



# ScanVue® VFD 5100 Price Verifier User Manual



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## STANDARDS CERTIFICATION

The ScanVue® product described in this manual has been fully tested and certified by an independent testing laboratory and is compliant with the following international standards.

- UL Standard 60950 (ITE) listed product.
- CSA standard C22.2 No. 950 recognized product.
- RF Emissions (Conducted):
  - FCC CFR Title 47 part 15 Subpart B, Class A
- RF Emissions (Radiated):
  - CISPR 22 called out in FCC CFR Title 47 part 15 Subpart B, Class A
- EN55022, 2010/AC: 2011 Class A
- EN55024: 2010
- EN61000-3-2: 2006 + A1: 2009 & A2: 2009
- EN61000-3-3: 2008

## CAUTIONS

**Caution:** Do NOT DISPLAY A FIXED MESSAGE FOR EXTENDED PERIODS OF TIME AS THIS MAY CAUSE A PERMANENT LATENT (GHOST) IMAGE ON THE VFD. THE WARRANTY DOES NOT COVER THIS EFFECT.



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## Chapter 1—Introduction

### Overview

This manual provides instructions for configuration and operation of the IEE ScanVue® Price Verifier designed for product marketing. Included is a description of the basic functions and features of the hardware. Following this is description of how to physically install the unit in its intended location, set it up to operate on your specific network, configure your network, and interface the IEE ScanVue® to a back office server through its Application Programming Interface (API).

The following chapters describe how to:

- Setup and install a local desktop or laptop PC with IEE Configuration programs, demo text files and various support utilities.
- Configure ScanVue® using IEE configuration program *UnitConfig* or *Modeset*.

### ScanVue® VFD Description

ScanVue® VFD is a multi-function price verifier designed to scan, verify and display price information for bar coded products on a 4 line x 20 character vacuum fluorescent display.

ScanVue® VFD can show continuous advertising of specials or promotions, display manufacturers “paid – for” advertising or provide other customer information. In addition to performing a service to the customer, The ScanVue® VFD can directly generate advertising revenue for the store. Special displayed advertising text messages can promote special or seasonal sales events, manufacturer’s co-op advertising, check gift card balances or provide other customer information.

ScanVue® VFD is a network-connected device which uses industry standard TCP/IP protocols for communication and interfaces to a store network server through an Application Programming Interface (API) that resides on the network server.

The contemporary housing design merges well with almost any store décor and custom color combinations are available if the units are ordered in sufficient quantities. The electronics package is completely contained in a high impact ABS injection molded case.

### ScanVue® VFD Primary Functions:

- **Item Barcode Scan:** Customer scans product UPC barcode. Product price and description text information are then returned by Host and displayed on the ScanVue®.



## ScanVue® 5100 Operation

### Scanvue® Initilization File Overview

A default initialization file **scanvue.ini** should be located in the shared **POS** directory on the network server. The **.ini** file may be used to control displayed response messages and other mode settings of every unit linked to that server. When started up, ScanVue® reads the **.ini** file in the shared directory.

Changing a mode setting value using **UnitConfig** modifies the saved configuration. ScanVue® retains the new settings in non-volatile memory.

Refer to **Appendix C** for detailed information on how to modify the **scanvue.ini** initialization file.

### Network Activity

ScanVue® includes servers for FTP (port 21), ProductInfo (port 1283) and clients for FTP, SMB (Windows networking), and QFX (Quick File eXchange). FTP, SMB or QFX can be used to access the text files from the Network Server for ScanVue® to display. SMB is the default mode.

The ScanVue® VFD requires a ProductInfo server (host or back office computer) where the price/description database is maintained. These servers may (but do not have to be) the same physical computer. If using an initialization file (scanvue.ini), this file must be located in the shared **POS** directory (if SMB-based) or the default directory for FTP or QFX. The server can be a Windows system, or an FTP or QFX server on any type of hardware or OS provided it runs TCP/IP.

ScanVue® sends the UPC number read from a bar coded item placed under the scanner to the Host or back office server API (ProductInfo) which uses this number as a key to find the item in the price/description database. After the item records are retrieved, the host application prepares the response and sends it back to ScanVue® where the information is accepted and displayed. The response is text only.

## Available Options

ScanVue® VFD model **5100-1000** has an optional bank of 4 push button event switches on the front panel that enhance in-store applications and allow for customer interaction. These switches have no pre-assigned functions but when depressed send the switch number and time-open and -close events to the host computer. Models with a co-located Fujitsu printer share a dual mounting bracket.

ScanVue® VFD is available with Power-Over-Ethernet (PoE) 10/100 BaseT communication or Ethernet with power input for 11-29 VDC power. A 12 VDC 2.5A (30W) Power Supply is available as an option.

For available device option requirements, refer to **Interactive Device Options** section.

For power and communication requirements, refer to **Specifications** section.





## Configuration

### ScanVue® Configuration Options

There are 2 ways to configure a ScanVue® unit:

1. Commands sent across the network using the **UnitConfig** or **Modeset** programs. (ScanVue® must be able to communicate with the server on the network before configuration settings can be changed on the network).
2. Scan special purpose configuration barcodes. Refer to **Appendix B** for instructions.

### Configuration Info Screens

When ScanVue® boots up, two configuration status screens (Fig. 1) are sequentially displayed which show the current settings of the unit. Each screen is displayed for 10 seconds then the unit will start running. These screens can be displayed at any time by scanning 'Info Screen 1' and 'Info Screen 2' bar codes shown in **Appendix B** under **Support Barcodes**.

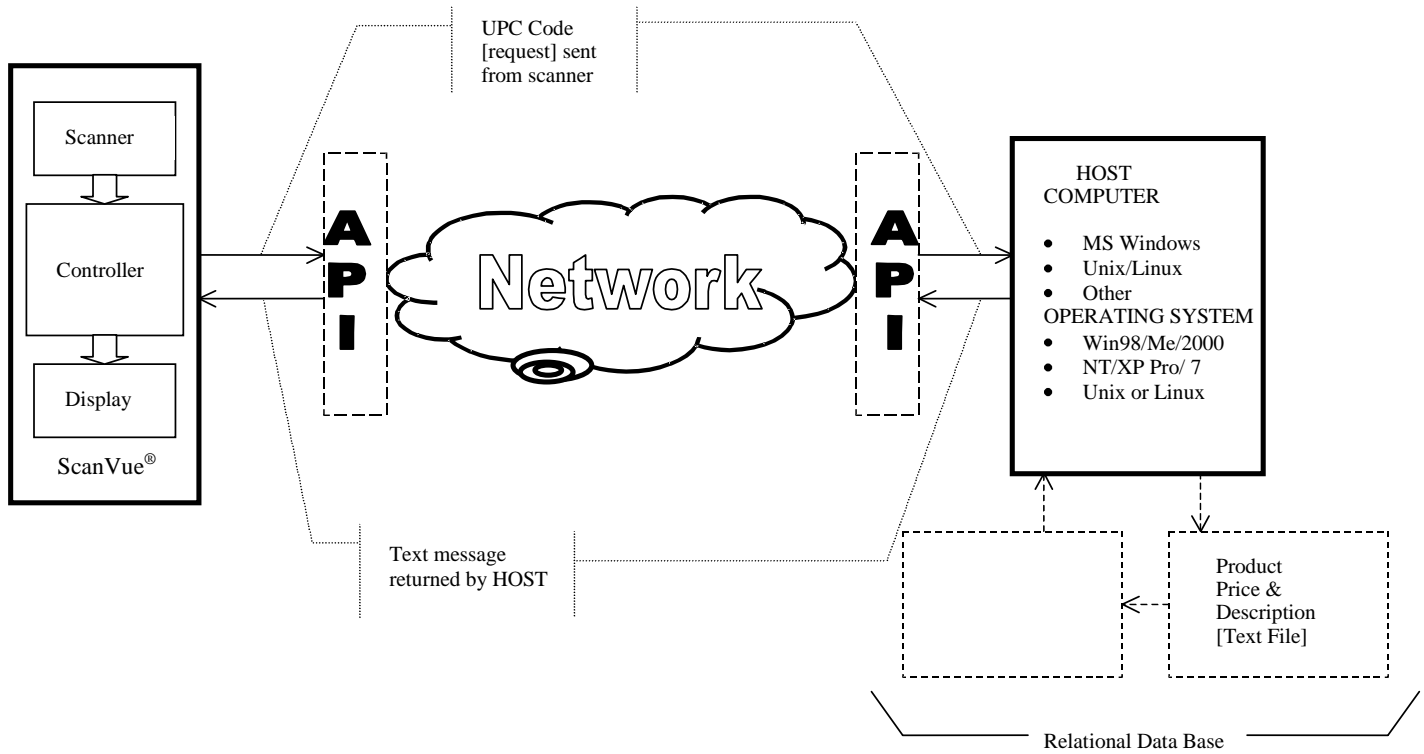
Refer to **Chapter 5** for detailed information on how to configure a ScanVue®.



