



Customer Service Support System

Search	Downloads	Cubix Home Page	Support Home Page
------------------------	---------------------------	---------------------------------	-----------------------------------

QL 1000 Manual

Table of Contents

[Chapter 1 - Introduction](#)

[Chapter 2 - Installation Checklist](#)

[Chapter 3 - Quick Installation Steps](#)

[Chapter 4 - Installing QL Drivers](#)

[Chapter 5 - Installation Program](#)

[Chapter 6 - Jumper & Switch Settings](#)

[Chapter 7 - QLVision](#)

[Chapter 8 - Loading Application Software](#)



Customer Service Support System

QL 1000 Series Chapter 1 - Introduction

The information in this section will give you a better understanding of the operation and configuration of the Cubix QL Series products. Please take a few minutes to read the information, it will make the installation process easier to follow and understand.

What are QL Series Boards?

QL series boards are "slave-type" boards that fit directly into the bus of your file server or external bridge system. Each board has one or more processors, each with its own cpu, memory, video, and I/O ports. These processors are PC/XT-compatible computers, but without such extras as cases, power supplies, monitors, and keyboards.

How Hard Are They to Install?

You install these boards just like any other LAN Adapter and workstation under NetWare, with a couple of additional steps. You install the drivers, run our installation program, install the boards, and modify or create a batch file to load your application program.

How Do They Work with NetWare?

QL Series boards act as diskless workstations under NetWare. This is the hardest part for technical people to understand, especially if they haven't had previous experience with diskless workstations. We will explain this subject thoroughly to clear up any confusion and mystery about these products, and to make them easier to understand and install.

Apples and Apples or Apples and Oranges

Comparing the QL Series boards to regular network workstations is like comparing apples and oranges. They are both the same (fruit) but yet they aren't both the same (taste). The following diagrams will show you the similarities and differences of both products.

[Figure 1-1](#) shows the main hardware differences between a regular PC network workstation and a QL Series board. Each product is set up with a modem for dial-in communications. You will notice the main difference: the QL Series Board lacks most of the hardware of the PC workstation:

Case: All that sheet metal takes up a lot of space.

Power Supply: We use power from the server's bus, just like any other plug-in board.

Monitor and Keyboard: We don't need these because the user dialing into the modem has them at his or her end. There is no reason to duplicate all this hardware. We do provide you with software that lets you use a monitor and keyboard on your workstation as the QL Series board's monitor and keyboard.

Disk Drive: Instead of booting from a disk in a physical drive, we create a Workstation Boot Diskette and make a file that is an image of the diskette. The QL boards all boot from this Boot Image File located in the file server's \LOGIN subdirectory.

Lan Adapters: Built into the board, it communicates directly across the bus, eliminating boards in the file server and the workstation.

Cables: QL Series boards don't require LAN cables, either.

[Figure 1-2](#) shows the difference between a Boot Diskette for a regular workstation and the Boot Image File for a QL series board processor. Both accomplish the same results - they boot up their workstation, connect it to the server, and display the Novell LOGIN prompt.

The additional files used by the QL Series boards are there to make your job easier, and are unique to the Cubix products. We give you a default batch file (QLUSER.BAT) to load your communications program, or any application you wish to automatically load. Or if you wish, you can create your own unique batch file for each Cubix processor by adding its network node number to the batch file name.

Summary

Now you know the similarities between regular network workstations and QL Series workstations. They both can log in users, execute LOGIN scripts, run application software, send print jobs to the server, and all the other things workstations are designed to do.

QL Series boards, however, don't require monitors and keyboards. To see what the boards are doing, administrators use our QLVision screen redirector function. QLVision and other utilities make the administrator's job as easy as possible.

Thanks for taking time to read this. We at Cubix Customer Service Support System feel that if you understand how the product works, the rest is a whole lot easier.



Customer Service Support System

QL 1000 Series Chapter 2 - Installation Checklist

Check off the following steps as you progress through the installation. Following all the steps in the proper order will ensure a smooth and trouble free installation.

DOS Steps

1. Format diskettes to use during the installation. The diskettes must be formatted as follows:

A. A low-density (360K or 720K) diskette with the DOS system files. Label this diskette "QL Series Workstation Boot Diskette".

B. If using an external Bridge, you will also need a formatted high capacity diskette with the DOS system files on it to use as the "Bridge system Boot Diskette".

2. Make working copies of all your original diskettes using the DOS "DISKCOPY" command. Do not use your original diskettes.

Novell Steps

3. Add the QL Series LAN Drivers to your NetWare operating system. (NETGEN, BRGEN, ROUTEGEN, NLM's, etc.)

4. From a workstation, log on to the network as SUPERVISOR. If you have multiple servers on the network, log on to the server where you want to copy the QL Series files.

Cubix Steps

5. Execute the Cubix QL 1000 program to create and copy all the necessary Cubix files to the network server. See the "QL Series Installation Program" chapter for more information.

6. If the QL Series boards are in an External Bridge: Copy the file QLNW21X.DL2 from the server's \SYSTEM subdirectory to the "Bridge System Boot Diskette". This file must be on the diskette or the QL Series boards will not boot properly.

7. If the QL Series boards are in an External Bridge and you have multiple servers on the network, you must copy the QL Series files in the \LOGIN subdirectory on the default server to the \LOGIN subdirectory on all of the other servers.

Hardware Steps

8. Install the QL Series boards in the file server or the external bridge system.

9. Be sure the hardware configuration matches the software configuration.

10. Boot up the file server or external bridge. Be sure that the system loads all of the selected LAN drivers, and connects properly to the server.

Testing the Installation

11. From a workstation on the network, run QLVISION to ensure that all the QL Series boards are booted properly. See the "QLVision" chapter for more information. If there is a problem, see the "Troubleshooting" chapter in the "Technical Reference Guide".

