

# Spectrum24 CB1000 for IBM 4690 Terminals

## User Guide

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**symbol**<sup>®</sup>  
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4,896,026;	4,897,532;	4,923,281;	4,933,538;	4,992,717;	5,015,833;	5,017,765;	5,021,641;	5,029,183;	5,047,617;	5,103,461;
5,113,445;	5,130,520;	5,140,144;	5,142,550;	5,149,950;	5,157,687;	5,168,148;	5,168,149;	5,180,904;	5,216,232;	5,229,591;
5,230,088;	5,235,167;	5,243,655;	5,247,162;	5,250,791;	5,250,792;	5,260,553;	5,262,627;	5,262,628;	5,266,787;	5,278,398;
5,280,162;	5,280,163;	5,280,164;	5,280,498;	5,304,786;	5,304,788;	5,306,900;	5,324,924;	5,337,361;	5,367,151;	5,373,148;
5,378,882;	5,396,053;	5,396,055;	5,399,846;	5,408,081;	5,410,139;	5,410,140;	5,412,198;	5,418,812;	5,420,411;	5,436,440;
5,444,231;	5,449,891;	5,449,893;	5,468,949;	5,471,042;	5,478,998;	5,479,000;	5,479,002;	5,479,441;	5,504,322;	5,519,577;
5,528,621;	5,532,469;	5,543,610;	5,545,889;	5,552,592;	5,557,093;	5,578,810;	5,581,070;	5,589,679;	5,589,680;	5,608,202;
5,612,531;	5,619,028;	5,627,359;	5,637,852;	5,664,229;	5,668,803;	5,675,139;	5,693,929;	5,698,835;	5,705,800;	5,714,746;
5,723,851;	5,734,152;	5,734,153;	5,742,043;	5,745,794;	5,754,587;	5,762,516;	5,763,863;	5,767,500;	5,789,728;	5,789,731;
5,808,287;	5,811,785;	5,811,787;	5,815,811;	5,821,519;	5,821,520;	5,823,812;	5,828,050;	5,848,064;	5,850,078;	5,861,615;
5,874,720;	5,875,415;	5,900,617;	5,902,989;	5,907,146;	5,912,450;	5,914,478;	5,917,173;	5,920,059;	5,923,025;	5,929,420;
5,945,658;	5,945,659;	5,946,194;	5,959,285;	6,002,918;	6,021,947;	6,029,894;	6,031,830;	6,036,098;	6,047,892;	6,050,491;
6,053,413;	6,056,200;	6,065,678;	6,067,297;	6,082,621;	6,084,528;	6,088,482;	6,092,725;	6,101,483;	6,102,293;	6,104,620;
6,114,712;	6,115,678;	6,119,944;	6,123,265;	6,131,814;	6,138,180;	6,142,379;	6,172,478;	6,176,428;	6,178,426;	6,186,400;
6,188,681;	6,209,788;	6,209,789;	6,216,951;	6,220,514;	6,243,447;	6,244,513;	6,247,647;	6,308,061;	6,250,551;	6,295,031;
6,308,061;	6,308,892;	6,321,990;	6,328,213;	6,330,244;	6,336,587;	6,340,114;	6,340,115;	6,340,119;	6,348,773;	6,305,885;
D341,584;	D344,501;	D359,483;	D362,453;	D363,700;	D363,918;	D370,478;	D383,124;	D391,250;	D405,077;	D406,581;
D414,171;	D414,172;	D418,500;	D419,548;	D423,468;	D424,035;	D430,158;	D430,159;	D431,562;	D436,104.	
5,912,662;	6,011,873;	6,080,001;	6,234,389;	6,193,152B1;						

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# Chapter 1 Introduction

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The CB1000 is a small, lightweight snap-together case with an accessible PCMCIA slot that adapts to Spectrum24 2 Mbps FH or 11 Mbps DS (WiFi certified) radios. The CB1000 supports the features of the Symbol Spectrum24 WLAN product family, including international roaming, security (WEP for 40/128 bit encryption), rate switching, operation in ad hoc and psuedo IBSS modes, DSMU and Micro AP (for 2 Mbit products). The product supports a number of configurations including the RS-232 industry standard serial port clients attached to servers; remote Ethernet clients; wired Ethernet-to-serial connection when no radio is installed; and point-to-point serial hops.