Figure 1—Configuration Info Screens 1 and 2



## Interfacing to the Host Network Server



This abstract system level diagram shows the relationship between the ScanVue®, the network and the host computer supporting SMB, FTP or QFX file transfer protocol. The API is shown at both ends for clarity. In practice the API that links the host network server to the ScanVue® resides on the host server.

Figure 2—Simplified ScanVue® System Diagram



## Application Program Interface (API)

### Overview

A generic bi-directional message passing protocol API called 'ProductInfo' has been created especially for retail store price-verifier applications. The ProductInfo application is required as an interface between ScanVue® Price Verifier and the back office server that has the database containing item prices and descriptions. Implementations of ProductInfo directed at specific hardware platforms, the ScanVue® in this case, are a subset of the full protocol.

The application that links ScanVue® and the host / back office server's database must reside on the server. Any platform that runs TCP/IP as the network transport-protocol can be used as a server to support ProductInfo based applications. Hardware platforms include MS Windows, Unix or Linux. Supported Operating Systems include Windows 98, ME, 2000, NT, XP, 7, Unix, Linux and VAX. Known databases running on the OS can be Oracle, MySQL, Microsoft SQL Server and OpenVMS.

The ProductInfo Server application program is responsible for receiving a request from a ScanVue® after a barcode scan, retrieving the price and description from the database and returning that data to the unit that initiated the request. The development and maintenance of any host computer based application program required to access a product-information database is the sole responsibility of the end user or their system integrator. IEE provides a sample ProductInfo server API **Demoserv** included in the SDK. License free Demoserv "C" source code is included to assist the end user in writing applications on their host machine. Demoserv is written in ANSI "C" and can be integrated with any ANSI 'C' compiler.

### Description

ScanVue® has an embedded protocol engine that uses TCP/IP to send the UPC barcode number from the price verifier to the host computer, and return the price and description information retrieved from the host computers' database by its resident application.

ProductInfo is a TCP based, bi-directional message-passing protocol that uses the same format when moving data in either direction. In normal operation, the client opens a connection for each request generated, usually a scanned barcode, and keeps it open until the server instructs the client to close it. The client can also wait for the server to open a socket thus allowing asynchronous operation.

The protocol also sends events marking a change of state (opening or closing) of any of the four optional front panel switches. These events may be used by the hosts resident application to control functions or modes within the application, for instance to change language displayed when a switch is pressed.

An abstract system level diagram showing the relationship between ScanVue®, the network and the host computer is shown in **Figure 2**. The API is shown at both ends of the network for clarity. In practice, the application to interface the host computer server to ScanVue® will reside on the host computer.

In the interest of robustness, both ends accept any message whether defined or not, invalid or unknown messages are simply discarded. **A maximum reasonable message length may be used as a means to detect implementation bugs that could result in loss of synchronization.** Such errors terminate the connection. If the client detects it, it may send an error token following re-establishment of the connection in order to log the error on the server. If the server is able to detect this condition, it can log it directly. When the server receives a product query from the price verifier, it must respond even if the message is just to terminate the connection. Following submitting a query, the client may choose to take an error action if it receives nothing from the server within a defined timeout period. The server can make capability queries and/or mode changes before, during, after, or in lieu of sending any response. **If the server wishes to space messages more widely than the client's default timeout, it must send a 'Set Mode' packet to change the timeout; this need only be done once per query, but must be done on each query.**



The client may send capability messages regardless of whether the **key name** is known to the server and the server may retain this information. When the server needs to know the value of one of these capabilities, it can consult this retained information. If it is not known, a capability query may be sent and the server may wait a moment for a reply to be received. This reply will asynchronously update the server's information, and the value should be found there by a subsequent lookup following the brief interval required for the client to respond to the query. If it remains undefined, it can be assumed that the client declined to respond, probably because that capability name is not known to it.

Mode settings allow the server to select between optional behaviors or parameters in the client. Theoretically, this can work both ways. If the server wants the client to adopt a certain mode setting, it sends the command and the client will respond appropriately. If not, an error report may be generated in response. Mode settings occupy a separate name-space from the capabilities table. A mode setting could be used to change the timeout value the client uses to decide that a socket connection has broken.

Error reports are used primarily as a debugging tool. The string starts with an error number, optionally followed by white-space and explanatory text. In the nominal case, messages consist of a length, followed by a token, possibly followed by more information as specified by the length and the token. In the trivial case, the message consists solely as a NUL-terminated text string; this is the case when each of the four bytes of length field is an ASCII printable character. When such a message is received by the server, it is interpreted as a product query; it optionally contains the client's identification and white-space preceding the product code. When received by the client, it is interpreted as a single, textual response to a query.

The (ProductInfo Server) is described in more detail in **Appendix E**.

### Protocol Implementation Rules

1. Mode values changed during a query session are only retained during that session.
2. The host can make "permanent" changes to mode values for query sessions by connecting to the ProductInfo protocol port (Port 1283) of the client and setting the values. As long as that connection is maintained, the new values will be used in all further queries.
3. Whether a "permanent change" will survive a power cycle of the client is implementation dependent. Clients may provide special functions to record mode information in non-volatile storage.
4. Query sessions are best kept limited to information that is to be displayed immediately, so that further queries can be answered.
5. Mode values that start or end with whitespace must be sent enclosed in double quotes. These quotes are removed when the value is stored. Double quotes within the string are treated as part of the value.



## Specifications

### Display:

- 4x20 vacuum fluorescent display (VFD)

### Network Server Computer Requirements:

- MS Windows, Unix, Linux, VAX or any other platform that runs a TCP/IP network

### Supported Operating Systems:

- Windows 98, ME, 2000, NT, XP, 7, Unix, Linux and Open VMS

### Power Options:

- Ethernet Models: 11-29 VDC, 10 W typ. (24 VDC Nominal)
- PoE Hardwired Models: 48 VDC, 10 W typ. (IEEE 802.3af compliant)

### Communication Options:

- TCP/IP peer-to-peer Ethernet 10/100 BaseT
- Power-over-Ethernet (PoE)

### Additional Communication Options:

- An external RS232 serial port is available via an optional Y cable that supports a co-located receipt printer or other serial device.
- 2 USB ports – (For any desired future use such as MSR, please contact Sales)

### 1D/2D Barcode Scanner:

- Supports any 1D and 2D bar codes including PDF417 codes. UPC and NCR prefix support.

