



Firmware Updates

To update the firmware for the SLTA or P1 processor on the MAC-4R, MLC-32I, MLC-16R, and MLC-8IC the following tools will be needed.

- USB Network Interface Adapter
- Open LDV Drivers 2.0 (CD for USB Adapter)
- Nodeutil Utility
- Flash files named as follows: If you have Rev-A panels, you need the 256K version of the “nxe” file, If you have Rev-B or Rev-C panels you need the 512K version of the files, each nxe file will have an _512 added to the name. For example P1_512.nxe.

SLTA	Gate20.nxe
MAC-4R, P1	P1.nxe
MAC-4R, P2	P2.nxe
MLC-32I	PLCIN.nxe
MLC-16R	PLCOUT.nxe
MLC-8IC	PLC8IC.nxe

To update the firmware for P2 processor on the MAC-4R a 78KB Free Topology to 1.25MB Router will also be needed

- LPR-12 Interface, Model # 42102 Router
- To setup the router, see appendix A

MAC-4R Support Information

The MAC-4R Controller has (4) processors, two 3150 processors (P1 and P2) and two 3120's (P3 and P4). P1 handles all the communications, I/O and PLC ladder code and is addressable off the main communications trunk-line (J1, Terminals 5 and 6) or the upper two pins of the RJ45 jack. P1 communicates through an Echelon 78KB Free Topology transceiver.

P2 handles the Card Database and receives card reads from two other on-board 3120 processors. The MAC-4R has an internal 1.25MB Echelon bus allowing the processors to communicate with each other. Access to this network is provided through the lower 2 pins of the on-board RJ45 jack. An Echelon LPR-12 Router is required to bridge the PC's 78KB free topology network to the 1.25MB network.

NodeUtil is a utility used to update firmware and talk directly to the processors. It can be executed from the Windows Explorer screen and operates via command prompts. It communicates through a standard Echelon network interface driver and can utilize a USB port or Ethernet port to gain access to the Echelon network interface. The following examples are using the standard TP/FT-10 USB network interface.

Wiring:

1. Top 2 pins from MAC-4R, RJ45 jack to Router, Network A, 78K Free Topology
2. Bottom 2 pins from MAC-4R RJ45 Jack to Router Network B, 1.2 MB
3. Router Network A to USB TP/FT-10
4. Echelon USB to USB port on PC.
5. Disconnect MAC-4R from main communications dropline, (J1, Terminals 5 and 6)
6. Make sure to set the USB device to Domain 0.

SLTA-10 Support Information

The SLTA has custom firmware to operate with the MAC series controllers. There are two different flash ROM chips used in the SLTA; a Atmel AT29C257 and AT29C512. If you remove the cover you'll see a socketed chip with the label Gate20 on it. If you peel back the label you'll find out which chip was used with the unit. There are two files for firmware updates each matching the chip used; Gate20_257.nxe or Gate20_512.nxe. When using NodeUtil download the matching version.

Wire the USB to Echelon adapter from a USB port on the computer to the 78KB Echelon terminal connections. Using NodeUtil, find the Gate20 processor by following the steps below.

NodeUtil Software:

We suggest you place all the files used to update the firmware in a subdirectory off the root. In our examples we'll be using C:\tech

1. Execute NodeUtil from a Windows Explorer screen. This will open up a window and place you at a NodeUtil> prompt.

When the NodeUtil software first boots, it looks for an Echelon adapter at "Lon1" which is normally your first USB adapter. If it does not find an adapter it will exit the screen. It's important to have your USB adapter set to domain 0. When you hit F to find devices the program will search for all devices on the domain the USB adapter is set to. So when you hit F to find devices it will search for all devices on Domain 0. The only way of getting to P2, P3, and P4 is to have the USB adapter set to domain 0 as these (3) processors are running on Domain 0. The default domain for all the MAC series panels P1, 32I, 16r, 8IC, is domain 1.