The CB1000 is certified to support the IBM SurePOS 700 Series in retail stores that have deployed 802.11b (Wi-Fi™) interoperability wireless local area networks (LANs). The CB1000 enables IBM retail POS customers the option to migrate to wireless, and allows them to choose between Spectrum24 Frequency Hopping (FH- 802.11) and Spectrum24 Direct Sequence (DS-802.11b) wireless LAN technologies when organizing in-store floor layouts. This is important for IBM POS customers who have already deployed wireless LANs for inventory management and those who plan to migrate from Symbol's FH wireless LANs to DS wireless LANs for applications requiring higher data rates (up to 11 Mbps). The IBM 4690 OS software solution adapts to either a wireless or wired network.



## Chapter 2 Supported Platforms

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The CB1000 is supports several versions of the 4690 Operating System:

- 4690 OS Version 2, Release 3, level 01B0
- 4690 OS Version 2, Release 4, level 01H0
- IBM Distributed Data Services with the Controller Services Feature (DDS/CSF) Version 2.0.1.0. A version of 4690 with CB1000 support is a pre-requisite.

The latest 4690 OS levels are available at <http://www.pc.ibm.com/store/>. Contact IBM for additional information.

The CB1000 was tested with the following IBM Terminals:

- SurePOS 730 and 750
- 4694-104 and 144
- 4694-106 and 146
- 4694-205 and 245
- 4694-244
- 4694-206 and 246

CB1000 firmware version 2.27 or later supports IBM 4694 and SurePOS 700 terminals. The CB1000 IBM RPL Support option is required.

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## 2.1 Symbol Radio Support

The CB1000 was tested with the following Symbol Spectrum24 PCMCIA radio cards and Access Points:

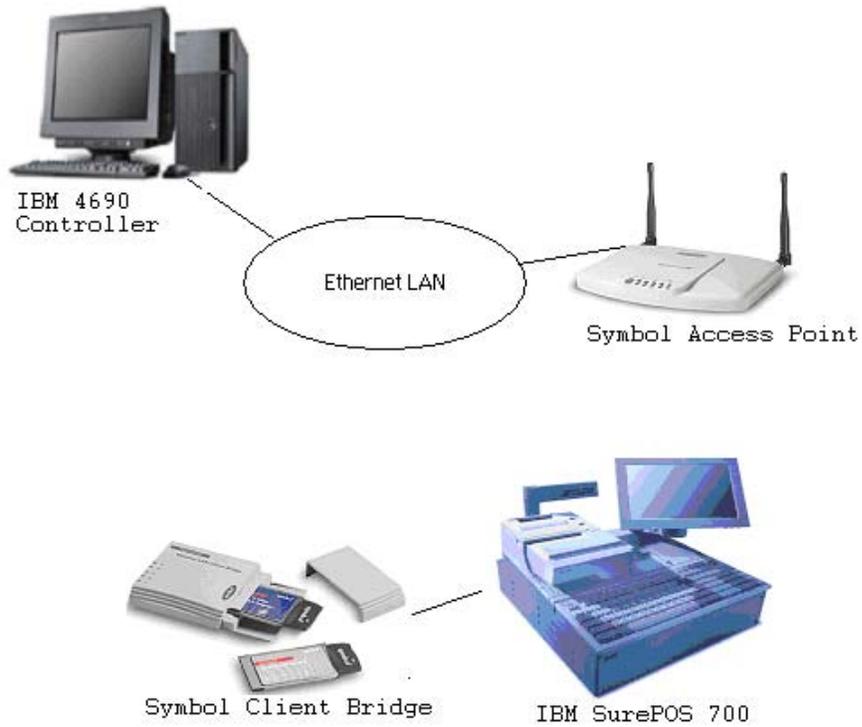
- 802.11 2 Mbps FH Network
  - Spectrum24 Wireless LAN PC Card – 2 Mbps (PN LA-3021)
  - Spectrum24 Ethernet Access Point – 2 Mbps (PN AP-3021)
- 802.11b 11 Mbps DS Network
  - Spectrum24 HR 11 Mbps Wireless LAN PC Adapter (PN LA-4021)
  - Spectrum24 11 Mbps Ethernet Access Point (PN AP-4121)