### ScanVue Software:

- Operating System: Embedded Linux

### Configuration Setup:

- On Line: UnitConfig, Off Line: Barcodes

### Mounting Options:

- Standard wall-mount bracket
- Co-located printer wall-mount bracket

### Tools:

- SDK (software developers kit) includes ScanVue® configuration programs (UnitConfig and Modeset), Sample API program (Demoserv), sample code, demo text files and user manual



## Interactive Device Options

- **4 front panel push button switches**  
(TCP/IP network communication - A bank of 4 mechanical pushbutton event switches located on the front bezel)
  - When a button is pressed, its switch number token and open/close events will be stuffed into the EVNT packet and transmitted to the host computer for further action by the server based application
- **Co-located Fujitsu model FP-1000 thermal 3” receipt printer**  
(Serial RS-232 communication - Requires optional Y cable - Printer and ScanVue® share a dual mounting bracket – The printer is powered separately)
  - Serial RS-232 Communication - ScanVue® receives pre-formatted data and control codes from a printer driver resident on the network host, which it passes, unmodified, through DIN 8 Connector (Serial RS-232) to the printer. Default Communication is 9600 BAUD, 8-bit, no Parity and 1 stop bit. 19200 BAUD is available setting.

## ScanVue® Accessories

- +12 VDC 2.5A (30W) Power Supply (IEE P/N 39055-01) with a standard 8 pin DIN male connector to power ScanVue® (Typically not included with ScanVue®). The input is universal 90-264VAC/50-60Hz and the power supply has global certifications.
- 48 VDC, 10 W typ. (IEEE 802.3af compliant) Power Over Ethernet (PoE) Injector (IEE P/N 90180-01) with dual RJ45 jacks (J2 Ethernet IN - J1 Power / Ethernet OUT to ScanVue®) - (Typically not included with ScanVue®). The input is 100-250VAC/47-63Hz.
- Printer interface cable for Fujitsu model FP-1000 or equivalent printer (IEE P/N 38578-01)
- Y cable for ScanVue® with Fujitsu model FP-1000 or equivalent printer (IEE P/N 70665-01)
- Y cable, RS232 Universal with DB9F connector (IEE P/N 38516-07)
- 6' DC power extender cable with DIN8F to DIN8M connectors (IEE P/N 37082–72)



## Chapter 2—Getting Started

This Chapter describes how to set up and operate a factory default IEE ScanVue® 5100 Price Verifier on your laptop or desktop PC (Host Server). Several programs are installed that let you demonstrate the capabilities of the ScanVue® 5100 and make use of the tools and utilities provided in the SDK package downloaded from IEE's web site. These programs can be used as demonstration tools.

Part of the process is to change the network settings of your computer so that it can communicate with a factory default ScanVue® 5100 Price Verifier. If you need to set your computer back to its original settings, note down all the original settings before you make the changes. If your computer is already setup to operate on a private company network, IEE recommends consulting with your IT group before performing this procedure.



## Part 1 - SDK Installation

### Hardware and Software Required

- Laptop (or desktop) computer with Windows 98/ Me / 2000 / NT / XP Pro / 7
- LAN system with TCP/IP network protocol.
- Router or switch for connecting ScanVue® 5100 to network.
- Category 5 standard straight cable when using a router or switch (or a “crossover” network patch cable when connecting directly to Host Server)
- IEE ScanVue® 5100 Price Verifier SDK

### ScanVue® Documentation Access Instructions

Please follow link for available ScanVue® 5100 Price Verifier documentation and Software Developers Kit (SDK) from IEE web site:

<http://ieeinc.com/downloads>

- 1) To download Software Developer’s Kit for setting up a PC as ScanVue® Station Server with utilities, click on **SDK\_5100\_VFD.zip** and save to your choice directory.
- 2) Extract all files from **SDK\_5100\_VFD.zip**.
- 3) Refer to **SDK Contents** section for description of folders and their contents.

### SDK Files and Software Installation

Before installing the ScanVue® programs, IEE highly recommends you install the latest updates or service packs to the operating system you are using.

- 1) Simply copy the entire **POS** folder and sub-folders into **C:\** directory on your host system. **POS** folder must be shared per instructions in **Part 2** of this Chapter.
- 2) Refer to instructions described in **Part 2** of this Chapter to prepare the host server for communication with ScanVue.

With default **scanvue.ini** file installed into **C:\POS** folder along with sub-folders, ScanVue® unit can then look for **scanvue.ini** file located in the shared **POS** share when it boots up. The **.ini** file will be searched for in all lower case characters. This takes care of servers that are case sensitive (such as Unix).

For servers that are running other than Windows, sources are provided for the server software. There are also freely available drivers to allow any operating system to act as a Windows-type server.





## SDK Contents

### **Documentation Folder**


Contains Manual and support documentation

### **POS Folder**

#### **ScanVue.ini**

ScanVue® initialization file consisting of a script specifying the order and duration messages are to be displayed

#### **UnitConfig**

A GUI program identified by  logo used for setting up ScanVue® from the network. Written in VisualBasic, the .exe, VB sources and an OCX are provided. **Modeset** is the associated DOS program

#### **modeset.exe**

Command line utility for setting ScanVue modes instead of **UnitConfig**

#### **demoserv.exe**

A sample ProductInfo query server application.

#### **data.dat**

The "database" of a few items used by sample ProductInfo query server API Demoserv

#### **data.dat.documented**

Documentation and sample on how the data.dat file is organized

### **Application Examples Folder**

#### **Modeset Examples**

Contains DOS command line batch program examples using **Modeset** utility that can be used to configure a group of ScanVue units at one time.



## **Support Utilities Folder**

<b>qfxserv.exe</b>	QFXserv.exe (Quick File Exchange Server) is a low-overhead, high-speed file server.
<b>scanserv.ocx</b>	ScanServ.ocx is a library you can use to create your own ProductInfo server in Visual Basic or other Microsoft languages.
<b>scanserv.exe</b>	A sample server written in VB, using scanserv.ocx.
<b>nanoserve.exe</b>	A very simple demonstration product query server.
<b>heartbeat.exe</b>	Utility that periodically checks a ScanVue unit and retrieves operational information.
<b>probe.exe</b>	A special version of heartbeat that gets the ScanVue's information just once.
<b>sst.exe</b>	Test program for sending text to a serial printer.

## **UnitConfig Driver Installation (Win7) Folder**

### **Windows 7 UnitConfig Driver Installation.pdf**

Driver registration procedure required for running UnitConfig and Modeset programs on Windows 7 (32 Bit and 64 Bit) OS.

### **(32 Bit OS Drivers):**

<b>richtxt32.ocx</b>	Files required to be registered in Win7 (64Bit OS)
<b>msflxgrd.ocx</b>	to run the UnitConfig program.
<b>comdlg32.ocx</b>	Files registered are located in directory: <b>c:\windows\system32\</b>

### **(64 Bit OS Drivers):**

<b>richtxt32.ocx</b>	Files required to be registered in Win7 (64Bit OS)
<b>msflxgrd.ocx</b>	to run the UnitConfig program.
<b>comdlg32.ocx</b>	Files registered are located in directory: <b>c:\windows\syswow64\</b>

## **Source Files Folder**

Contains source code for demo servers and some utilities. The sample programs demonstrate communications with ScanVue® using the ProductInfo and QFX protocols and include ProductInfo and QFX servers. The VB sources and an OCX are provided for the Unit Configuration program so it may be embedded in the host application. All other programs are written in ANSI C and have been compiled and run without modification under NT, linux, UNIX, and VMS. QFX is a faster, lower overhead alternative to FTP and SMB.



## Part 2 - Local PC (Host Server) Network Setup

### Introduction

ScanVue® 5100 comes factory defaulted with IP address set for DHCP. This is for automatically obtaining IP addresses assigned from a network server when performing installations. The ScanVue® will default to 192.168.0.1 if you don't have a DHCP server installed on your network.

