

LAVA HQ-ST Link

LAVA HQ Plus Installation and Configuration Guide

Introduction

This document describes the procedure for setting up a LAVA HQ Plus at a head office location.

At the end of this procedure the LAVA HQ Plus will be active on the LAN of a head office and ready to accept connections from ST Plus units in the field.

Materials and set-up required

This procedure requires a LAVA HQ Plus operating on the “head office” side of a gateway that opens to the Internet. Also, at least one LAVA ST Plus is on the Internet.

An operating set-up also requires a computer with its IP address set to a different number than either of the LAVA HQ Plus (default 192.168.0.35) or the gateway.

The HQ gateway port number of 4098 is the default for the data port of the LAVA HQ Plus. This port must be mapped on the head office router to allow ST Pluses to access the HQ Plus.

A second router hole must be mapped on the head office router at 4099 (or, if the default data port is changed, to the value of the data port plus 1). This port is to allow control signals from the LAVA HQ remote devices (HQ Plus, HQ Remote Poller, and HQ Remote Console) to access the LAVA HQ Plus, once deployed.

HQ Plus configuration methods

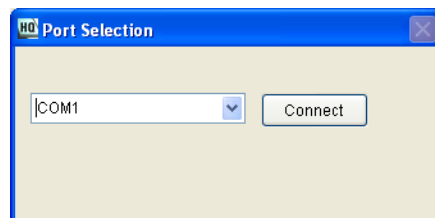
The LAVA HQ Plus can be configured in two ways, described in the following pages:

- using the supplied “HQ Basic” management application (Windows only), or
- using the internal web server of the HQ Plus and a web browser

Set-up option #1: LAVA HQ Basic configuration

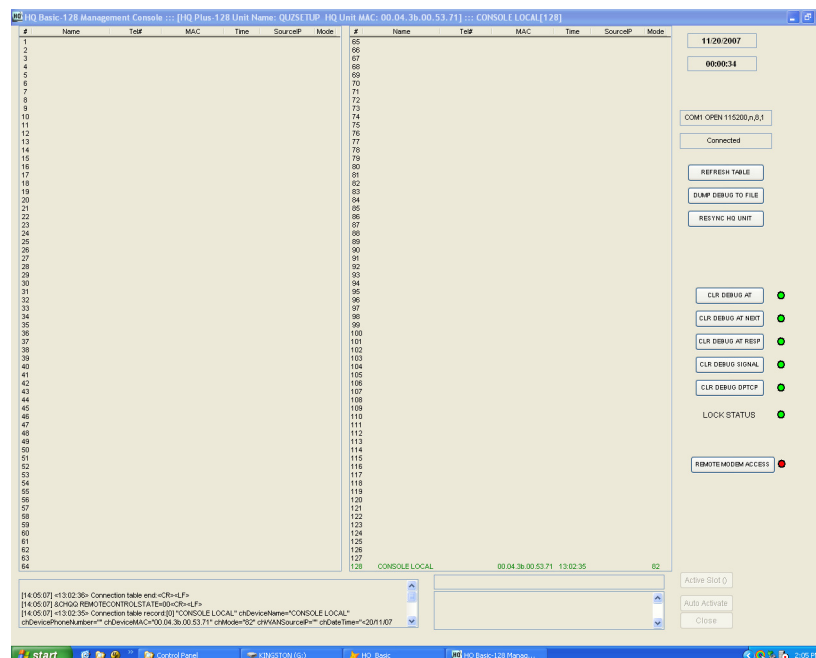
1. Install the HQ Basic management application on a computer (Windows only) by running "hq_basic_nn_setup.exe" from the installation CD, where *nn* is the number version of your HQ Plus (8, 30, or 126).
2. Connect a straight-through serial cable from the HQ Plus's console port to a serial port on the computer running the HQ Basic management application, and plug in the HQ Plus's power cable.
3. Open HQ Basic. HQ Basic will ask on what COM port you have placed your HQ Plus. Note: HQ Basic will scan only the first 16 serial ports on a system. Select the correct COM port.