The SurePOS 500 is a Windows NT device with the operating system installed on a hard disk. The CB1000 or a standard PC Card with drivers supports this device. RPL support is not required.

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**Note:** Token Ring environments are not supported.

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The IBM SurePOS 700 can connect to the Symbol CB1000 through an Ethernet cable. The CB1000 contains a Symbol Spectrum24 PCMCIA radio card with an antenna. The CB1000 transmits messages wirelessly to the Symbol Access Point, which forwards the messages to the IBM 4690 Controller over the Ethernet LAN.

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## 2.2 Optional Power Cable

An optional power/Ethernet cable (Symbol part number 50-16000-270) enables the CB1000 to draw power from the PS/2 port on a 4694 or SurePOS terminal. Cable lengths are 4 feet and cannot be changed. This cable is only certified for IBM 4694 and SurePOS usage.

Symbol recommends ordering the standard CB1000 with power supply and add the custom cable to reduce the clutter. Symbol is not able to provide a special package with no power supply at this time. Keep the original power supply to utilize the CB1000 for other purposes or as a backup.

## 3 Configuration

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Converting an Ethernet based 4694 or SurePOS terminal to a wireless terminal requires:

- configuring the Access Point
- configuring the Client Bridge
- configuring the terminal for wireless communications
- configuring logical names for application and performance.

### 3.1 Access Point Configuration

The following fields require configuration prior to installation in the retail environment.

- the Net\_ID (ESS)
- the Multicast Mask is required to be 03000004.
- Symbol recommends enabling WEP (encryption).

Configure the parameters through the Access Point User Interface (UI). The UI is a maintenance tool integrated into the Access Point. It provides statistical displays, AP configuration options and firmware upgrades.

Access to the UI requires one of the following:

- TCP/IP Telnet Client
- direct serial connection

- 
- dial up access
  - SNMP using a MIB browser
  - Web browser.

Refer to the Access Point Product Reference Guide (available from <http://www.symbol.com/services/downloads> for more details).

To configure the Access Point using a Direct Serial Connection:

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**Note:** The UI and serial port are enabled on the AP:

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1. Attach a null modem serial cable from the AP to the terminal or PC serial port.
2. Start the communication program (such as HyperTerminal for Windows) from the terminal.
3. Select the COM port along with the following parameters.
  - emulation                      ANSI
  - baud rate                        19200 bps
  - data bits                         8
  - stop bits                         1
  - parity                             none
  - flow control                     none

There is no password requirement to view the Main Menu or statistics.

4. Press ESC to refresh the display. The AP displays the Main Menu.

- 
5. From the Main Menu, select Enter Admin Mode and enter the password. The default password is Symbol.

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**Note:** The password is case-specific.

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6. Enter the Net\_ID (ESS).  
Select AP Installation From the UI Main Menu. Tab to Net\_ID (ESS). Enter a unique value (1-32 alphanumeric characters, case sensitive) and press Enter twice.
7. Enter the Multicast Mask.  
From the UI Main Menu, select "Set RF Configuration". Tab to Multicast Mask. Enter 03000004. Press Enter twice to enter the configuration value.
8. Save the configuration.  
From the UI Main Menu, select Special Functions. Tab to Save Configuration and press Enter. At the prompt "Are you sure? yes no", press y to save.
9. Power the Access Point off and then on to reset.
10. Connect the Access Point to the IBM 4690 Controller Ethernet LAN.