This section describes how to setup a local desktop or laptop PC (Host Server) to communicate with a factory default ScanVue® 5100. A router is expected to be installed on your network with DHCP server enabled. The Host Server must be set for Ethernet communication allowing for further configuration using IEE's configuration program **UnitConfig** or **Modeset**. See **Chapter 4** for ScanVue® Configuration.

This process is specific for Windows 7 OS, however, Windows OS (98/ NT, 2000, and XP) are also supported. Your computer will be configured as a network server with one client.

If you need to set your computer back to its original settings, note down all the original settings before you make the changes. If your computer is already setup to operate on a private company network, IEE recommends consulting with your IT group before performing this procedure.

(Note: If a ScanVue® is connected directly to a PC without a router or switch, a crossover cable must be used).

### **ScanVue® Factory default network settings:**

IP Address:	(via DHCP)	Username:	GUEST
Sub-Net Mask:	255.255.0.0	Windows Serv:	SVSERVE
WINSserverIP:	10.0.10.13	password:	(Not Set)
Unit ID:	ScanVue	shareName:	POS



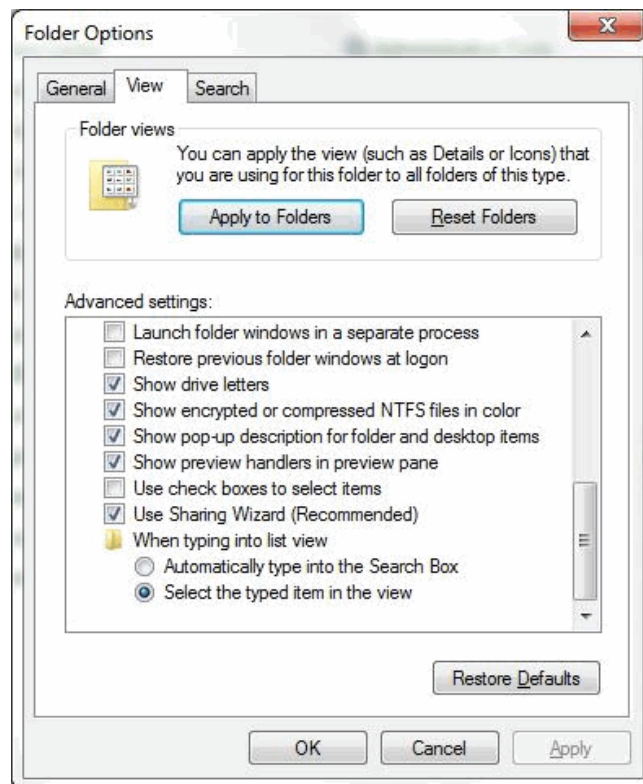
## Network Setup Example Procedure (Windows 7)

### 1. Preliminary

- Disable your Windows 7 Firewall or Anti-Virus.

### 2. Set to Use Sharing Wizard

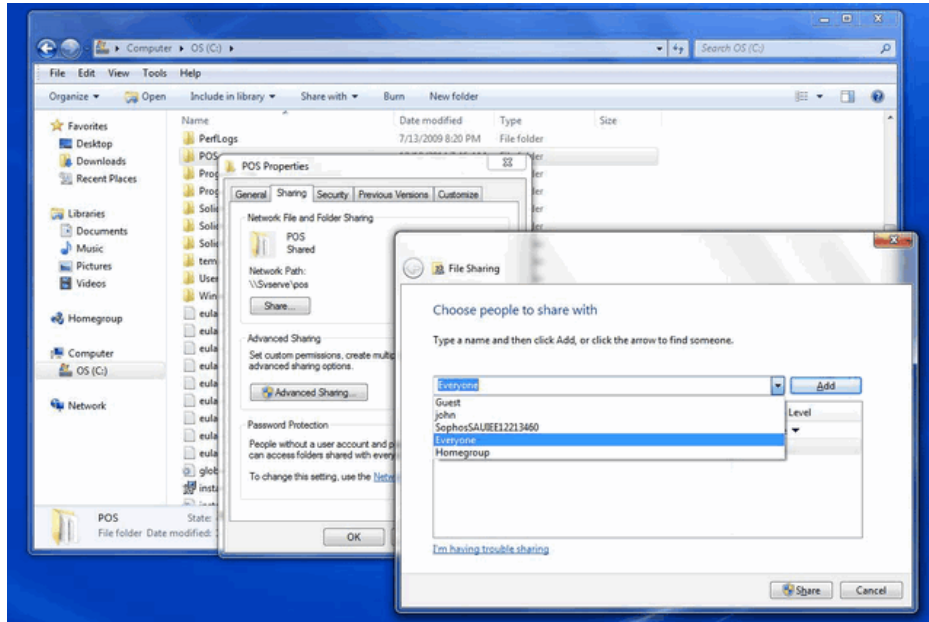
- Click **“Start”** then **“Control Panel”**.
- Click **Tools** on menu bar then click on **“Folder Options”**.
- Click the tab labeled **“View”**.
- Scroll to the bottom of the list to the check box labeled **“Use Sharing Wizard”** and check this box. (See below)
- Close **“Folder Options”** window.



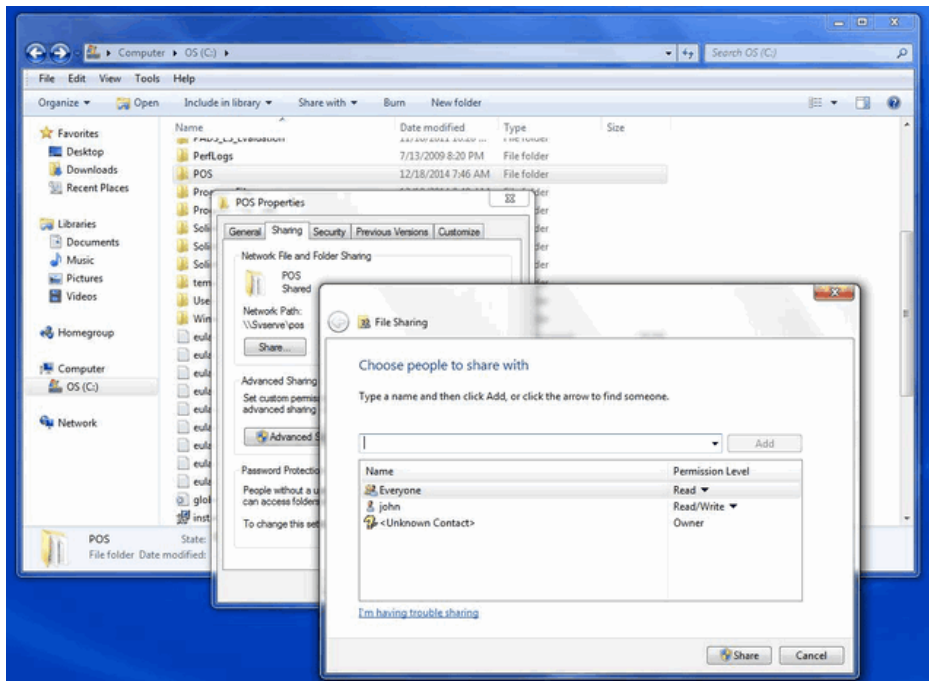


### 3. Share POS Folder

- In **C:** directory, right-click **POS** folder and select **Properties**, then click **Sharing** tab.
- Click **Share** button to enter **File Sharing** window.
- In **File Sharing** window, click ▼ on right side of entry window and select “**Everyone**” from list then click [Add] button (See below).