Loading Application Software

12. Install your communications or application software following the instructions provided with the software.

13. Create individual batch files for the QL Series processors in the \LOGIN subdirectory. The "Loading Application Software" chapter explains the procedures, and gives examples for loading the most common communication programs.

14. Reset the QL Series processors using QLVISION or QLRESET so they will read and execute the batch files you created.

15. Use QLVISION or QLCONN to take control of the QL Series processors and ensure that they are loading the application software properly. See the "QLVISION" chapter for more information.



Customer Service Support System

QL 1000 Series Chapter 3 - Quick Installation Steps

This chapter is for experienced NetWare installers. If you are not familiar with NetWare installations, turn to the next chapter. QL Series drivers can be installed with any of these versions of Novell NetWare:

- NetWare 286 SFT, ADV , Version 2.12 and above
- NetWare ELS II , Version 2.12 and above
- NetWare 386 , Version 3.10 and above
- NetWare External Bridge , Version 2.15C and above
- NetWare External Router , Version 2.2 and above

NOTE: Do not install the Cubix QL Series boards until you are instructed to do so in the installation steps. Installing the boards early may cause problems during the installation.

NOTE: Make working copies of your NetWare and Cubix diskettes using the DOS DISKCOPY command. Do not use your original diskettes as working diskettes.

Quick Installation , NetWare 286

1. Format a blank low density diskette to use as the "QL Series Workstation Boot Diskette". The diskette must be 360K or 720K and must be formatted with DOS version 3.x or 4.x using the /S option. This diskette will be used to create the QL Series boot image file.

NOTE: DOS Version 5.0 (or higher) is not supported on the QL 1000 Series products.

2. Run the NetWare Generation Program (NETGEN, ELSGEN, or INSTALL) and add the QL Series drivers to the NetWare boot files (NET\$OS.EXE).

3. Reboot the file server.

4. Log onto the network as SUPERVISOR.

5. Insert the Cubix "QL 1000 Series Installation Diskette" into drive A of the file server (if nondedicated) or a workstation on the network.

6. Type:

A: [enter]

QL 1000 [enter]

7. Follow the screen prompts. Press as needed for help.
 8. When the QL Installation program is complete, down the fileserver and remove power.
 9. Install the QL Series boards.
 10. Reboot the file server.
 11. Run the QLVISION program from a workstation to ensure that the QL Series boards are booted properly (see the "QLVISION" chapter).
-

Quick Installation , NetWare 386

1. Format a blank low density diskette to use as the "QL Series Workstation Boot Diskette". The diskette must be 360K or 720K and must be formatted with DOS version 3.x or 4.x using the /S option. This diskette will be used to create the QL Series boot image file.

NOTE: DOS Version 5.0 (or higher) is not supported on the QL 1000 Series products.

2. Boot the file server.
3. From a workstation on the network, log in as SUPERVISOR.
4. Insert the "Cubix 1000 Series Installation Diskette" into drive A of the workstation on the network.
5. Type:

```
A: [enter]
QL 1000 [enter]
```

6. Follow the screen prompts. Press as needed for help.
7. When the QL Installation program is complete, add the following lines to your file server's AUTOEXEC.NCF file:

```
LOAD QLNET386 PORT=290 INT=F DMA=3
BIND IPX TO QLNET386 NET=xxx
LOAD QLTSRVR 00000xxx
```

(See Chapter 4 for more information on these xxx parameters)

8. Down the fileserver and remove power.
 9. Install the QL Series boards.
 10. Reboot the file server.
 11. Run the QLVISION program from a workstation to ensure that the QL Series boards booted properly (see the "QLVISION" Chapter).
-

Quick Installation , External Bridge or Router

NOTE: If using BRGEN, the .OBJ files must be dated 8/89 or newer. If not, download updated files from Compuserve or Cubix BBS.

1. Format two diskettes with DOS using the /S option.

A. Format a blank low density diskette to use as the "QL Series Workstation Boot Diskette". The diskette must be 360K or 720K and must be formatted with DOS version 4.01 or below, using the /S option. This diskette will be used to create the QL Series boot image file.

B. Format a blank high-density (1.2) diskette with DOS using the /S option and label it "Bridge Boot Diskette".

2. Run Novell's BRGEN or ROUTEGEN to add the QL Series drivers to the NetWare boot files (BRIDGE.EXE or ROUTER.EXE).

3. Copy the newly created boot file to the "Bridge Boot Diskette".

4. From a workstation, log onto the network as SUPERVISOR.

5. Insert the "QL 1000 Series Installation Diskette" into drive A of the workstation on the network.

6. Type:

```
A: [enter]
QL 1000 [enter]
```

7. Follow the screen prompts. Press <> as needed for help.

8. When the QL Installation program is complete, copy \SYSTEM\QLNW21x.DL2 to the "Bridge Boot Diskette". This file must be on the diskette, or the QL Series boards will not boot properly.

9. Install the QL Series boards in the powered-off bridge system.

10. Boot the bridge using the BRIDGE.EXE or ROUTER.EXE file you created above.

NOTE: BRIDGE.EXE should be executed from a diskette drive, not a hard drive. If you have multiple servers, the \LOGIN\QL*.* files must be on each file server.

11. Run the QLVISION program to ensure that the QL Series boards booted properly (see the "QLVISION" Chapter).



Customer Service Support System

QL 1000 Series Chapter 4 - Installing QL Drivers

This chapter explains how to install the QL Series software LAN drivers with Novell NetWare.

If using NetWare 286 or ELS II, Version 2.12 and above, turn to Page 4-2.

If using NetWare 386, Version 3.10 and above, turn to Page 4-4.

If using NetWare External Bridge, Version 2.15c and above, turn to page 4-6.