---

## 3.2 Client Bridge Configuration

Some Client Bridge setup is required prior to installation in the retail environment.

- set the ESSID to the Net\_ID (ESS) on the AP. ESSID is case sensitive
- check "IBM RPL Support" within the Client Bridge Network options.

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**Note:** CB1000 firmware version 2.27 or later is required. The CB1000 Configuration Utility Version 2.33 or later supports the "IBM RPL Support" option.

---

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**Note:** If using the Serial Port Protocol to configure the Client Bridge, add the line "pos support = yes" under the [bridge] keyword in the System Options. If Locally Administered Addresses (LAA) is configured for the terminals, set the CB1000 Radio Advanced Parameter "MAC Address" to dynamic.

---

Client Bridge parameters can be set with a Windows Configuration utility or through a terminal emulation (Hyperterm for Windows for example) and a RS-232 Serial Cable. For more configuration details or instructions on updating the CB firmware, refer to the Spectrum24 CB1000 User Guide available at <http://www.symbol.com/services/downloads>.

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The CB1000 Configurator utility (provided with the CB1000) operates on a host PC or workstation running Windows 95/98 or 2000. Refer to the README.TXT file on the CD included with the CB1000 for installation instructions. The utility enables the user to graphically and remotely:

- display the CB1000 units running on the local network
- display and edit the current configuration of any CB1000
- save and load configurations to and from the local host
- update the CB1000 firmware.

To configure the CB1000 using the Windows Configuration utility:

1. Insert a Symbol Technologies supported radio in the CB1000 (CB).
2. Connect the CB directly to a Windows PC with an Ethernet Cable.
3. Power on the CB.
4. Start the CB1000 Configurator program on the Windows PC.
5. From the CB1000 Unit List, double-click on the target CB.

Match the serial number of the CB displayed in the Unit List window with the serial number found on the bottom of the CB to identify the correct CB.

6. Verify the CB Firmware version is 2.27 or later.

If the CB firmware is earlier than 2.27, obtain the latest firmware from Symbol (<http://www.symbol.com/services/downloads>).

7. Verify the CB1000 Configuration Utility is Version 2.33 or later.

If the Configuration Utility is earlier than 2.33, obtain the latest version from Symbol (<http://www.symbol.com/services/downloads>).

8. Click on the Network tab.

---

Select the "IBM RPL Support" box. If "Enable Bootp" is an option, select "No".

9. Click the Radio tab. Click the Basic tab.

Enter the ESSID. This is a case sensitive alphanumeric field that should match the NET\_ID (ESS) parameter on the AP.

For a 2MB radio, set the Radio mode to Station. For an 11MB radio, set the Operating Mode to Infrastructure.

10. Click the Advanced tab.

If Locally Administered Addresses (LAA) is configured for the terminals, set the "MAC Address" parameter to "dynamic". If LAA is not configured, click either "capture" or "dynamic".

Select Antenna Diversity.

For a 2MB radio, Transmit rates 1 and 2 should display. For an 11MB radio, Transmit rates 1, 2, 5, and 11 should display. If the wrong rates are displayed for the inserted radio, use the "Reset to Default" option under File, remove power from the Client Bridge and return to Step 1.

11. Click "Update and Reset Unit".

A "Upload and reset successful" message displays. The CB is ready to connect to the 4694/SurePOS terminal.

---

## 3.3 IBM Terminal Setup

To convert an Ethernet based 4694/SurePOS terminal from wired to wireless:

1. Plug the Ethernet cable from the terminal into the Client Bridge.
2. Reboot the Client Bridge.

The terminal is ready for wireless operation.

## 3.4 IBM 4690 Controller Setup

There are no required changes to the controller configuration, but several parameters are available to optimize the performance of wireless systems and reduce terminal load times. These parameters are changed using User Logical Names.

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**Note:** Verify the 4690 OS level supports the CB1000.

