous Copy File (CPS) instruction use may result in Unexpected Execution. If the COP or CPS instructions are configured so that the source and destination tags overlap, the instruction has unexpected execution. For example, these graphics show an example COP instruction and its tag values before execution.</p>  <table border="1" data-bbox="344 688 850 1037"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>array</td> <td>{...}</td> </tr> <tr> <td>array[0]</td> <td>0</td> </tr> <tr> <td>array[1]</td> <td>1</td> </tr> <tr> <td>array[2]</td> <td>2</td> </tr> <tr> <td>array[3]</td> <td>3</td> </tr> <tr> <td>array[4]</td> <td>4</td> </tr> <tr> <td>array[5]</td> <td>5</td> </tr> <tr> <td>array[6]</td> <td>6</td> </tr> <tr> <td>array[7]</td> <td>7</td> </tr> <tr> <td>array[8]</td> <td>8</td> </tr> <tr> <td>array[9]</td> <td>9</td> </tr> </tbody> </table> <p>The result should be an array that contains all zeros. Instead, the result is an array that contains the values shown in this graphic.</p> <table border="1" data-bbox="344 1142 850 1486"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>array</td> <td>{...}</td> </tr> <tr> <td>array[0]</td> <td>0</td> </tr> <tr> <td>array[1]</td> <td>0</td> </tr> <tr> <td>array[2]</td> <td>1</td> </tr> <tr> <td>array[3]</td> <td>2</td> </tr> <tr> <td>array[4]</td> <td>3</td> </tr> <tr> <td>array[5]</td> <td>3</td> </tr> <tr> <td>array[6]</td> <td>5</td> </tr> <tr> <td>array[7]</td> <td>6</td> </tr> <tr> <td>array[8]</td> <td>7</td> </tr> <tr> <td>array[9]</td> <td>7</td> </tr> </tbody> </table>	Name	Value	array	{...}	array[0]	0	array[1]	1	array[2]	2	array[3]	3	array[4]	4	array[5]	5	array[6]	6	array[7]	7	array[8]	8	array[9]	9	Name	Value	array	{...}	array[0]	0	array[1]	0	array[2]	1	array[3]	2	array[4]	3	array[5]	3	array[6]	5	array[7]	6	array[8]	7	array[9]	7
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Lgx00114495, Lgx00114576

Table 8 - Corrected Anomalies with Firmware Revision 19.011 (Continued)

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	<p>CORRECTED: PCCC command bit write does not update the controller.</p> <p>When you use PCCC command bit write (CMD OF FNC 02) to execute bit-level writes to a controller, the PCCC command appears to complete successfully but does not. Consequently, the data in the controller does not change in the targeted address in the memory. Instead, the write operation writes to the wrong address in memory; this may potentially cause a major non-recoverable fault.</p> <p>A typical condition where you may be using this command is when you set up PLC/SLC™ mapping in the controller that is the target of the communication. Additionally, you can use this command when communicating to a Logix controller from legacy systems that do not use the CIP protocol.</p> <p>Logix controllers do not initiate this command.</p> <p>For more information about this anomaly, see the Technical Note titled Bit writes fail with a Standard PanelView to a ControlLogix® processor with revision 18 firmware when using SLC/PLC mapping #69234, in the Technical Support Knowledgebase available at http://www.rockwellautomation.com/knowledgebase/.</p> <p style="text-align: right;">Lgx00113378, Lgx00111497</p>
	<p>CORRECTED: A watchdog fault occurs during prescan on a transition from Program mode to Run mode.</p> <p>In large applications that include elements, such as many Add-On Instructions, Add-On Instructions with defined prescan routines, and complex Structural Text routines, the prescan could exceed 60 seconds. Because 60 seconds was the prescan watchdog setting, the controller experienced a major recoverable fault.</p> <p>To correct this anomaly, the prescan watchdog has been changed to 300 seconds.</p> <p>IMPORTANT: You cannot configure the prescan watchdog value.</p> <p style="text-align: right;">Lgx00113376, Lgx00112413</p>
	<p>CORRECTED: Controller experiences a major non-recoverable fault during a partial import online to a periodic or event task.</p> <p>This anomaly occurred when the following conditions existed:</p> <ul style="list-style-type: none"> • Program in the Task previously had no Add-On Instructions, and the imported changes included Add-On Instructions. • Program in the Task was being rescheduled under another Task. <p style="text-align: right;">Lgx00112034, Lgx00108203</p>
	<p>CORRECTED: When using Master Control Reset (MCR) zones that contain Add-On Instructions, the rungs may not evaluate correctly. After the Add-On Instruction, the remainder of the MCR zone is scanned as if the MCR zone were scanned true.</p> <p>If your application requires the use of Add-On Instructions in MCR zones, we recommend you reposition the Add-On Instructions before or after the MCR zone and add their own conditional logic.</p> <p>For more information about this anomaly, see the Technical Note titled MCR Zones Containing AOIs May Not Scan Rungs as False in Certain Firmware Revisions #68915, in the Technical Support Knowledgebase available at http://www.rockwellautomation.com/knowledgebase/.</p> <p style="text-align: right;">Lgx00113377</p>
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	<p>CORRECTED: Under certain power cycling conditions, when the on and off times of the controller are typically 10 seconds or less, the controller can power up with no program loaded. At that point, the controller is in one of the following states:</p> <ul style="list-style-type: none"> • The OK and DCHO status indicators are green and the other status indicators are off. • The OK status indicator blinks red, the DCHO status indicator is green, and the other status indicators are off. <p>The controller logs a Type 1 Code 60 major recoverable fault. When attempts are made to upload debug information from the controller, no information is uploaded.</p> <p style="text-align: right;">Lgx00113371, Lgx00113116</p>
	<p>CORRECTED: Intermittent communication loss over an EtherNet/IP network or a ControlNet network.</p> <p>A CompactLogix controller may experience intermittent messaging/HMI communication loss over EtherNet/IP or ControlNet networks when there is only incoming messaging/HMI communication to the controller. If the controller has outgoing messaging communication the anomaly does not occur. Communication will recover by itself with no user intervention.</p> <p style="text-align: right;">Lgx00113374, Lgx00107649</p>
1769-L35E-QB1B	<p>CORRECTED: The 1769-L35E CompactLogix controller, revision 15, experiences memory loss over time. After a week the controller available memory is so low that incoming connections are not possible.</p> <p style="text-align: right;">Lgx00115842</p>