Special Notes

Do not install the Cubix QL Series boards until you are instructed to do so in the installation steps. Installing the boards early may cause problems during the installation. **Copy Diskettes**

Make working copies of your Novell and Cubix diskettes using the DOS DISKCOPY command. Do not use your original diskettes.

Cubix LAN Driver Diskette

The Cubix "QL 1000 Series Installation Diskette" contains the Novell LAN drivers for the Cubix QL Series products. The diskette has a volume label of LAN_DRV_224. You can use the load and Select option in the Novell NETGEN program to read the drivers directly from the diskette. Or if you have your NetWare files on a hard drive, you can create a LAN_DRV_.224 subdirectory under \NETWARE and copy the files from the diskette's root directory to this subdirectory.

NetWare 286 LAN Driver Installation

Running the NetWare Generation Program

The Novell NetWare portion of the QL installation involves adding the Cubix QL LAN drivers to the network's operating system. The process of adding the QL LAN driver is the same as adding any LAN driver to the network. You can install the LAN drivers during the initial NetWare installation, or add them to an existing system.

There are numerous versions of NetWare 286. Each version uses different menus and installation methods. There are four important options that we will cover in this section. If you need help in completing your NetWare installation, refer to your NetWare manuals or call Novell's Technical Support for assistance.

Set Operating System Mode - Dedicated or Non-Dedicated

If you are installing only a QL Series LAN in the fileserver (and no other LAN adapters), you must select the nondedicated option for the fileserver. If you select the dedicated option, you will need a workstation with a diskette drive to finish the QL installation. This is also true for ELS II, as it only supports one LAN adapter.

Select LAN Drivers

Select the Load and Select option and follow the screen prompts. There are different sets of LAN drivers for QL Series products.

The QL-xxxx drivers are for QL 1000 and QL 2200 Series boards. The QL-Fast drivers are for QL 3000 Series boards.

If you are installing only QL Series boards, select the QL Series driver. If installing the QL Series LAN and another LAN adapter (such as ARCnet or Ethernet), select drivers for both boards. If you have different QL Series products installed, select the LAN drivers for each type.

See the first page of this chapter for important information regarding the QL LAN Driver diskette and different versions of Novell NetWare 286/386.

NOTE: The QL-xxxx LAN drivers support 32 or 100 QL processors, depending on which hardware option you select. You can add up to that many QL processors to the system by setting the proper address on each board and installing it in the system.

Configure Drivers / Resources

This selects the hardware choices available for the QL Series board and the other LAN adapters you have installed. Choose a setting that will not conflict with other hardware in the file server. The default setting (option 0), for the QL Series will work in most cases. Make sure you set the jumpers and switches on the board to match the settings you select here.

ELS II supports only ONE LAN; you cannot select multiple Cubix drivers. You can only use one series of boards on the network. ELS II only supports up to eight users, selecting a 32 or 100 user option in ELSGEN will not affect its operation.

Network Generation Options

Complete the network generation by LINKING and CONFIGURING the operating system and utilities, if necessary. Follow the screen prompts and the NetWare manuals.

Booting the Network Server

If your file server is non-dedicated, you will need to copy the newly created NET\$OS.EXE files to your fileserver boot diskette. Copy all the NET\$OS.* files from the OSEXE-1 and OSEXE-2 diskettes or subdirectory to the boot diskette.

If your file server is dedicated, the NET\$OS.EXE file must be copied to or installed on the file server. Dedicated file servers boot from this file, which is located in the \SYSTEM subdirectory.

1. Boot your fileserver and ensure that the QL Series drivers are loaded. You can check this in CONSOLE mode (CONFIG) or with FCONSOLE (LAN Driver information). Don't put the boards in yet. The server will boot properly without them installed.

2. Turn to the "QL Series Installation Program" chapter to install the QL Series Utilities and create the necessary image and support files.

Adding QL Series Boards to an Existing Server

If you are adding the Cubix QL Series boards to an existing NetWare 386 server, skip to the next section (Adding the QL Series LAN Drivers).

New NetWare 386 Installation

Install NetWare 386 on your file server following the instructions in Novell's Installation Manuals. The following steps are in reference to the "Novell File Server Installation Quick Path Card".

You will use the Novell Installation instructions to set up and install your file server with all the hardware options except Cubix. The Cubix LAN Drivers will be added later.

1. Set up the Hardware. (Do not install the QL Series boards yet).
2. Run SERVER.
3. Load loadable modules for the Disk Drivers.
4. Load INSTALL.
5. Load LAN drivers and other loadable modules.

NOTE: Install your other LAN drivers at this point. Do not load the QL Series drivers. You need to complete the NetWare 386 installation, and then add the QL Series drivers and other necessary files from a workstation attached to the 386 server.

6. Bind the protocol to the LAN driver.
7. Return to INSTALL to create the file server boot files.
8. Complete your NetWare 386 installation following the instructions in the Novell manual.
9. Add the QL Series LAN Drivers using the information that follows. There are different sections for each QL product line. Be sure to select the correct section or sections.

Adding QL Series LAN Driver

The Cubix QL Series LAN drivers can be installed on the NetWare 386 server by the Novell INSTALL NLM or by modifying the AUTOEXEC.NCF file with an ASCII editor from a workstation on the network.

Add the following lines to the AUTOEXEC.NCF file:

```
LOAD QLNET386 PORT=290 INT=F DMA=3
|          |          |          |
|          |          |          |----- DMA setting.
Default on
|          |          |          |
3.         |          |          |----- QL boards is DMA
|          |          |          |
|          |          |          |----- IRQ setting in
HEX. Default
|          |          |          |----- is IRQ 15 (HEX =
F).
|          |          |          |
|          |          |          |----- Starting Address
|          |          |          |----- setting.
|          |          |          |----- Default is 290.

BIND IPX TO QLNET386 NET=xxx
|          |
|          |----- Network number
```

```

assigned to
|
a unique          Cubix LAN. Must be
|                number. 1 to 8
|                digits long.
|
----- The QL series LAN
driver.