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The User Logical Names are:

- ADXRPLWL - Selects Unicast vs. Multicast Remote Program Load
- ADXWLSPD - Speed-up terminal load.
- ADXSLLD4/ ADXLDLY4- Controller Throttle
- ADXWLNT0 - Change the number of DLC retries.
- ADXRPLWL - Unicast vs. Multicast Remote Program Load.

---

## ADXRPLWL – Unicast vs MultiCast Remote Program Load

In a 4690 OS environment, 4694 and SurePOS terminals load their terminal OS images from a store controller in a multi-stage process. First, the hardware adapter responsible for the network connection to the store controller sends a broadcast message in search of a store controller. For LAN based hardware adapters (for example, token-ring, Ethernet, and wireless) the store controller discovery is performed using Remote Program Load (RPL) protocol messages.

When a store controller receives a load request from a hardware adapter, it first transmits a small piece of code (referred to as a bootstrap) to the terminal. Once the bootstrap is loaded and control is transferred to it, the bootstrap requests the load of the 4690 terminal OS image from the store controller. When the 4690 terminal OS image is loaded, the bootstrap passes control to it and terminal IPL begins.

The 1st Stage (the bootstrap load) is transmitted to wireless terminals in unicast (or point-to-point) mode. In Stage 2 (the terminal Operating System load) the OS can be transmitted either in the unicast or multicast mode. The final stage (application load) is transmitted in unicast mode.

In Unicast mode, the server transmits LAN data directly to the adapter issuing the request. In Multicast mode, the server transmits LAN data to a group of adapters, which are all able to receive data addressed to a designated destination. In Broadcast mode, the server transmits LAN data to all adapters. Multicast is differentiated from broadcast as multicast data is sent to a certain group of adapters on the LAN (for example, all wireless adapters, but not Ethernet adapters).

On wireless LANs, unicast transmissions are acknowledged at various points and provide higher reliability compared with multicast transmissions, which have a higher rate of data loss. Symbol recommends using unicast communications for wireless LANs.

---

Although unicast transmissions are more reliable than multicast, the amount of data transmitted for a large number of terminals can be greater. In addition, unicast load time increases proportionally to the number of terminals being loaded. Conversely, in multicast mode, load time increases only slightly with an increasing number of terminals. There is more of a leveling effect of load time as the number of terminals is increased.

The 4690 OS RPL server is designed to transmit either multicast or unicast loads to wireless POS terminals. By default, 4690 OS RPL servers transmit in multicast mode. To override the multicast default setting and set the store controller to unicast mode, a user logical file name is required to be defined on the store controller(s) enabled for the wireless LAN feature. This file (ADXRPLWL) defines whether the controller operates in a unicast or multicast mode for wireless terminals.

Unicast is Symbol recommended setting. Unicast is more reliable and loads a single terminal faster than multicast. However, multicast can load a large number of wireless terminals (15+) faster, especially in slower wireless networks. As the speed of the wireless network increases, the advantage of multicast goes down.

If a site has 1-15 terminals on a 2Mbit wireless network, define ADXRPLWL to enable unicast loading. With more than 15 wireless terminals, do not define ADXRPLWL, which enables multicast loading. If there are problems loading terminals, unicast is a more reliable load protocol. Experiment with both modes to determine which one provides the shortest most reliable terminal load time.

---

**Note:** Multicast is the default setting.

---

A single terminal loads faster in unicast than multicast. On faster wireless networks, unicast can support a higher number of terminals. The value assigned to ADXRPLWL is meaningless. The existence of the logical name forces unicast loading.

---

To set Unicast Wireless RPL transmissions:

1. Sign on to the 4690 Master store controller.
2. At the main menu, select Installation and Update Aids.
3. Select Change Configuration.
4. Select Controller Configuration.

---

**Note:** Perform the following on all Master and Alternate Master controllers with the wireless feature installed and selected.