Known Anomalies

These anomalies have been identified with firmware revision 19.

- [Known Anomalies with Firmware Revision 19.015 and Earlier on page 8.](#)

Table 9 - Known Anomalies with Firmware Revision 19.015 and Earlier

Cat. No.	Description
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	<p>Applications that have a large quantity of HMI tags on scan in the controller can experience a non-recoverable major fault when doing online edits. Lgx00135042, Lgx00118193</p> <p>The controller will not log a minor fault Type 6 (Task Overlap), Code 4 (VA Task) when the RPI(s) for 1769 I/O modules are set incorrectly, that is too fast. Lgx00135044, Lgx00118176</p>
	<p>When you perform a Partial Import Online (PIO) of a function block routine that contains S-curve function blocks across Logix platforms, set the .Initialize bit in the backing tag control structure of all S-curve instructions. This configuration causes the S-curve instructions to reinitialize themselves. Failure to set the .Initialize bit in the backing tag control structure of all S-curve instructions may cause the S-curve function block to execute with uninitialized values. Lgx00135047, Lgx00114927</p>
	<p>Unsuccessful MSG execution results in subsequent unsuccessful messages in master/slave controller configurations. When a DF-1 serial connection is used between a master and slave controller, a MSG instruction is not successfully executed and an in-polling sequence error occurs if the master station address is not listed in the poll node list. However, with this anomaly, after the in-polling sequence error, subsequent MSG instructions are also unsuccessful. To work around this anomaly, change the master controller's station address to a different value or re-execute the unsuccessful MSG instruction in Master Transmit mode and use the Between Station Polls parameter. Lgx00083882, Lgx00082610</p>
	<p>PI function block appears to stop executing as the output does not change and no instruction faults are logged. If the PI instruction is being used in Linear mode, this floating-point equation is used to calculate the ITerm.</p> $Kp \times Wld \times \frac{WldInput + WldInput_{n-1}}{2} \times DeltaT + ITerm_{n-1}$ <p>Due to the use of the single-precision floating point values, it may be possible, depending on the values of WLD and KP, for the ITerm value to be small enough, less than 0.0000001, to be lost when adding to the ITerm_{n-1}. For more information regarding the PI instruction, see the Logix5000 Controllers Process Control and Drives Instructions User Manual, publication 1756-RM006. Lgx00070832</p>
	<p>Changes made to the Buffer Timeout value for FactoryTalk Alarms and Events subscribers do not take effect until the existing buffer has been deleted. The FactoryTalk alarm buffer (stored in Logix controller memory) is designed to persist through power cycles. If you change the Buffer Timeout value (via the Communication Setup dialog box in FactoryTalk View SE software), the controller does not use the new timeout value until the existing buffer is deleted and then recreated. To force recreation of this buffer, do one of the following:</p> <ul style="list-style-type: none"> • Redownload the project to the controller • Disconnect the FactoryTalk Alarms and Events subscriber and leave it disconnected until the existing timeout expires. <p>Lgx00069461</p>
	<p>When using Add-On Instructions, if you use the same backing/reference tag for multiple Add-On Instructions that are in different tasks, the controller may experience a major non-recoverable (MNRF) fault. For example, you have an Add-On Instruction called Motor_Start that is used twice in the application, once in Periodic Task 1 and once in Periodic Task 2, in both cases the Motor_Start Add-On Instruction uses the same backing/reference tag Pump_Motor_Start. The following events may occur when the program is executing:</p> <ul style="list-style-type: none"> • Periodic Task 1 is executing and the Motor_Start is being scanned. • Periodic Task 2 preempts Periodic Task 1. • Periodic Task 2 runs and the Motor_Start is executed. • Periodic Task 1 is allowed to again execute and completes scanning of the Motor_Start. <p>Upon completion of scanning Motor_Start the controller can MNRF. The MNRF occurs if one instance of the Motor_Start scans false and the other scans true. To work around this anomaly, use individual backing/reference tag for all Add-On Instructions. Lgx00113790, Lgx00113448</p>