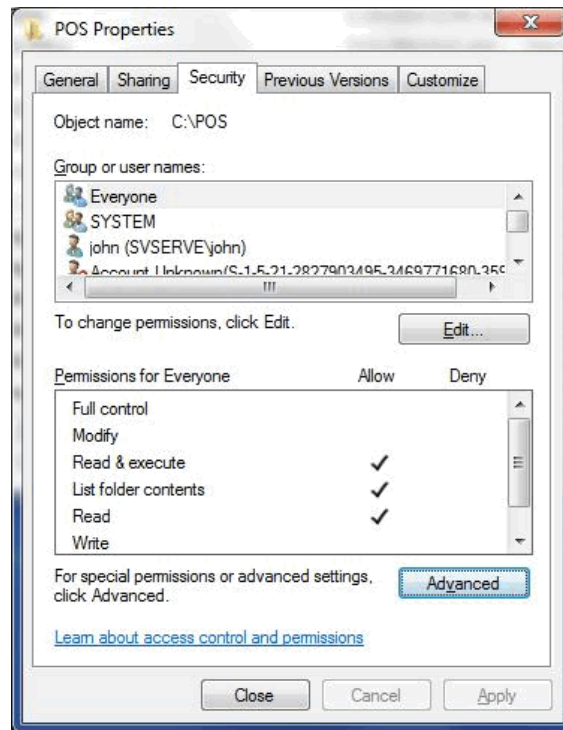


- **Everyone** should be shown with Read privileges.

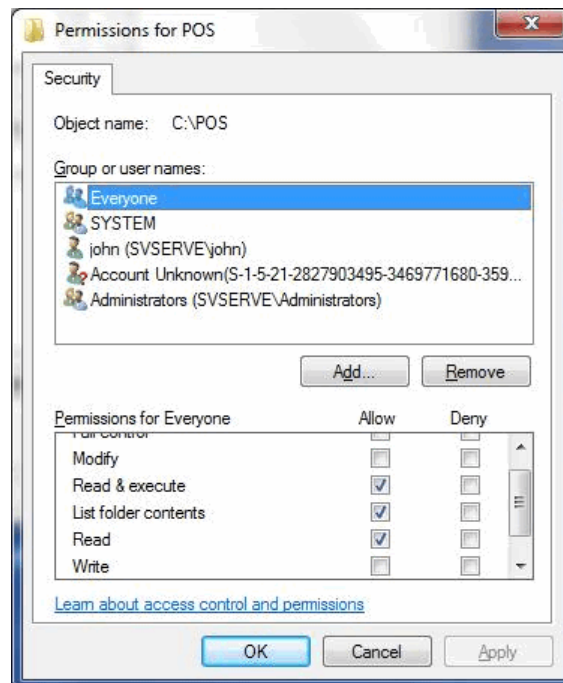




- Click **Security** tab and make sure **Everyone** is shared as shown below.



- Click **Edit** button to change **Permissions for POS** as shown below.

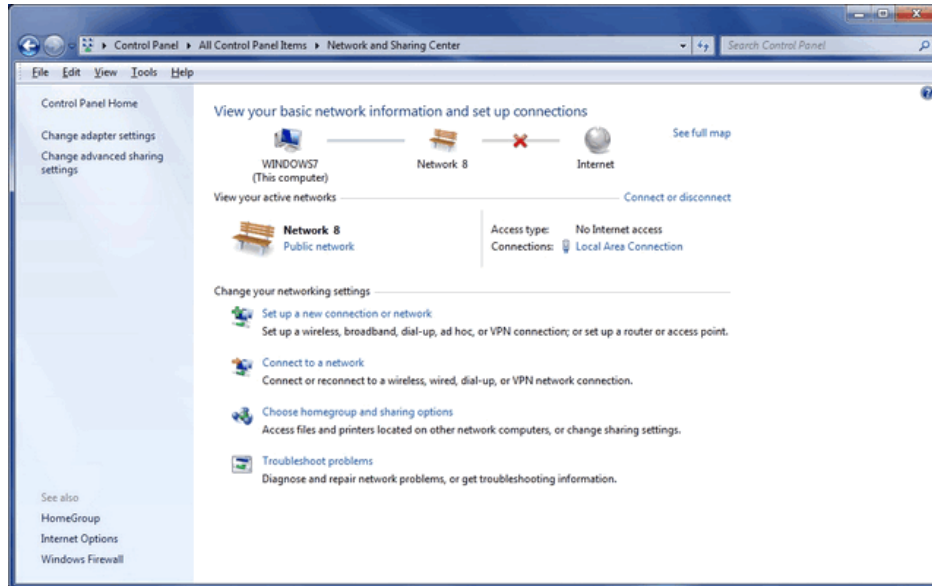


- Close **POS Properties**.

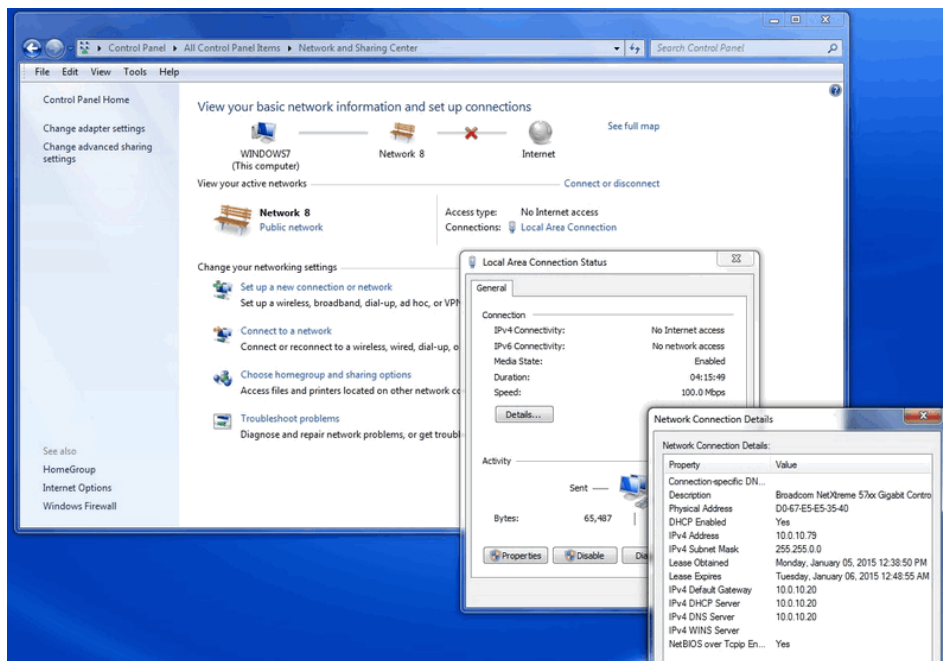


#### 4. Network Security Settings

- Enter **Control Panel** ➔ **All Control Panel Items** ➔ **Network and Sharing Center**
- Under “View your active networks” section, click “**Local Area Connection**”.