---

5. Select User Defined Logical File names.
6. Define logical file name ADXRPLWL.  
When asked if it is OK to define this name with an IBM reserved name, answer yes.
7. Define ADXRPLWL to 1.
8. Exit configuration.
9. Select Activate Configuration.
10. Select Controller Configuration.
11. After the configuration activation, re-IPL all store controllers.

The RPL server within the store controller(s) now transmits the terminal operating system in unicast mode to the wireless terminals. Wired Ethernet terminal loading is not affected by the configuration change.

---

To set MultiCast Wireless RPL transmissions:

1. Sign on to the 4690 Master store controller.
2. At the main menu, select Installation and Update Aids.
3. Select Change Configuration.
4. Select Controller Configuration.

---

**Note:** Perform the following on all Master and Alternate Master controllers with the wireless feature installed and selected.

---

5. Select User Defined Logical File names.
6. Erase logical file name ADXRPLWL.  
When asked if it is OK to erase this name with an IBM reserved name, answer yes.
7. Exit the configuration
8. Select Activate Configuration.
9. Select Controller Configuration.
10. After the configuration activation, re-IPL all store controllers.

The RPL server within the store controller(s) now transmits the terminal operating system in multicast mode to the wireless terminals. Wired Ethernet terminal loading is not affected by the configuration change.

### ADXWLSPD - Speed-up wireless terminal loading

Use the ADXWLSPD parameter with wireless networks faster than 1Mbps. The terminal load time can be reduced when a value for this parameter is set.

---

When loading a wireless terminal, the controller delays about 60ms between each RPL load block to avoid overrunning the bandwidth of the wireless network. ADXWLSPD controls the number of load blocks sent per delay. The default is one block per delay. The default delay was designed for a dual controller system with a 1Mbps network.

Since the controller cannot detect the speed of the wireless terminals, the user can configure ADXWLSPD to speed up the load.

Set ADXWLSPD based on the slowest wireless terminal in the network. Note that an 11Mbit radio can scale back to 5.5 or 2 or 1 Mbps based on the radio signal from the AP. The Symbol recommended setting is close to the speed of the slowest wireless terminal. This option only applies to RPL loaded terminals and doesn't affect PXE loading.

<u>Speed of slowest wireless terminal</u>	<u>Recommended setting</u>
1Mbit	ADXWLSPD = 1 (Default)
2Mbit	ADXWLSPD = 3
5Mbit	ADXWLSPD = 5
11Mbit	ADXWLSPD = 10

---

**Note:** Setting the ADXWLSPD value too high causes the controller to send blocks faster than the wireless network can transmit them. This causes load blocks to be thrown away and the terminals take a long time to load.

---

If ADXWLSPD is not defined, the default value is 1. Base 4690 OS does not define this Logical Name.

---

To define the User Logical Name ADXWLSPD:

1. Sign on to the 4690 Master store controller.
2. At the main menu, select Installation and Update Aids
3. Select Change Configuration.
4. Select Controller Configuration.

---

**Note:** Perform the following on all Master and Alternate Master controllers with the wireless feature installed and selected.

---

5. Select User Defined Logical File names.
6. Define User logical file name ADXWLSPD.  
When asked if it is OK to erase this name with an IBM reserved name, answer yes.
7. Define the logical name with a value between 1 and 15
8. Exit the configuration
9. Select Activate Configuration.
10. Select Controller Configuration.
11. After the configuration activation, re-IPL all store controllers.

## Changing DLC Retry and Time-out Values

Data between controllers and terminals can be lost depending on network traffic conditions. In instances of data loss, the driver retries transmission 4 times. Timers T1 and Ti define retry transmissions. If set high, the chance of a successful retry is high but it could take longer to complete a transmission. If set low, the transmission takes less time but the chance of successful transmission is low (In this case, the terminals could go off-line).

---

Manually set timers T1 and Ti in respect of network traffic conditions. These timers can be set with the logical name ADXLWNT0. The higher ADXLWNT0, the higher T1 and Ti. ADXLWNT0 is defaulted to maximum delay.

