OSSI
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.exe Program
- Flash files named as follows: If you have Rev-A panels, you need the 256K version of the "nxe" files, If you have Rev-B or C panels you need the 512K version of the files. 512K file are named with a _512.nxe at the end of the file name.

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 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. The 42102 Router supports 78Kb on Network A and 1.2MB on Network B.

NodeUtli.exe 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 should be pluged into the local USB port of PC after loading CD.
5. When you use NodeUtil there's a find command that goes out to the network and finds all processors on the network. It will return a line item for every processor. If you have 10 panels on the line you will get (10) P1 line items. If you are upgrading all of the panels simply run through the list and upgrade each one. If you are only upgrading (1) panel you may want to disconnect MAC-4R from main communications dropline, (J1, Terminals 5 and 6) so you know which panel you're talking to.
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 down load 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.

32i, 16R, and 8IC Support Information

The 32i, 16r, and 8ic all operate through an Echelon 3150 processor. The processor and flash are located on the MPU-24 daughter card. There are two revisions of the MPU-24; Rev_A and Rev_C. Rev_A uses a 256K chip while Rev_C uses a 512K chip. If you have Rev_C you will need to use the _512.nxe files.

Model	Flash
32i Rev_A	PLCIN.NXE
32i Rev_C	PLCIN_512.NXE
16r Rev_A	PLCOUT.NXE
16r Rev_C	PLCOUT_512.NXE
8ic Rev_A	PLC8IC.NXE
8ic Rev_C	PLC8IC_512.NXE

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
NodeUtli> 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 or c:\tech\p1_512.nxe if you have Rev B or C panels
    b. If uploading P2 Type: c:\tech\p2.nxe or c:\tech\p2_512.nxe if you have Rev B or C panels
    c. If uploading MLC-32I Type: c:\tech\plcin.nxe or c:\tech\plcin_512.nxe if you have Rev B or C panels
    d. If uploading MLC-16R Type: c:\tech\plcout.nxe or c:\tech\plcout_512.nxe if you have Rev B or C panels
    e. If uploading MLC-8IC Type: c:\tech\plc8ic.nxe or c:\tech\plc8ic_512.nxe if you have Rev B or C panels
    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. While you are uploading firmware the Green processor light will go on showing the processor id off-line.
6. The firmware will load, when asked to place the controller back online answer Yes. The Green processor light should go off.
7. Hit :G to go to the next device or hit "E" to Exit the device prompt and "E" to exit the program when you have completed all the control panels.
8. Follow the same steps for the next device.
9. ***After the new firmware is installed it's important to perform a "Clear All" within MASC. You should receive a RAM PASS in the Alarm que with the proper version information displayed.***
10. To re-program the control panel download "Setting" and "Cards" from within MASC.

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, NodeUtli> 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