- Verify network communication is established with status similar to the following example.  
(Note: Host Server obtains IP address from router DHCP server referenced in example as IPv4 Address 10.0.10.79)

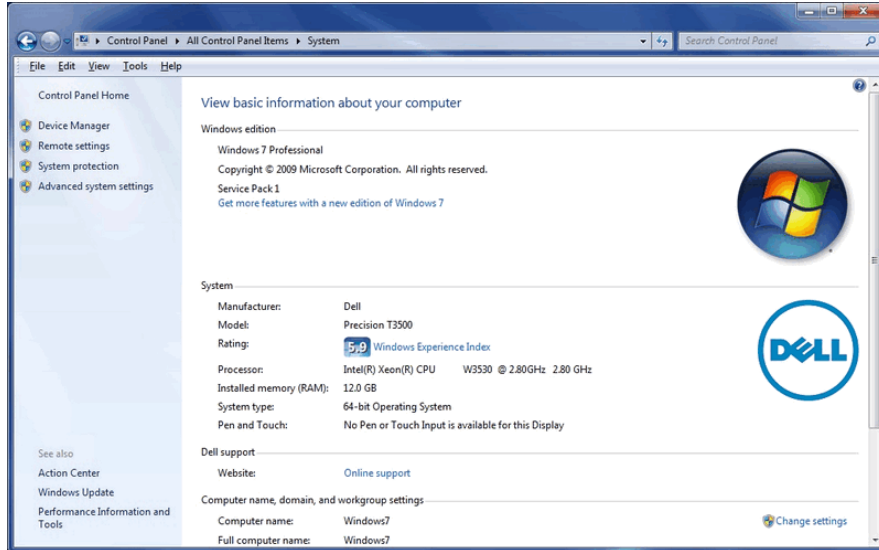


- Close **Network and Sharing Center** window.

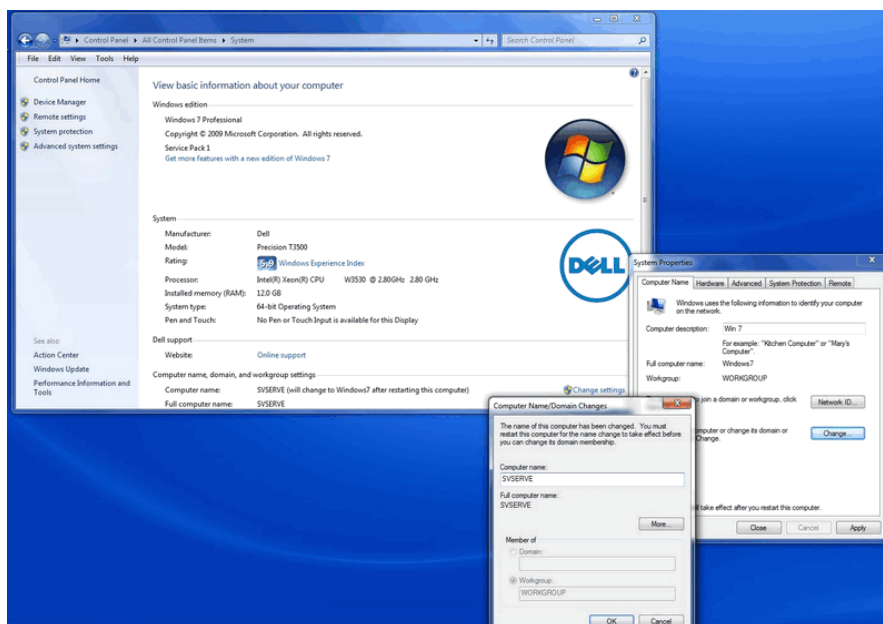


## 5. Change Computer Name

- Enter **Control Panel** → **All Control Panel Items** → **System** → **Computer Name** tab.



- Double-click **Change settings**.
- In the **System Properties** window, click Change button to bring up **Computer name / Domain Changes** window.
- Enter **SVSERVE** in **Computer name** field.  
**Note:** Workgroup must be selected with any description, provided it is 8 characters or less, no spaces.



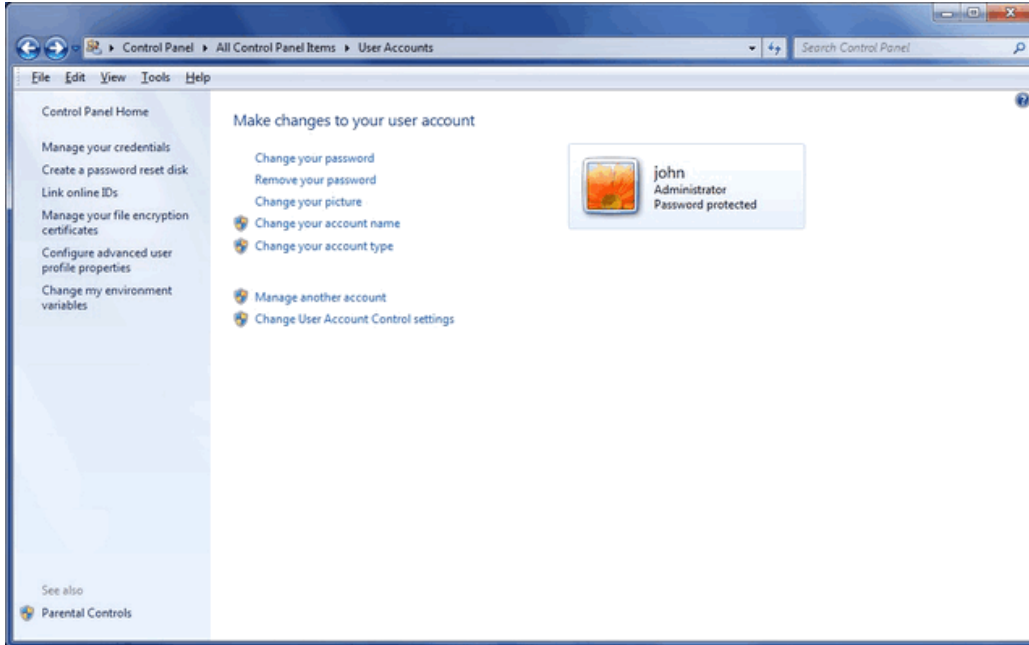
- Click **OK** button.
- Follow displayed instructions to restart computer.



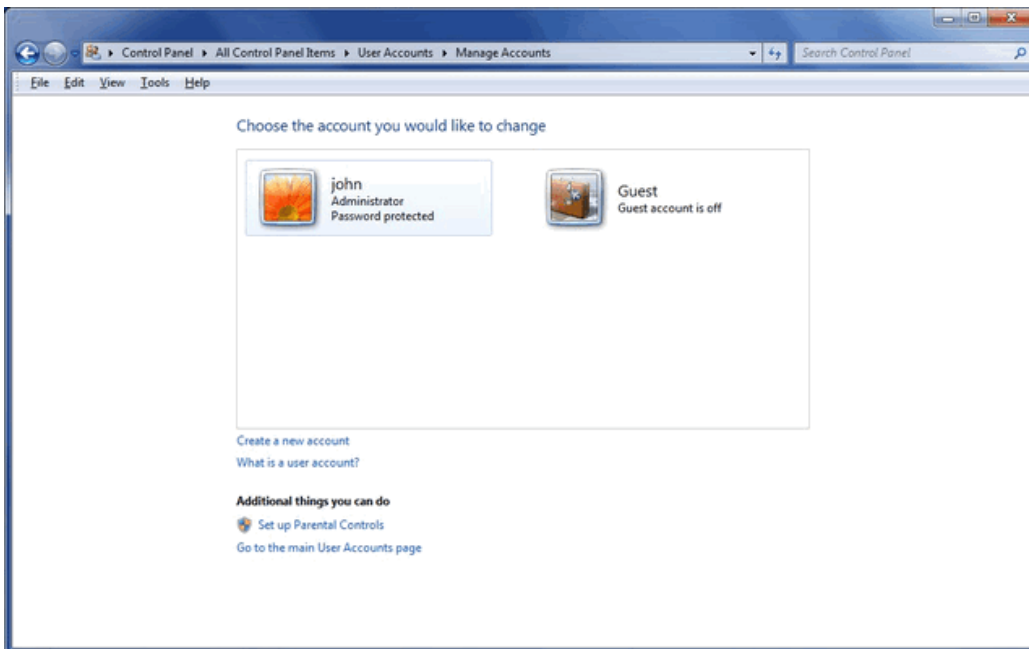


## 6. Enable User Guest Account

- Enter **Control Panel** ➔ **All Control Panel Items** ➔ **User Accounts** to display administrator account.