---

**Note:** To use the default setting, do not define the logical name ADXLWNT0.

---

To define the User Logical Name ADXLWNT0:

1. Sign on to the 4690 Master store controller.
2. At the main menu, select Installation and Update Aids
3. Select Change Configuration.
4. Select Controller Configuration.

---

**Note:** Perform the following on all Master and Alternate Master controllers with the wireless feature installed and selected.

---

5. Select User Defined Logical File names.
6. Define User logical file name ADXLWNT0.  
When asked if it is OK to erase this name with an IBM reserved name, answer yes.
7. Exit the configuration
8. Perform Steps 1 – 7 for all the other controllers.
9. Select Activate Configuration.
10. Select Controller Configuration.
11. After the configuration activation, re-IPL all store controllers.

---

## ADXSLLD4 - Controller Throttle for Terminal Loading

4690 OS does not use the ADXSLLD4 user logical name. ADXSLLD4 was replaced with ADXLDLY4.

## ADXLDLY4 - Controller Throttle for Terminal Loading

The ADXLDLY4 option is for pacing wired LAN terminal loads and should not be used to throttle wireless loads.

### 3.5 PXE Loading

With the release of the 4690 OS V2R4, a function was added to support terminals using PXE to load the operating system. To take advantage of the new loading method, the Symbol Client Bridge and Access Point require configuration modifications.

#### Access Point Setup

The Access Point Multicast Mask (V) is required to be "01005E2E", without quotes. The entry or Multicast Mask (D) is "03004000", without quotes. Locate the parameter on the "Set RF Configuration" screen for the Access Point.

#### Client Bridge Setup

The CB1000 MAC ADDRESS is required to be "dynamic", without quotes. Locate the parameter on the "Bridged Ethernet" screen for the Client Bridge.

---

## IBM Terminal Setup

For 4694-2x7 and 4694-3x7 models:

1. From the Main Menu select "Boot Sequence" and set the following:
  - "1st Boot Source" to "Drive A"
  - "2nd Boot Source" to "System board 10/100 Ethernet"
  - "RPL Boot Protocol" to "PXE"
2. From the Main Menu select "ASIC Setup" and set the following:
  - "NVRAM start address" to "DD000"
  - "NVRAM 1st 4k" to "Enabled"
  - "NVRAM 2nd 4k" to "Page 1"
  - "SRAM Start Address" to "DC000"
  - "SIO Interrupt" to "IRQ7"
3. From the Main Menu select "Advanced System Setup".
4. Select "I/O Device Configuration".
5. Set Parallel Port to "Disabled".
6. Save the settings.
7. Exit System Setup and IPL the terminal.
8. The terminal reloads with the new parameters.

---

## IBM 4690 Controller Setup

The 4690 OS file ADXTRMDF.DAT is required to include the following entry:

```
"BRDCST=1"
```

Enter "BRDCST=1" without quotes. Run terminal load shrink by typing ADXRTCCL from OS command prompt and re-ipl the controllers.

The remainder of the system configuration would be as you have already completed for your Ethernet attached PXE loaded terminals.

## Converting a Wireless Terminal to a Wired Terminal

To a configure a wireless terminal back to a wired terminal:

Remove Ethernet cable from the CB and plug it into the IBM 4690 Controller's Ethernet hub.



## 4 Troubleshooting

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Symbol recommends the following corrective actions if problems are encountered with the CB1000 in an IBM 4690 operating system environment.

### Terminal Cannot Load Due to "Too Many Retries"

- Verify the CB1000 firmware is 2.27 or later.
- Verify the IBM RPL Support Option is selected in the CB1000.
- Verify ADXWLSPD is not set higher than the speed of the CB1000 radio.

### Terminal Cannot Find an RPL Server

- Verify the CB1000 Power LED is Solid.
- Verify the CB1000 Ethernet Link LED is lit. If not, verify the Ethernet cable is securely connected to the CB1000 and the terminal.
- Verify CB1000 Radio Association LED is lit. If not, the radio is not transmitting to an Access Point.
- Verify the 4690 OS is V2R3 level 01B0, V2R4 level 01H0, or later.