Restrictions

These restrictions exist for firmware revision 19.011.

Restrictions with Firmware Revision 19.011

Cat. No.	Description				
1769-L31, 1769-L32C, 1769-L32E, 1769-L35CR, 1769-L35E	<p>The end cap must be attached to the CompactLogix system before you upgrade the controller or I/O module.</p> <p>Enabling the time synchronization feature of a CompactLogix controller results in the controller becoming the local master. It does not result in the controller becoming synchronized with other wall clock times in the system.</p>				
	<p>If a 1769 I/O fault occurs, you must cycle power to the CompactLogix controller after clearing the major fault. I/O communication is not restored until after the power cycle. You should never use the fault handling routine to clear local I/O faults. You should clear local I/O faults manually on a per case basis, and then the controller should be power cycled.</p> <p>When you perform a Partial Import Online (PIO) of a function block routine that contains S-Curve function blocks across Logix platforms, set the .Initialize bit in the backing tag control structure of all S-Curve instructions. This configuration causes the S-Curve instructions to re-initialize themselves. Failure to set the .Initialize bit in the backing tag control structure of all S-Curve instructions, may cause the S-Curve function block to execute with uninitialized values.</p> <p style="text-align: right;">LgX114927, Lgx114935</p>				
	<p>With RSLogix 5000 programming software, version 19, and controller firmware revision 19.011, the Fault/Program states for Compact I/O™ modules are not supported and cannot be configured by using the Module Configuration dialog box.</p> <p>Because the CompactLogix system does not provide support for local modules to use the alternate outputs, do not configure the attributes or tags listed below. These tags are still created when you add the I/O modules to the configuration.</p> <p>Table 10 - Attribute Tags to Avoid</p> <table border="1" data-bbox="386 911 1273 1094"> <thead> <tr> <th data-bbox="386 911 831 953">For Digital Output Modules</th> <th data-bbox="831 911 1273 953">For Analog Output Modules</th> </tr> </thead> <tbody> <tr> <td data-bbox="386 953 831 1094"> <ul style="list-style-type: none"> • ProgToFaultEn • ProgMode • ProgValue • FaultMode • FaultValue </td> <td data-bbox="831 953 1273 1094"> <ul style="list-style-type: none"> • CHxProgToFaultEn • CHxProgMode • CHxFaultMode • Where CHx = the channel number </td> </tr> </tbody> </table>	For Digital Output Modules	For Analog Output Modules	<ul style="list-style-type: none"> • ProgToFaultEn • ProgMode • ProgValue • FaultMode • FaultValue 	<ul style="list-style-type: none"> • CHxProgToFaultEn • CHxProgMode • CHxFaultMode • Where CHx = the channel number
For Digital Output Modules	For Analog Output Modules				
<ul style="list-style-type: none"> • ProgToFaultEn • ProgMode • ProgValue • FaultMode • FaultValue 	<ul style="list-style-type: none"> • CHxProgToFaultEn • CHxProgMode • CHxFaultMode • Where CHx = the channel number 				
	<p>Tasks are the basic scheduling mechanism for executing a program and are created as part of the project and program creation process. In addition to other internal tasks, the CompactLogix controllers have an internal task to provide communication with the 1769 I/O modules. This task executes periodically at the Requested Packet Interval (RPI) selected in the properties of the CompactBus. If the task has not completed before it is time to execute again, a task overlap occurs. This task overlap causes the controller to declare a minor fault of Type = 6 (Task Overlap), Code = 4 (VA task).</p> <p>You can use various strategies to resolve minor faults due to task watchdog timeout and/or task overlap. For more information, see RSLogix 5000 programming software Online Help 'Identifying and Managing Tasks'. In the case of a minor fault caused by VA task overlap, increase the RPI until the overlap no longer occurs.</p>				
1769-L31	<p>With a 1769-L31 controller, you cannot bridge from one serial port to the other. However, you can bridge from either serial port to the DeviceNet network via the 1769-SDN scanner.</p>				