```

```

LOAD QLTSRVR 00000xxx
|
|                ----- Cubix Network
|                address, as set
|                in the line above.
|                Must be 8
|                digits long.
|
|                ----- Loads Cubix Trap
|                Socket. This
|
|                is used by QLVision
|                and other
|                QL utilities.

```

Booting the Network Server

1. Boot your fileserver and ensure that the QL Series drivers are loaded. You can check this with FCONSOLE (LAN Driver information).
2. Turn to the "QL Series Installation Program" chapter to install the QL Series Utilities and create the necessary image and support files.

NetWare External Bridge

Bridges and Routers

Novell has two different external bridging programs. They are referred to as Bridges and Routers. Both are similar in operation, configurations, and installation. We will refer to both in this document as Bridges.

External Bridging with NetWare

An external bridge lets you connect different LAN topologies to your existing network system without adding additional LAN adapters to your file server. [Figure 4-1](#) shows an example of an external bridge that bridges ARCnet workstations to an existing Ethernet network. In this diagram, all the ARCnet workstations have access to the file server through the external bridge.

External Bridges and QL Series Boards

Adding QL Series boards to an external bridge gives you the same configuration as shown in figure 4-1, except the QL workstations are inside the external bridge system, instead of connected to it with cables. The QL workstations will have access to the file server through the external bridge.

You **must** be using Novell's 2.15c or newer Bridge software. Any version older than 2.15c will **not** work with QL Series boards. You can download updated OBJ files from Novell's Forum on Compuserve, or from the Cubix Customer Service Support System BBS. The BRIDGE.OBJ or NDBRIDGE.OBJ files must be dated 8/89 or newer.

Running the NetWare Bridge Generation Program

The Novell NetWare portion of the QL installation involves adding the Cubix QL LAN drivers to the external Bridge operating system. The process of adding the QL LAN driver is the same as adding any LAN driver to the network.

There are numerous versions of NetWare 286 Bridge Software. Each version uses different menus and installation methods. We will discuss five important options in this section. If you need help in completing your external Bridge installation, refer to your NetWare manuals or call Novell's Technical Support for assistance.

You will need the "Novell Bridge Manual" for reference during this installation. It contains valuable information pertaining to the options and selections available in the programs.

Select Bridge Type (or Operating Mode)

1. If you want to connect a monitor and keyboard to the external bridge computer and use it as a workstation, select PROTECTED MODE BRIDGE.
2. If you wish to boot the external bridge in dedicated mode, and do not want to use its monitor and keyboard as a workstation, select REAL MODE BRIDGE, or DEDICATED PROTECTED MODE.
3. See your "Novell Bridge Manual" for detailed descriptions and additional information on NetWare bridge types.

= Select LAN Drivers

1. Select the Load and Select option. You will be selecting multiple LAN drivers in this step.
2. The first LAN driver to select is the one for the LAN adapter that connects the external bridge computer to your network (ARCnet, Ethernet, Token Ring, etc).
3. The second LAN driver to select is for the QL Series boards that are being installed in the external bridge. There are two different sets of drivers for these boards. The QL-xxxx drivers are for QL 1000 or QL 2200 Series Boards. The QL-Fast drivers are for QL 3000 Series Boards.
4. You may have multiple QL products installed in the external bridge. If this is the case, select both sets of drivers.
5. See the first page of this chapter for important information on the Cubix LAN driver diskette, and different versions of NetWare.

NOTE: The QL-xxxx LAN drivers support 32 or 100 QL processors, depending on which hardware option you select. You can add up to that many QL processors to the system by setting the proper address on each board and installing it in the system.

Configure Drivers / Resources

This option selects the hardware choices available for the QL Series board and the other LAN adapters you have installed.

1. Choose a setting that will not conflict with other hardware in the external bridge. The default setting (option 0) for the QL Series will work in most cases.
2. Make sure you get the jumpers and switches on the board to match the settings you select here.

Set Network Addresses

This is a critical step, and is the most important step in configuring an external bridge. If you followed the above steps properly, LAN A is the LAN adapter that connects the external bridge to the network (such as ARCnet, Ethernet, Token Ring).

A. Network address for LAN A.

This network address MUST be the same number that is assigned the matching LAN adapter in the file server. If you do not know the network address for the LAN adapter in the server, you can get that information using FCONSOLE.

For example, if your file server has an ethernet adapter with a network address of 00000044, then you would select a network address of 00000044 for the Ethernet adapter in the external bridge.

B. Network address for QL LAN

For the QL drivers, you would select a unique network address that is NOT used anywhere else on your network.

C. Communication Buffers

BRGEN - Set the Communication Buffers to 40 plus one for each QL processor installed in the external bridge.

ROUTEGEN - The default setting of 150 should be sufficient.

Bridge Generation Options

Link and Configure the Bridge operating system.

Booting the External Bridge

BRGEN

The new BRIDGE.EXE file will be created on either the "BRGEN-2 Diskette" or subdirectory (Real Mode) or on the "BRGEN-3 Diskette" or subdirectory (protected mode).

ROUTEGEN

The new ROUTER.EXE file will be created on the "ROUTEGEN Diskette" or subdirectory.

1. Create a "Bridge Boot Diskette" for your external bridge with an AUTOEXEC.BAT file similar to one of the following:

Dedicated Bridge	Nondedicated Bridge
ECHO OFF	ECHO OFF
BRIDGE (OR ROUTER)	PROMPT \$P\$G
	BRIDGE (OR ROUTER)
	NETX
	F:
	LOGIN SUPERVISOR
	QLVISION

2. Copy the BRIDGE.EXE or ROUTER.EXE file you created to the "Bridge Boot Diskette" and NETX.COM from the Novell "SHGEN Diskette" or subdirectory. You will use this diskette to boot the bridge system after completing the QL installation.