Figure 1: COM port selection



4. Once you have chosen the COM port, the HQ Basic main screen will be available (HQ Basic 128 shown).

Figure 2: HQ Basic



The HQ Basic main screen lists all ST or ST Plus units connected to that HQ Plus, including their names, telephone numbers for polling purposes, MAC addresses, times when they connected to the HQ Plus, IP addresses, and modes.

In addition there are debug indicators and logging screens.

For the purpose of configuring the HQ Plus, the relevant entry is the last in the table, called "CONSOLE LOCAL". This is the "Console" port of the HQ Plus you are configuring, the port you need to access to make configuration changes to the HQ Plus.

5. Double click on the entry and the configuration screen opens. The first tab is the network settings tab.

Figure 3: Network settings

HQ Extended Data Management ::: SLOT 128 Query

Firmware Revision: HQP 99.99.08/02.11.2007

Network Settings | Serial Settings | Modem Settings

Device Name: QUZSETUP

IP Address: 10.0.61.1

Subnet Mask: 255.255.0.0 ☐ DHCP Enabled

Default Gateway: 0.0.0.0

DNS Server IP: 0.0.0.0 ☐ DHCP Enabled

HTTP Port: 80

TCP Port: 4098

Device Password: hqunit

Identification Key: 001405 00000000000000000000000000000000

Upload Exit

- Enter a new name in the "Device name" field (the factory default is "LAVAHQPLUS"). LAVA recommends a unique device name for each LAVA HQ Plus.
- Configure the network settings for the HQ Plus. The IP address should be unique on the LAN; the subnet mask can usually be left at the factory default (255.255.255.0).
- The http port is set to the conventional port 80 by default but can be changed if needed. This port is used to access the HQ Plus web server.
- Other network settings can usually be left at their defaults, but note the setting for "TCP port" (factory default is 4098). This port number and the next that would be in sequence (in this case, 4099) are the ports for the HQ Plus's TCP connections for data and control of remote units, respectively.

These two port numbers (or two you select, so long as they are consecutive numbers), must be mapped in your gateway router to allow ST Plus units, HQ Remote Console units, and HQ Remote Poller units to access the HQ Plus from outside the LAN.

For details on port mapping of your router consult your router documentation.

- If the LAVA HQ Plus unit will have a DNS name, it can be entered in the "Device DNS" field (the factory default is empty).
 - Ensure that the "Identification Key" used by the HQ Plus matches any ST Plus devices that you wish to poll.
 - If desired, you can change the password used to access HQ Plus configuration screens.
6. The next tab is the Serial Settings tab, for displaying settings of the serial port that is used for the console. These are not configurable.

Figure 4: Console port serial settings

HQ Extended Data Management ::: SLOT 128 Query

Firmware Revision: HQP 99.99.08/02.11.2007

Network Settings | **Serial Settings** | Modem Settings

Bits per second: 115200

Data bits: 8

Parity: NONE

Stop bits: 1

Flow control: HARDWARE

Upload Exit

7. The final tab is the Modem Settings tab, used to configure the modem port on the HQ Plus, the port used for polling. The settings here include both the modem's serial port and modem configuration options.

Figure 5: Modem Settings

HQ Extended Data Management ::: SLOT 128 Query

Firmware Revision: HQP 99.99.08/02.11.2007

Network Settings | Serial Settings | **Modem Settings**

Bits per second: 38400

Data bits: 8

Parity: None

Stop bits: 1

Flow control: Hardware

☐ Allow Remote Modem

☒ ECHO Enabled (E1)

☒ Display Result Codes (Q0)

☒ Verbose Result Codes (V1)

☐ Auto Answer (S0=1)

☐ DSR Control (&S1)

☒ DCD Control (&C1)

☐ DTR Control (&D0)

☐ DTR Control (&D1)

☒ DTR Control (&D2)

☐ DTR Control (&D3)

Upload Exit

The default settings on this screen for the modem port must be matched with all serial ports involved in the polling process: the ECR, the ST Plus, the HQ Plus modem port (this one), and the polling software.