Install the Controller Revision

To install the latest CompactLogix controllers revision, go to <http://support.rockwellautomation.com/ControlFlash> to download your revision. Then use the ControlFLASH utility to upgrade your packaged controller.

Alternatively, if you have installed RSLogix 5000 software, version 17, and related firmware, you may not need to complete the tasks described. The AutoFlash feature of RSLogix 5000 software, version 17, detects if your packaged controller firmware needs upgraded upon a program download to the packaged controller. If a firmware upgrade is necessary, AutoFlash will initiate an update.

After you have completed your firmware upgrade, you should complete these steps to verify that the upgrade was successful.

1. Cycle power to the packaged controller.
2. Go online with the packaged controller and view packaged controller properties.
3. Verify that the firmware revision listed matches the firmware to which you intended to upgrade.
4. If the packaged controller's firmware is not correct, initiate another firmware upgrade.

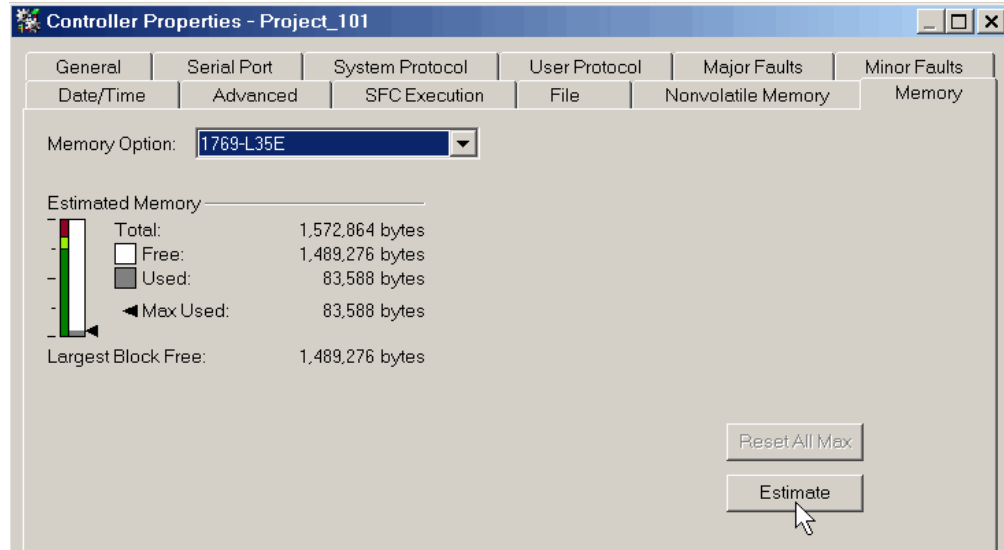
For more information about errors when completing a ControlFLASH upgrade, see the ControlFLASH Firmware Upgrade Kit Quick Start, publication [1756-QS105](#).

Additional Memory Requirements

This firmware revision may require more memory than previous revisions (for example, 10.xxx, 11.xxx). To estimate additional memory requirements for your application, you can either use the memory estimation tool provided with RSLogix 5000 software or the tables provided in these release notes.

Use the Estimate Tool

To estimate the amount of memory required by your application, convert the project to the controller revision desired and use the Estimate tool available in the Memory tab of the Controller Properties.



Estimate Based on Application Components

If you do not have the desired version of RSLogix 5000 software, use this table to estimate the additional memory that your project may require.

If you are upgrading your system through multiple firmware revisions, add all components your application uses for each of the revisions you upgrade through. For example, if you are upgrading from revision 15.xxx to revision 18.xxx, total your application components for revisions 15.xxx to 16.xxx, 16.xxx to 17.xxx, and 17.xxx to 18.xxx.