3. Copy the file QLNW21X.DL2 from the QL Installation Diskette \SYSTEM subdirectory to the same diskette or subdirectory as your Bridge Boot file (BRIDGE.EXE or ROUTER.EXE). The QL board will not boot without this file.

4. You can install the QL boards at this point, but do not boot the bridge system yet. When booting, the QL boards will attempt to find files that do not yet exist on your network.

5. Turn to the "QL Series Installation Program" chapter to install the QL Series Utilities and create the necessary image and support files.

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Customer Service Support System

QL 1000 Series Chapter 5 - Installation program

The QL Series Installation program installs all the necessary files for the QL Series boards to do a diskless boot in a NetWare file server. We highly recommend selecting the default options for the initial installation.

The default installation:

- * Creates subdirectories and copies files to your file server:

 - Cubix QL Series Files and Utilities
 - Microsoft DOS 3.3 diskettes (Optional)

- * Creates the necessary Diskless Workstation Boot Image files to boot the QL Series processors.

- * Sets up a default batch file for each QL processor to load the necessary NetWare files.

Preinstallation Checklist

Before starting the Installation program,

1. Add the QL Series LAN Drivers to your NetWare operating system and create a new NetWare boot file (NET\$OS.EXE, BRIDGE.EXE, ROUTER.EXE, etc) as necessary.
 2. Have all the required Cubix and NetWare diskettes ready. Use working copies of your diskettes. Do not use your original diskettes.
 3. Format one 360K or 720K DOS system disk with DOS (version 4.01 or below) using the /s option to use as the Cubix "QL Series Workstation Boot Diskette".
 4. If you have other QL Series boards installed, and you want to preserve their files, rename or back up the files.
-

Initial QL Series Software Installation

1. From a workstation, nondedicated fileserver, or nondedicated bridge, log on to the network as SUPERVISOR. (This node must have a floppy disk drive.) If the network has more than one server, connect and log on to the server on which you want the Cubix files installed.

2. At the DOS prompt, insert the Cubix "QL 1000 Series Installation Diskette" in drive A.

3. Type:

```
A:      [enter]
QL 1000 [enter]
```

The QL Installation program begins.

QL Installation Program

Follow the screen prompts, pressing [F1] for help when needed. Watch for additional help information at the bottom of the installation screens.

Installation Requirements Screen ([Figure 5-2](#))

This screen displays the requirements for the QL Series Installation and lists the required diskettes. Press [PG DN] for additional information.

Drive Selection Screen ([Figure 5-3](#))

This screen selects the drive designations for the diskette drive and network hard drive to use for the installation. Enter the correct drive letters for each selection.

Press [F1] For more information.

Press [F2] To continue.

Server Verification Screen ([Figure 5-4](#))

Select YES If you want the "QL 1000 Series
Installation Diskette"
to be copied to the server shown.

Select NO If you want to exit the program to log on
to the
proper server and restart the installation
program.

Press [F1] For more information.

The installation program copies all the necessary files to the server shown here. If you are installing the QL Series boards in an external bridge (or COMBRIDGE" System), you must manually copy the \LOGIN\QL*.* (or \LOGIN\QF*.* files from the above server to the \LOGIN subdirectory on each of the other existing servers.

Install a New System Screen ([Figure 5-5](#))

This is the default installation for the QL Series. Select this option if you are performing an initial installation.

Install Selected Files

Select NO configuration process. Select NO to abort the workstation process.

Install QLVision

QLVision consists of three files:

QLVISION.EXE
QLVISION.HLP
QLVISION.CWA

To install QLVision,

1. Make a backup copy of the QLVision diskette. Store the original diskette in a safe place.
2. Copy the three QLVision files from the backup diskette into an appropriate directory on the network.

We recommend that you install QLVision in a directory that has limited access rights. The availability of some of the functions, such as the ability to reset a QL node, should be restricted. It is the responsibility of the system administrator to install QLVision with access rights appropriate for the application.

The Final Steps

The QL Series installation is complete. You now have all the necessary files on the file server for the QL Series workstations.

1. Install all the hardware.
 2. Power up the network.
 3. Login on the network as SUPERVISOR at any workstation.
 4. Run the Cubix utility program, QLVISION. It should show all the QL workstations as PRESENT and ACTIVE within 1 to 3 minutes. See the "QLVISION chapter" for more information on QLVISION.
 5. Install your application programs. See the "Loading Application Software" chapter for information on QL Series batch files.
 6. Use the Cubix utility program QLCONN or QLVISION to take control of each QL processor to ensure your application software loads properly. See the "QL Series Utilities" chapter for more information on QLCONN.
 7. If you need to make any changes to the QL Series image files, such as modifying the CONFIG.SYS file, see the "Modifying Image Files" chapter.
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Customer Service Support System

QL 1000 Series Chapter 6 - Jumper & Switch Settings

This chapter explains how to configure a QL 1000 Series board. The configurable options are:

- I/O Port Address
- DMA Channel
- Port (QL 1044 only)
- Interrupt Channel

The QL 1001 boards are factory-set for I/O port address 290 (hexadecimal), DMA Channel 3, and interrupt channel 15 (decimal). Each QL board in the network must have the same DMA Channel and interrupt settings, but a different I/O port address setting. [Figure 6-1](#), [Figure 6-2](#), and [Figure 6-3](#) show the configuration jumpers and switches on each board.

Jumpers

To change the DMA channel or interrupt on a QL 1001 or QL 1002, you need to move a jumper from one set of pins to another. [Figure 6-4](#) shows jumpers and pins on a jumper block.