The modem configuration options may not need to be changed, depending on the particular modem requirements of the polling software. LAVA recommends starting with these settings at their initial values.

8. Enable the "Allow Remote Modem" checkbox if you wish to configure this HQ Plus device to accept connections from the LAVA HQ Remote Poller hardware.

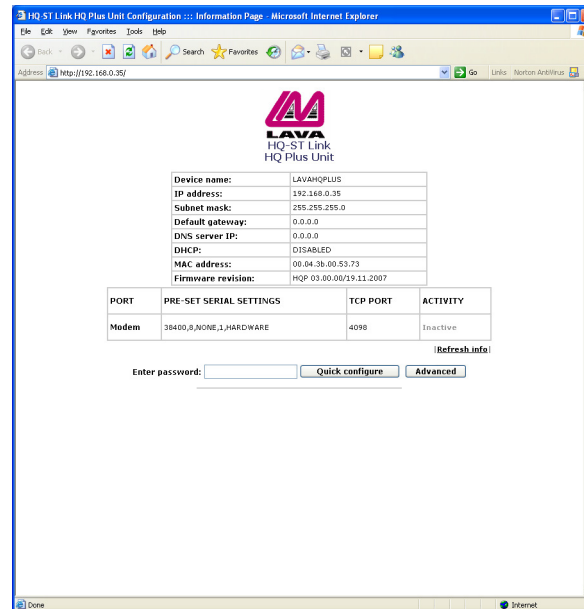
NOTE: In the main HQ Basic screen there is also a "Remote Modem Access" button. These two settings differ in that the "Allow Remote Modem" checkbox will configure the HQ Plus to accept remote polling connections and will retain that mode on a reboot, while the "Remote Modem Access" button will configure the HQ Plus to accept remote polling connections but will not retain that mode on a reboot.

9. Physically attach the LAVA HQ Plus to a head office LAN with a standard CAT-5 UTP RJ-45 network cable.

Set-up option #2: web browser configuration

1. Physically attach a LAVA HQ Plus to a head office LAN: plug the power cable and network cable into the LAVA HQ Plus.
2. Once you have verified connection to the LAVA HQ Plus, open a web browser to the IP address of the LAVA HQ Plus (factory default is 192.168.0.35).

Figure 6: LAVA HQ Plus home page



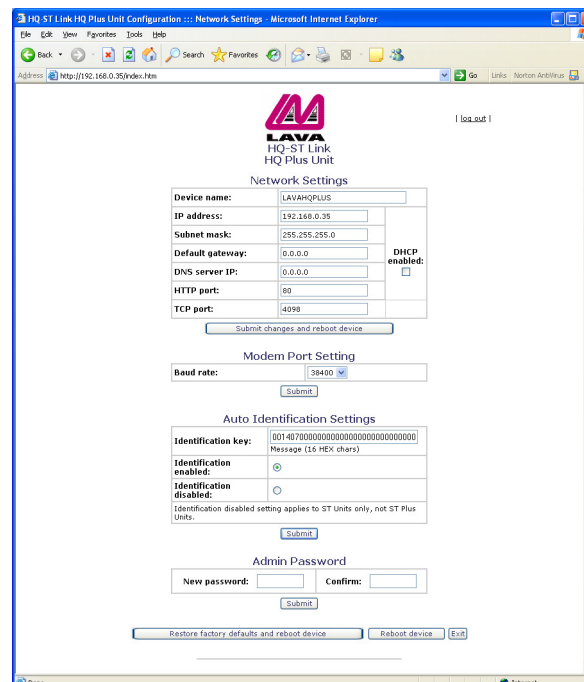
Device name: LAVAHQPLUS
IP address: 192.168.0.35
Subnet mask: 255.255.255.0
Default gateway: 0.0.0.0
DNS server IP: 0.0.0.0
DHCP: DISABLED
MAC address: 00.04.3b.00.53.73
Firmware revision: HQP 03.00.00/19.11.2007