If you upgrade from revision (add all that apply)	Then add the following memory requirements to your project		Which comes from this type of memory	
	Component	Increase/Decrease Per Instance	I/O	Data and Logic
18.xxx to 19.xxx		<no change>		
17.xxx to 18.xxx	Program	+ 8 bytes		✓
	Equipment phase	+ 20 bytes		✓
	Add-On Instruction	+ 12 bytes		✓
	Each tag In addition, if you use a tag of the types listed below, increase the memory as indicated for each instance:	+ 4 bytes		✓
	Produced tag	+ 36 bytes + (24 bytes * number of consumers)	✓	
	Consumed tag	+ 24 bytes	✓	
	Data access control	+ 4 bytes per symbol		✓
	Tag that uses ALARM_ANALOG data type	- 20 bytes		✓
	Tag that uses ALARM_DIGITAL data type	+ 28 bytes		✓
	Tag that uses MOTION_GROUP data type	+ 76		✓
	Tag that uses AXIS_SERVO_DRIVE or AXIS_GENERIC_DRIVE data type	+ 786 bytes		✓
	Tag that uses AXIS data type other than AXIS_SERVO_DRIVE or AXIS_GENERIC_DRIVE	+ 818 bytes		✓
	Tag that uses COORDINATE_SYSTEM data type with no transform dimensions	+ 40 bytes		✓
	Tag that uses COORDINATE_SYSTEM data type with transform dimensions	+ 100 bytes		✓
Module input connection	+ 20 bytes		✓	
Module output connection	+ 24 bytes		✓	
Safety controller	- 8 bytes		✓	
Safety partner	- 8 bytes		✓	

If you upgrade from revision (add all that apply)	Then add the following memory requirements to your project		Which comes from this type of memory	
	Component	Increase/Decrease Per Instance	I/O	Data and Logic
17.xxx to 18.xxx	For each controller (> 1K bytes change):			
	1756-L6x, 1756-L6xS, 1756-L63XT	+ 16728 bytes		✓
	1768-L4x, 1768-L4xS	+ 14448 bytes		✓
	1769-L2x	+ 35084 bytes	✓	
	1769-L31	+ 14740 bytes	✓	
	1769-L32C, 1769-L35CR	+ 35400 bytes	✓	
	1769-L32E, 1769-L35E	+ 35036 bytes	✓	
	1789-L10, 1789-L30, 1789-L60	+ 4992	✓	

Application Notes

Consider these application notes when configuring, programming, and using an enhanced redundancy system.

Produced/consumed Tags Between Primary Controllers and Nonredundant Controllers

If controllers in the redundant chassis pair produce tags over an EtherNet/IP network that controllers in remote chassis consume, the connection from the remote controller to the redundant controller may briefly drop during a switchover if the remote chassis' EtherNet/IP communication modules do not use specific firmware revisions.

Use these firmware revisions for EtherNet/IP communication modules in the remote chassis to maintain connections during a switchover.

EtherNet/IP Communication Module in Remote Chassis	Minimum Firmware Revision
1756-EN2F	4.002
1756-EN2T	
1756-EN2TR	
1756-EN3TR	
1756-ENBT	6.001
1768-ENBT	4.001
1769-L2x	19.011
1769-L3xE	
1788-ENBT	3.001

IMPORTANT The minimum firmware revisions listed above apply only to EtherNet/IP communication modules in a remote chassis.

In a redundant chassis pair, you can use only the ControlLogix modules listed in the ControlLogix Enhanced Redundancy System Release Notes, Revision 19.53, publication [1756-RN684](#).

Additional Resources

These documents contain additional information about CompactLogix packaged controllers and related products from Rockwell Automation.

Resource	Description
1769 CompactLogix Packaged Controllers, Revision 17 Release Notes, publication 1769-RN012	Describes anomalies and restrictions specific to revision 17 of the CompactLogix packaged controllers.
1769 CompactLogix Packaged Controllers, Revision 18 Release Notes, publication 1769-RN013	Describes anomalies and restrictions specific to revision 18 of the CompactLogix packaged controllers.
CompactLogix Packaged Controllers Quick Start and User Manual, publication IASIMP-QS010	Provides procedures for using your CompactLogix packaged controller as well as additional reference information.
CompactLogix Packaged Controllers Installation Instructions, publication 1769-IN082	Contains complete instructions for installing your CompactLogix packaged controller.
ControlFLASH Firmware Upgrade Kit Quick Start, publication 1756-QS105	Contains informations about firmware upgrades, installation instructions, and error messages.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

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

Tech Notes and other resources are available at the Technical Support Knowledgebase, <http://www.rockwellautomation.com/knowledgebase>.

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, 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. You can also visit our Knowledgebase at <http://www.rockwellautomation.com/knowledgebase> for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnectsm 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, 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 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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Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication [RA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

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