DMA Channel

QL 1001 and QL 1002

Jumpers on blocks J1 and J2 control the DMA channel on QL 1001 and QL 1002 boards. The left half of each jumper block defines the read channel; the right half defines the write channel. [Figure 6-5](#) shows DMA channel configurations. The default DMA setting is 3.

QL 1044

Switches S3 and S4 control the DMA channel on a QL 1044 board. The top three switches on each block define the write channel; the bottom three switches on each block define the read channel. [Figure 6-6](#) shows DMA channel configurations. The default DMA setting is 3.

Interrupts

QL 1001 and QL 1002

Jumpers on block J3 control the interrupt. The bottom half of J3 defines the read interrupt; the top half defines the write interrupt. [Figure 6-7](#) shows the interrupt settings. The default interrupt setting is 15.

QL 1044

DIP switch S5 controls the interrupt setting. Switches 1 through 4 define the write interrupt (IRQ); switches 5 through 8 define the read interrupt. [Figure 6-8](#) shows the interrupt settings. The default interrupt setting is 15.

Port Selection - QL 1044 Only

The QL 1044 has four RJ-45 connectors. Switch positions on DIP Switch SW1 define the function of each connector. When a switch is OFF, the connector is configured as a terminal port. When a switch is ON, the connector is configured as a COM port.

Orient the QL 1044 board with the mounting bracket in your left hand and SW1 on top. A switch is OFF when its handle is away from the board (see [Figure 6-9](#)).

I/O Address

The QL 1001 uses two sequential I/O addresses. This means that a board with a base address of 290 (hexadecimal) also uses address 291. The default base I/O address is 290.

The QL 1002 uses four sequential I/O addresses. This means that a board with a base address of 290 (hexadecimal) also uses addresses 291, 292, and 293. The default base I/O address is 290.

The QL 1044 uses eight sequential I/O addresses. This means that a board with a base address of 290 (hexadecimal) also uses addresses 291 through 297. The default base I/O address is 290.

Switch positions on DIP switch SW1 (for QL 1001 and QL 1002) or S2 (for QL 1044) define the base address. Orient the board with the mounting bracket in your left hand and the DIP switch on top. A switch is OFF when its handle is away from the board.

Select a base address for the board, and set the switches to that address. For 32 users, set the first board to 290. For 100 users, set the first board to 120. [Figure 6-10](#) shows initial switch settings for the QL 1001. [Figure 6-11](#) shows initial switch settings for the QL 1002. [Figure 6-12](#) shows initial switch settings for the QL 1044.

[Table 6-1](#), [Table 6-2A](#), [Table 6-2B](#), and [Table 6-2C](#) show switch settings for all users.

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Customer Service Support System

QL 1000 Series Chapter 7 - QLVision

QLVision is a management system that lets administrators monitor and control Cubix QL Series communication products.

System Requirements

To use QLVision, the following system requirements must be met:

QLVision must be run on a NetWare workstation or nondedicated server with a minimum of 640K RAM. QLVision should not be run on a non-dedicated router.

The NetWare version must be 2.15 or higher.

The QLRCV TSR program (provided by Cubix) must be loaded on each QL node monitored by QLVision.

The QL nodes to be managed must be operating with Cubix drivers version 1/A/4 or higher.

On NetWare 386 servers, the Cubix Trap Socket Server NLM must be loaded.

The QLVision management tool requires NetWare supervisory rights.

QLVision supports, but does not require, a mouse.

Functions

To start QLVision, type **QLVISION** [enter].

The following functions are available from the QLVision Main Menu:

File Server / Router Selection

This selection displays a list of all file servers and routers in which QL nodes are installed.

QL Node Functions

This selection provides real time information on each of the selected QL nodes. It can connect to, or reset, a remote QL node.

File Server / Router Diagnostics

This selection monitors the QL server for communication information.

Deadman Timer

This selection monitors QL nodes for activity and automatically resets a node if it becomes non-functional.

Historical Log

This selection describes QL node activity over time.

QLVision Help

This selection provides detailed information on all QLVision functions.

Exit to DOS

This function terminates the QLVision session.

Helpful Hints

At any time during the QLVision session, press for help with the current function. All QLVision help screens are context-sensitive.

Remember to select a file server or router before trying to perform any monitoring or management functions.

If a file server or router that has QL nodes installed does not appear on the File Server / Router Selection screen, verify that it has version 1/A/4 or higher Cubix drivers installed. If the device is a NetWare 386 server, verify that the Cubix Trap Socket Server NLM is loaded.

QL Utilities Command Line Programs

The following programs let you obtain some of the same information that is available through QLVISION, but you can do so from the DOS command line without using the QLVISION menus.

QLCONN.EXE and QLRCV.COM (QL Connect and Receive)

These two programs let you view a QL Series processor as if you were connected to it with a monitor and keyboard. The QL processor loads QLRCV.COM as part of its default batch file (QLUSER.BAT) in the \LOGIN subdirectory. The QLCONN.EXE program lets you connect to any QL workstation that has QLRCV.COM loaded.

To connect to a QL workstation that has QLRCV.COM loaded, type:

```
QLCONN xxx [enter]
```

(where xxx is the QL Node number)

or

```
QLCONN -N xxx zzz [enter]
```

(where xxx is the QL Network address and zzz is the QL Node number).

To disconnect from a connected workstation, simultaneously press:

```
[CTRL] [LEFT SHIFT]
```

These utility programs were designed as installation and troubleshooting aids. They could also be used for other applications such as starting batch jobs on unattended processors.