PORT	PRE-SET SERIAL SETTINGS	TCP PORT	ACTIVITY
Modem	38400,8,NONE,1,HARDWARE	4098	Inactive

Enter password:

3. Enter the password (factory default is "hqlava"), then click on the "Quick Configure" button to open the configuration screen.

Figure 7: LAVA HQ Plus quick configuration



Network Settings

Device name: LAVAHQPLUS
IP address: 192.168.0.35
Subnet mask: 255.255.255.0
Default gateway: 0.0.0.0
DNS server IP: 0.0.0.0
HTTP port: 80
TCP port: 4098
DHCP enabled: ☐

Submit changes and reboot device

Modem Port Setting

Baud rate: 38400
Submit

Auto Identification Settings

Identification key: 00140700000000000000000000000000
Message (16 HEX chars)
Identification enabled: ☒
Identification disabled: ☐
Identification disabled setting applies to ST Units only, not ST Plus Units.

Submit

Admin Password

New password: Confirm:
Submit

Restore factory defaults and reboot device Reboot device Exit

4. Enter a new name in the "Device name" field (the factory default is "LAVAHQPLUS"). LAVA recommends a unique device name for each LAVA HQ Plus.
5. Configure the network settings for the HQ Plus. The IP address should be unique on the LAN, and the subnet mask can usually be left at the factory default (255.255.255.0).
6. The http port is set to the conventional port 80 by default but can be changed if needed. This port is used to access the HQ Plus web server.
7. Other network settings can usually be left at their defaults, but note the setting for "TCP port" (factory default is 4098). This port number and the next in sequence (in this case, 4099) are the ports for the HQ Plus's console and control ports respectively.

These two port numbers (or two you select, so long as they are consecutive numbers), must be mapped in your gateway router to allow ST Plus units, HQ Remote Console units, and HQ Remote Poller units to access the HQ Plus from outside the LAN.

For details on port mapping of your router consult your router documentation.
8. If the LAVA HQ Plus unit will have a DNS name it can be entered in the "Device DNS" field (the factory default is empty).
9. Set the modem port baud rate (factory default is 38400). This baud rate should match that used throughout the polling (that is, all serial ports should match: the ECR, the ST Plus, the HQ Plus modem port, and the polling software).
10. Ensure that the identification key used by the HQ Plus matches any ST Plus devices that you wish to poll. The option to disable identification is for backward compatibility with older ST units, and should not otherwise be used.
11. If desired you can change the password used to access HQ Plus configuration screens.
12. Verify your inputs. When ready, press the "Submit changes and reboot device" button. You will be returned to the main configuration screen.
13. If desired, supply the HQ Plus password and click on the "Advanced" button to enter detailed configuration screens for modem and serial port settings.

Troubleshooting LAVA HQ Plus connectivity using the LAVA Ether Link Device Manager application

If you lose connectivity to the LAVA HQ Plus:

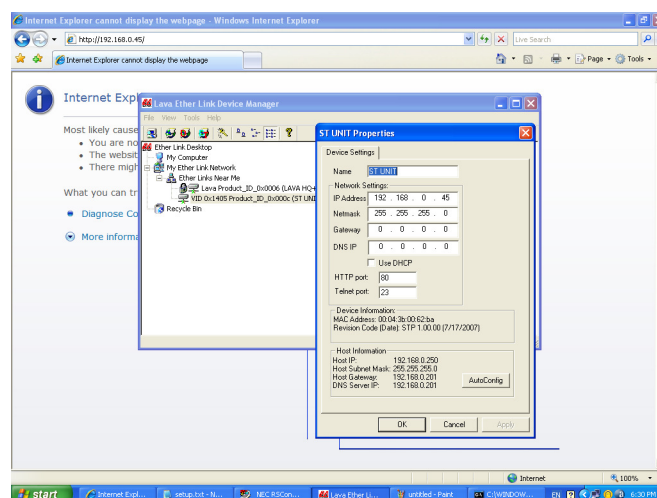
- a) by having your LAVA HQ Plus obtain through DHCP an IP address you don't know, or
- b) by having your LAVA HQ Plus attempting to obtain an IP address from an unavailable DHCP server,