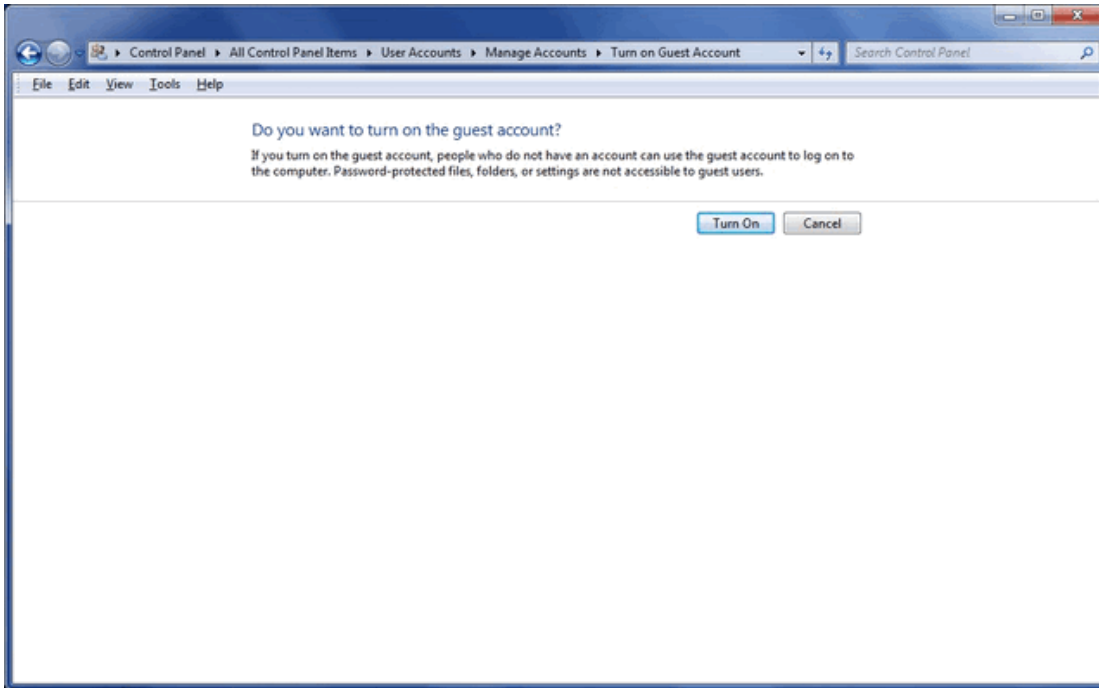
- Click on **“Manage another account”** to show Guest account.



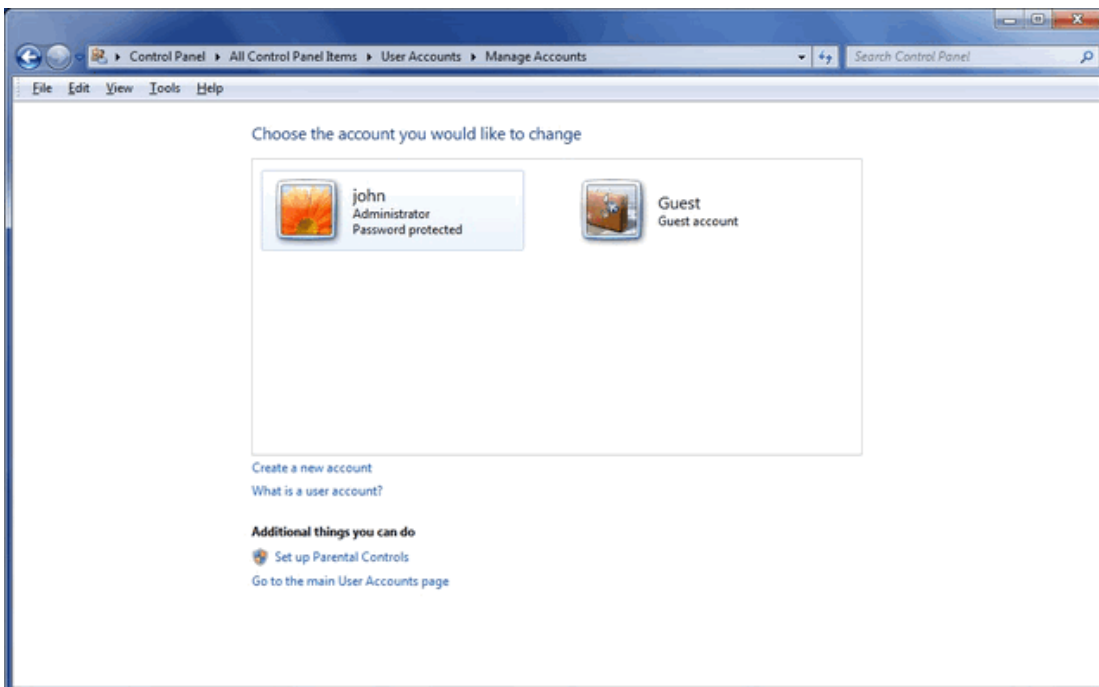
- If the **Guest** icon says **Guest account is off**, click the **Guest** icon to display the following window.



- Click **Turn On** button to enable Guest account.



- Guest account should then be indicated as follows:



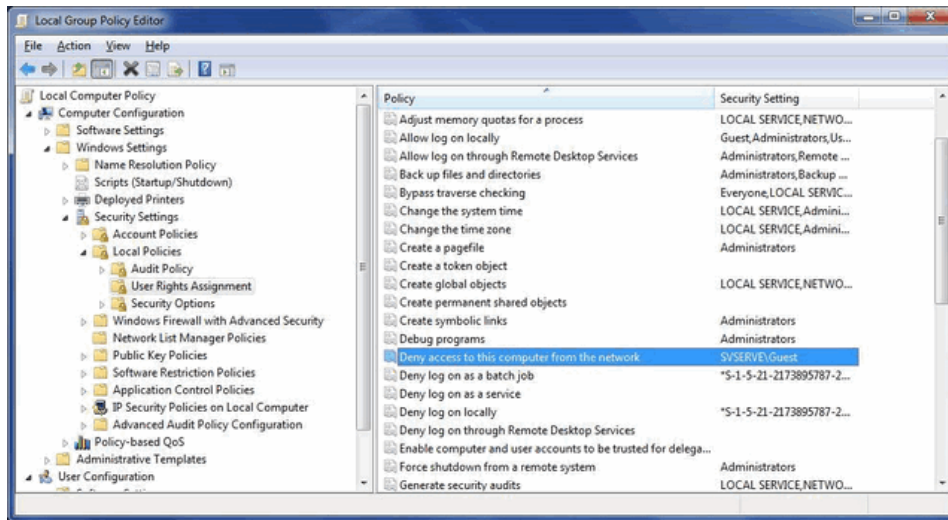
- Close the **Manage Accounts** window.