QLDWS.EXE

This utility program shows the status of all QL Processors. The screen displays the following information:

```
ADDR      The node number for each QL Series
Processor.

TYPE      The board type for the QL processor.

PRESENT   Shows that the file server recognizes the
QL processor
          (QL Series LAN drivers loaded).

ACTIVE    Shows UP when the QL processor has
successfully booted
          and executed IPX from its image file.

STATUS    This field shows the status of the QL
processor.
```

Command Line Parameters

```
QLDWS [-N ] [enter]
```

If there are more than 20 QL processors, you can use the DOS MORE command to display one screen at a time. For example, type:

```
QLDWS -N 71 |MORE [enter]
```

This command displays the status of all the QL processors on the file server with network address 71, and pauses at the end of each page of display.

QLRESET.EXE

This utility program lets you reset one or several processors.

Command Line Parameters

```
QLRESET [-N ] xxx [xxx . . . ] [enter]
```

where xxx is a QL node number. For example:

```
QLRESET -N 71 290 292 [enter]
```

resets ports 290 and 292 on the file server at network address 71.

QLSERVER.EXE

This utility displays a list of the Cubix trap socket servers on the network. The screen displays the following information:

NAME	The name of the server
IPX ADDRESS	The net address, node number, and socket of the server

This utility can be used to determine the address parameter required by some of the other QL utilities.

NOTE: The first server listed is used as a default by the QL utilities when no explicit net address is specified.

QLPING.EXE

This utility tests communications between two network nodes by transmitting and receiving PING IPX packets.

Command Line Parameters

```
QLPING [<196>N ] [-q] xxx  
(where xxx is a QL node number).
```

Without the -q option, QLPING continues to transmit and receive IPX packets to and from the specified node until you enter C from the keyboard. Each time a packet is received, the screen displays a message.

The -q option causes QLPING to transmit only one packet to the node, and wait for its response. QLPING with the -q option will return a DOS ERRORLEVEL value of 0 (if PING is successful), 1 (for a command line syntax error), or 2 (if PING is unsuccessful). You can use this in a batch file as follows:

```
QLPING <196>n 650 <196>q 1  
IF ERRORLEVEL 1 GOTO RESET  
ECHO PING SUCCESSFUL  
GOTO END  
:RESET  
ECHO PING UNSUCCESSFUL  
QLRESET <196>n 650 1  
:END  
ECHO END OF VERIFICATION
```

QL Utilities Error Messages

The QL Series utilities can generate the following error messages.

Error 0xXX returned by IPX Initialize This error is returned by IPX. An 0xF0 code means that IPX is not loaded yet.

Error 0xXX opening an IPX socket An IPX socket cannot be opened. This should only occur if the user has the maximum number of sockets open. This can be remedied using NetWare's SHELL.CFG.

No Cubix servers available No Cubix file servers or bridges can be found on the network.

Cubix network <> is not available. A Cubix Server, matching the network number specified on the command line, cannot be found.

Cubix network <> is not available A Cubix Server, matching the server name specified on the command line, cannot be found.

Timeout on receive The program issued a request to a Cubix Server or Bridge, and the response did not return within a predetermined amount of time.

Error 0xXX on Receive Error code XX was returned by IPX while waiting for a response from a Cubix server or bridge.

Usage: . . . This error (specific to each utility) is returned when the program does not recognize the command line options. (Syntax Error.)

Invalid Workstation (or workstations) specified. (QLCONN) A processor number was entered that is less than 100 or greater than 300. Valid Cubix processor numbers are 120 to 2D0.

Only x of 9 receives have completed. (QLCONN) Generally indicates the program QLRCV is not resident on the processor to which you are attempting to connect. It can also mean incompatible video mode.

No Cubix workstations on server <> (QLDWS) This message is returned when the Cubix server indicates that it has no processors present.

No Cubix workstations on server <> (QLRESET) Use QLRESET -N <> <> to reset each processor. This error message is returned when the Cubix server indicates that it has no processors present.

Workstation xxx has not been reset. (QLRESET) This message is displayed for each processor that could not be reset. This will occur if you attempt to reset a processor that does not exist on the specified Cubix server.



Customer Service Support System

QL 1000 Series Chapter 8 - Loading Application Software

This chapter explains how to create or modify batch files to make each QL Series processor run application software when it boots up. For information on the QL Series boot image files, their boot sequence, or modifying the boot image file, see the "Technical Reference Manual - Modifying QL Image Files".

Using Batch Files to Load Application Software

QL series processors boot from an image file in the \LOGIN subdirectory on the file server. The last function of the image files boot sequence instructs each processor to execute one of the following two batch files:

QLUSER.BAT - The default batch file for all QL Series processors. If the QL processors do not find a node specific batch file, they will execute this default batch file.

QLUSRxxx.BAT - (Where xxx is the QL Node number). If the QL processor finds a batch file with its node number in the filename, it will execute this node specific batch file. No other processor will execute this batch file since each QL processor will have a different node number.

The following explains the functions of the two batch files, and how to use them for loading application software on the QL processors.

QLUSER.BAT

This is the default batch file. Each processor will execute this file unless it finds a node specific batch file. The file must be in the \LOGIN subdirectory. It reads as follows:

ECHO OFF	Turns off batch file display
SET COMSPEC=Y:COMMAND.COM	Sets COMSPEC
PROMPT \$P\$G	Sets the DOS prompt
QLRCV program	Loads the QL remote connect
LOGIN command	Executes the NetWare LOGIN

NOTE: Loading QLRCV on the processor provides QLVision support for the node.

QLUSRxxx.BAT (Where xxx is the Node Number)

This node-specific batch file can be used to execute an application program on one QL processor. Each batch file has a processor's node number as part of its filename. This gives each processor a unique batch file, to give your network maximum flexibility. The batch files must reside in the \LOGIN subdirectory of your file server. You can create the batch file with any ASCII editor (such as EDLIN).

Creating Node-Specific Batch Files

1. Create a batch file QLUSRxxx.BAT, where xxx is the processor's node number (for example, QLUSR290.BAT).
2. Add to the batch file any command you wish to execute. There are two methods of loading application software, mostly dependent on the version of NetWare. Read both methods below to determine which one will work best for your configuration.