you can restore connectivity by running the LAVA Ether-Link Manager application on the same LAN as the LAVA HQ Plus unit is installed. If you cannot discover the unit a router may be intervening; in that case you might find an Ethernet crossover cable directly connected between the computer and the HQ Plus works best.

TO DETERMINE THE IP ADDRESS OF A LAVA HQ PLUS:

1. Ensure the LAVA HQ Plus is powered up and connected to the network. Disable any firewalls that might prevent the LAVA Ether Link Device Manager from contacting the LAVA HQ Plus.
2. Start the LAVA Ether Link Device Manager application. A screen like the following will appear:
3. Locate the LAVA HQ Plus in the LAVA Ether Link Device Manager tree. It will be named "VID 0x1405 Product_ID_0x000c (HQ UNIT)" where "HQUNIT" is the device name of the unit.
4. Right-click on that text and select "Properties" from the pop-up menu that appears.

Figure 8: LAVA Ether Link Device Manager: device properties



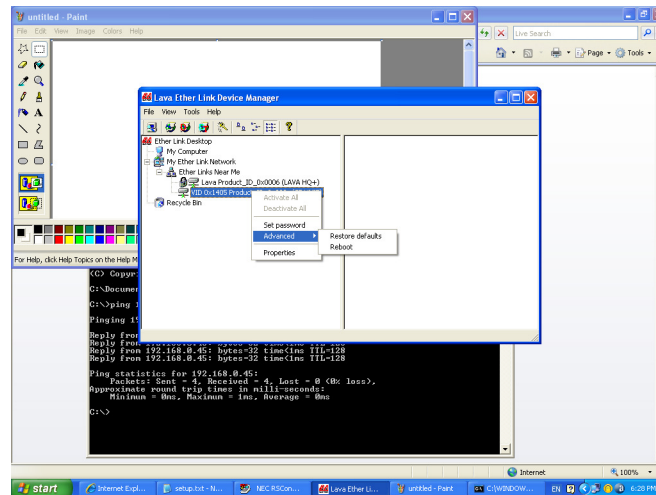
5. A dialog box will appear that displays the network settings of the selected unit. You can now use the IP address presented there in a web browser to open configuration web pages on the LAVA HQ Plus, provided that the HQ Plus and the computer running the web browser are on the same subnet.

NOTE: You may need to refresh the information in the LAVA Ether Link Device Manager interface by pressing the "F5" key after changes to the LAVA HQ Plus's settings.

TO RESTORE A LAVA HQ PLUS TO FACTORY DEFAULTS:

1. Ensure the LAVA HQ Plus is powered up and connected to the network.
2. Start the LAVA Ether Link Device Manager application. A screen like the following will appear:
3. Locate the LAVA HQ Plus in the LAVA Ether Link Device Manager tree. It will be named "VID 0x1405 Product_ID_0x000c (HQ UNIT)" where "HQ UNIT" is the device name of the unit.
4. Right-click on that text and select "Advanced" from the pop-up menu that appears.

Figure 9: LAVA Ether Link Device Manager: device reboot



5. Choose "Restore defaults." The LAVA HQ Plus will reboot with factory defaults.

NOTE: You may need to refresh the information in the LAVA Ether Link Device Manager interface by pressing the "F5" key after changes to the LAVA HQ Plus's settings.