### A Trace Indicates the Terminal Does Not Send any RPL Frames.

- If the CB1000 was connected to another terminal and has not been rebooted, reboot the CB1000.

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## Multicast Does Not Work

After the sendfile request from the terminal, the RPL server delays 10 seconds and then sends the load frames in unicast mode. Terminals load, but it's slower than if unicast mode is specified, due to the extra 10-second delays.

The initial 4690 releases with CB support have a bug in the multicast logic. If multicast support is required, contact IBM for a fix.

## Terminal Hang Using Locally Administered Addresses

If LAA (Locally Administered Addresses) is configured, terminals hang at U005 during the load. The terminal has switched from using the Symbol card MAC address to the LAA address. Upgrade the CB1000 to firmware 3.32 or later. Set the CB1000 Radio Advanced Parameter "MAC Address" to "dynamic".

## Terminal Hang at W008

The terminal is sending XID requests and the controller is ignoring them. Clear the NVRAM in the terminal, load the terminal wirelessly and re-address the terminal. To clear the NVRAM on a 4694, boot to DOS and run the IBM utility ADRCLR94.EXE (available from the IBM web site). To clear the NVRAM on a SurePOS7xx terminal, press the dump button as soon as U005 displays. The dump button is recessed and is located under the power on button.

## Terminal Hangs when Adding Additional Terminals

The CB1000 works with one terminal, but when the CB1000 is moved to another terminal, the terminal hangs at "Looking for RPL Server" or no messages flow from the CB1000 to the wired LAN. The CB1000 was not powered off after it worked with the first terminal.

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If the CB1000 Radio Advanced Parameter "MAC Address" is set to "capture", the CB1000 only transmits messages from the first MAC address that it sees on the wired side. Either power off the CB1000 when moving it to another terminal or set the CB1000 Radio Advanced Parameter "MAC Address" to "dynamic".

### Terminal Hangs at W008 During a Wireless Terminal Load

During a wireless terminal load, the terminal hangs at W008. The terminal loads successfully as a wired terminal.

Check the size of the file ADX\_SPGM:ADXRT8GF.DAT. In 4690 OS releases before December 2001, the 4690 OS wireless bootstrap doesn't correctly handle files larger than 3MB. Contact IBM for a fix.

### CB1000 with 2Mbps Radio Hangs When Using WEP

The CB1000 with a 2MB radio hangs when WEP encryption is enabled and the AP forwards a 0-length message.

CB1000 hangs when the radio firmware receives a packet with zero length in the MAC header and WEP enabled. The fix is in V4.69 of the 2MB PCMCIA S24 Firmware.

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## Hot Swapping the CB1000 from One Terminal to Another

The CB1000 cannot be moved from one terminal to another unless the user:

- Power off the Client Bridge prior to attaching to the second terminal
- Change the value of the MAC Address on the Advanced tab of the client bridge configuration from 'capture' to 'dynamic'.

# Customer Support

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Symbol Technologies provides its customers with prompt and accurate customer support. Use the Symbol Support Center as the primary contact for any technical problem, question or support issue involving Symbol products.

If the Symbol Customer Support specialists cannot solve a problem, access to all technical disciplines within Symbol becomes available for further assistance and support. Symbol Customer Support responds to calls by email, telephone or fax within the time limits set forth in individual contractual agreements.

When contacting Symbol Customer Support, please provide the following information:

- serial number of unit
- model number or product name
- software type and version number.

## North American Contacts

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One Symbol Plaza Holtsville, New York 11742-1300  
Telephone: 1-631-738-2400/1-800-SCAN 234  
Fax: 1-631-738-5990

- Symbol Support Center (for warranty and service information):
  - telephone: 1-800-653-5350
  - fax: (631) 563-5410
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### Web Support Sites

#### **MySymbolCare**

<http://www.symbol.com/services/msc>

#### **Symbol Services Homepage**

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