Method A. NetWare 286, (or 3.10 with FXOPEN patch) - You can put your application program in a subdirectory below \LOGIN. This will allow you to load the application program without logging in as a user. This works well with most communications programs that we have tested, but if it does not work, or your application program seems to have problems finding its files, you must use method B instead.

Method B. NetWare 386 3.11 or 3.10 without FXOPEN patch - You must create a temporary user file that you can use to log in, change to the proper subdirectory, and execute the application program. You then can change back to \LOGIN, execute LOGOUT, clear the screen, and execute the Novell LOGIN command. With this configuration, users calling in will be in the \LOGIN subdirectory with the Novell LOGIN command showing on their screen.

Sample Batch Files

The following sample batch files will give you an idea on how to create custom batch files for each processor to load different communication programs. The batch files will be shown in both methods described above.

About the Sample Batch Files

Some samples shown use command line options for the application program. The ones shown are for test purposes only, and must be set up for your particular application.

The DOS PATH command has been added to some batch files to insure that the application program can find its configuration or data files if necessary.

The %1 variable is the DOS variable LOADHIGH.COM carried over from the image file, and is used to load programs into upper memory. This variable only appears if you have the Memory Manager software installed. Not all application programs will load into upper memory. The ones that have been tested are shown with the %1 variable on the command line in the batch file. The file LOADHIGH.COM must be in the application subdirectory.

Sample 1 (QLUSR001.BAT) - To Load Co/Session 5.02 (Method A)

ECHO OFF	Turns the batch file
display off	
SET COMSPEC=Y:COMMAND.COM	Sets COMSPEC
PATH F:\LOGIN\;F:\LOGIN\SESSION	Sets DOS Path
PROMPT \$P\$G	Sets DOS prompt
QLRCV	Loads the QL utility
CD \LOGIN\SESSION	Changes to the proper
subdirectory	
%1 SAPPLICA	Loads Co/Session

(SAPPLICA.EXE)	
CD..	Changes back to \LOGIN
CLS	Clears the screen
LOGIN	Executes the NetWare
LOGIN command	

Sample 2 (QLUSR126.BAT) - To Load PCAnywhere IV LAN (Method B)

ECHO OFF	Turns the batch file
display off	
SET COMSPEC=Y:COMMAND.COM	Sets COMSPEC
PROMPT \$P\$G	Sets DOS prompt
QLRCV	Loads the QL utility
LOGIN TEMPUSER	Logs in a temporary user
with minimum	necessary rights to COM PC4LAN
CD \COMM\PCA4LAN	Changes to the proper
subdirectory	
%1 AWLOVL1.EXE -I=JEG -O=H -M=W	Loads PCAnywhere IV
CD \LOGIN	Changes back to \LOGIN
LOGOUT	Logs out the temporary
user	
CLS	Clears the screen
LOGIN	Executes the NetWare
LOGIN command	

These sample batch files are provided to assist you in getting your application program to work. If you have problems, please read the section on "Testing Your Application Software", and refer to the "Troubleshooting" chapter in the "Technical Reference Manual". For detailed instructions on using asynchronous software on the QL products, see the "Remote Communications Chapter" in the "Technical Reference Manual".

Testing Your Application Software

If you have problems running your application program on the QL processor, here are a few things you should check.

1. Does the application program run on a regular workstation?

Run the application program on a regular network workstation to make sure it is configured correctly. If you are running a communications program, connect the modem to the workstation's COM port to ensure the modem and cable configurations are correct. Once you get everything to work on the regular workstation, switch everything back to the QL board and retest.

2. Does your program require special drivers, or CONFIG.SYS settings?

See the Section on "Modifying Boot Image Files" in the "Technical Reference Manual" for information on adding device drivers or changing the CONFIG.SYS file in the boot image file.

3. Does your application program require more File Handles for Novell?

Regular workstations and QL Series boards running under NetWare default to 40 File Handles. To increase this number, you need to create a SHELL.CFG file for the image file. If using a database program, we suggest increasing the number to 60. See the Section on "Modifying Boot Image Files" in the "Technical Reference Manual" for information on adding a SHELL.CFG file to the image file.

4. Does the program work on your regular workstations, but not on the QL processors?

Check the version of Novell shell file (NETX.COM) on the workstation that the application works on. If it is a different version than the one the QL processor is using, change the NETX.COM file for the QL image file to the version that works on your regular workstation.

5. If you can't tell where the program fails . . .

Change the QL processors batch file back to the default (QLUSER.BAT), and reset the board with QLRESET. Use QLVISION to determine when the processor goes ACTIVE. Then use the QLCONN program to take over control of the QL workstation. Log on to the QL workstation and manually go through the steps required to load your application program. You now will be able to see any error messages that appear.

6. Do You Have Problems with LOGIN, LOGIN scripts, NetWare Menus, etc.?

Most of the problems that show up on the QL Series processors and Novell's programs are related to different versions of program files and the NetWare shell file (NETX.COM) or IPX.COM. For example: There are six or seven versions of NetWare's LOGIN.EXE file. Some of these versions will cause a workstation to lose mapping information, some versions affect rights. Most of the problems can be corrected by simply updating the file, or changing the version of shell files.

7. Are you using the QL Memory Manager?

The Memory manager program uses the memory area between 640K and 1MB of memory. Some application programs may also try to use this memory area, and will not work with the Memory Manager program enabled. Try a different video option for the Memory Manager, or disable it to get your application program to work. See the section on "Memory Configurations and Software" in the "Technical Reference Manual" for more information.

Special Notes

If your application program requires changes to the CONFIG.SYS file, the addition of device drivers, or a SHELL.CFG file, see the "Modifying Image Files" chapter in the "Technical Reference Manual" for more information.