After you hit the first "F" to find, if the devices you're looking for did not show up in a list, hit the "1" key and the program will search for all panels in a one byte domain(s). After it

searches domain 1, you should see the control panels and can hit “ESC” to cancel the rest of the search.

Commands we’ll be using from
NodeUtil> Prompt

F -- Find Devices in current Domain
1 -- Find all Devices in 1 Byte Domain
G -- Go to Device menu...
E -- Exit Program

The NodeUtil> prompt allows you to find and list all the devices on the network with in a specific domain. When you go to that device you will get a Device xx> prompt where you can execute commands to that particular device.

NodeUtil Commands from, Device xx> Prompt

E -- Exit back to NodeUtil prompt
G -- Go to another device
O -- Redirect Output to a file
Q -- Quickly send a command
Y -- Download Neural Executable (nxe file)

Software Steps:

1. Execute NodeUtil from a Windows Explorer screen.
2. Hit “F” to Find devices
3. Hit “1” to Find Devices on Domain 1. “Hit Esc” after panels show up to cancel rest of search.
4. Hit “G” to go to a device, All the available devices will be listed with a device number for each. Find the device in the list and enter the proper device number. If you’re updating P1 look for P1 if updating P2 look for P2.
5. Hit “Y” to download firmware. The program will ask you for an nxe file
 - a. If uploading P1 Type: c:\tech\p1.nxe
 - b. If uploading P2 Type: c:\tech\p2.nxe
 - c. If uploading MLC-32I Type: c:\tech\plcin.nxe
 - d. If uploading MLC-16R Type: c:\tech\plcout.nxe
 - e. If uploading MLC-8IC Type: c:\tech\plc8ic.nxe
 - f. If uploading an SLTA (with 257 chip)Type: c:\tech\gate20_257.nxe
 - g. If uploading an SLTA (with 512 chip)Type: c:\tech\gate20_512.nxe
 - h. The firmware will load, when asked to place the controller back online answer Yes.
6. Hit :E” to Exit.
7. Follow the same steps for the next device.

Updating SLTA Adapter

There are three versions of SLTA interfaces, two of which are flash ROM up-gradable. The following chart provides the ROM version required for each interface.

SLTA/2	73000 w/55020	N/A
SLTA/2	73000 w/55020R-10	GATEWAY.NXE
SLTA-10	73351 w/257 chip	GATE20_257.NXE
SLTA-10	73351 w/512 chip	GATE20_512.NXE

Appendix A

The LonWorks router needs to be setup before it will communicate properly. Nodeutil is use to communicate to the router. Nodeutil connects through the open LDV interface and defaults using Lon1. The router has two processors on it. One for the near side and another for the far side. If you hit "F" for find you should be able to see them within the utility. In our example we will be setting both sides to operate as repeaters. Follow the directions below to setup up the router.

Execute NodeUtil from a Windows Explorer screen. This will open up a window and place you at a NodeUtil> prompt.

Commands we will be using

NodeUtil Commands from, NodeUtil> Prompt

- F -- Find Devices in current Domain.
- G -- Go to Device menu...
- E -- Exit Program

The NodeUtil> prompt allows you to list all the devices on the network with in a specific domain. When you go to that device you will get a Device xx> prompt where you can execute commands to a particular processor.

NodeUtil Commands from, Device xx> Prompt

- E -- Exit this device menu
- G -- Go to another device
- M -- Routing Mode
- R -- Repeater
- Y -- Download Neural Executable

Steps

- F -- Find Devices in current Domain
- G -- Goto Device
- x -- Select the Router near side, enter number
- M -- Change Router Mode

M -- Mode
R -- Repeater
M -- Change router Mode
S -- State
C -- Configure

G -- Go to Far Side of router
x -- Select the Router far side, enter number
M -- Change Router Mode
M -- Mode
R -- Repeater
M -- Change Router Mode
S -- State
C -- Configure

E -- Exit
E -- Exit