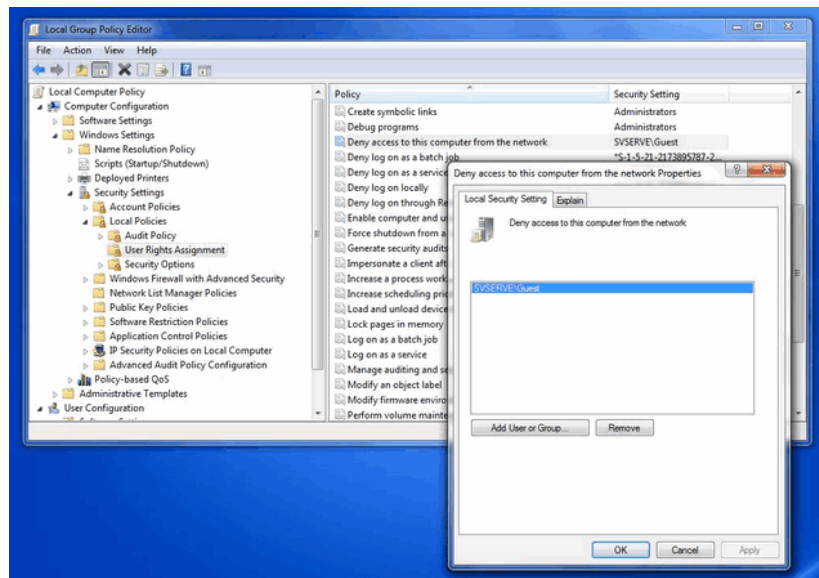
## 7. Allow ScanVue “Guest” Account on Host Server Network

For Windows 7, Guest account is denied access on the network by default. This process removes Guest as a denied account from network server security settings policy.

- Click “**Start**”
- In **Search programs and files** field, type and enter **GPEDIT.MSC**. The **Local Group Policy Editor** will open.
  - Enter **Computer Configuration** → **Windows Settings** → **Security Settings** → **Local Policies** → **User Rights Assignment**
  - Double-click on **Deny Access to the Computer from the Network**. (See window below)



- Guest account may be shown as indicated below:



- With **SVSERVE\Guest** highlighted, click **Remove** to remove **Guest** then click **OK**.
- Close **Local Group Policy Editor**. Network setup is completed.



## Part 3 – Sample Product Database Test

### Test Procedure

- 1) Connect ScanVue® to Host Server Network as described in **Chapter 3**.
- 2) Apply power—the ScanVue® unit will start its boot-up sequence.
- 3) A sample slideshow (clock.sho) cycling through test images should be loaded and displayed if Host Server has been set up as previously instructed.
- 4) Run sample ProductInfo server application (**Demoserv.exe**) located in **POS** folder and scan following sample barcodes to test ScanVue operation using sample product database text file (**data.dat**). All barcodes produce unique text messages.
- 5) If installed, press all four pushbutton switches and verify graphic image response for each switch. This also uses (**data.dat**) database file.

Modify **data.dat** file as desired to display text messages.

## TEST BARCODES

(See *DemoTestCodes\_VF.pdf* sheet)

Marigold Seeds



Turtle Wax



Vidal Sassoon



T-Shirts



Contadina Sauce



Stain



Font Set (Part 1)



Font Set (Part 2)





## Chapter 3— ScanVue® Connections

Refer to **(Figure 3)** for ScanVue® rear connections.

Refer to **(Figure 4)** for Ethernet pin assignment.

Refer to **(Figure 5)** for +12Vdc power pin assignment.

### Connections For (PoE Power / Communication)

**PoE Hardwired connection requires only 1 cable:**

- CAT-5 standard straight Ethernet cable 48 Vdc (IEEE 802.3af compliant)

### Connections For (+12V Power / Ethernet Communication)

**Ethernet only (non-PoE) connection requires 2 cables:**

- +12 Vdc power to ScanVue® DIN8F connector.
- CAT-5 standard straight Ethernet cable to ScanVue® Ethernet Interface connector (or a “crossover” network patch cable when connecting directly to Host Server)

### Instructions

1. Connect ScanVue® per requirements indicated above.
2. Apply power—the ScanVue® unit will start its boot-up sequence.



Figure 3—Connector Location—Rear of ScanVue®



### Ethernet / PoE Connector (RJ45) Pin Assignments

The following table identifies the locations for the Ethernet port pins and PoE power pins (if used).

*Ethernet RJ45 Pin Assignment*

PIN. NO.	FUNCTION
1	TXD (+)
2	TXD (-)
3	RXD (+)
4	+ POWER
5	+ POWER
6	RXD (-)
7	- POWER
8	- POWER

*8-Pin RJ45 Pinout*

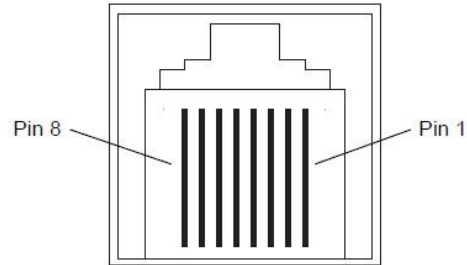


Figure 4—Ethernet / PoE Connector (RJ45) Pin Assignments

### Power Connector (DIN8F) Pin Assignments

- The following table identifies the locations for the +12 Vdc Power pins.

*Power DIN8F Assignment*

PIN. NO.	FUNCTION
1	GND
2	POWER +12 VDC (2.5A)
3	INTERNAL CONNECTION
4	INTERNAL CONNECTION
5	INTERNAL CONNECTION
6	INTERNAL CONNECTION
7	POWER +12 VDC (2.5A)
8	GND

*Power DIN8F Pinout*

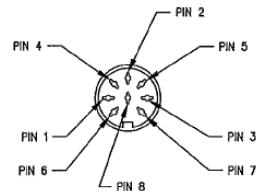


Figure 5—Power Connector (DIN8F) Pin Assignments



## Mounting the ScanVue® Unit

There are two (2) available mounting brackets for the ScanVue® Price Verifier.

1. Standard Single Slimline Wall Mount Bracket
2. Optional Co-located Printer Wall Mount Bracket

### Standard Wall Mount Installation

The slimline wall mount bracket is provided as a standard item shipped with the unit (**Appendix H** for actual dimensions). The wall bracket can be mounted on any type of flat vertical surface using the 6 mounting bosses with holes. The bracket can also be mounted by a special double-sided tape to a glass column or wall. Mounting hardware is not provided as the material used in the vertical wall can vary depending on the location chosen and either wood screws or toggle bolts or equivalent are recommended. Do not use wood screws or sheet metal screws in drywall—they will not hold the weight of the unit.

**Note: contact factory for recommendation of double sided tape—do not use the kind you might find in the local drug store or hardware store.**

The wall mount bracket is removed from the rear of the unit, sliding it up and off of the 4 vertical tongues, and mounted to the wall, column or endcap. A hole is provided in the bracket for bringing the power and/or network connection through from the wall or column.

The ScanVue® unit is pushed close to the wall about 1” above the bracket tongues. Push it downward until the 4 tongues mate securely with their counterpart slots in the rear of the housing. Tighten the 2 locking screws through the slots in the housing until snug—this will prevent anybody from removing the unit from its mount.

### Optional Co-located Printer Wall Mount Installation

A double-wide bracket that places a co-located receipt printer directly on the left side of ScanVue® is provided when purchased as an option. The printer and ScanVue® are mounted side by side on a sub-panel pre-wired for a single power supply and ready to be mounted to a wall similar to a single ScanVue®.



## Chapter 4— ScanVue® Configuration

### UnitConfig Program

Configuring ScanVue® units over the network requires a GUI program called **Unit Config** or **Modeset** program described below. Generally, configuration by special barcode is kept for those occasions when a devices network configuration is incompatible with the local network. Changes can be made off–line that will allow the unit to connect to the network using **Configuring with Barcodes** method (See **Appendix B**) without requiring the PC. Once the unit is network compatible the rest of the configuration can be done through **UnitConfig**.

**Unit Config** is a VisualBasic® program that provides a simple graphical way to query and configure any ScanVue® unit. It uses the ScanVue® mode commands to setup the unit.

### Using UnitConfig



Start UnitConfig program. When UnitConfig program is first started, all program fields are blank.

Button / Field	Instruction
Unit IP Address: <input type="text"/>	Enter the IP address of the ScanVue® unit you wish to change in the <b>Unit IP Address</b> field
<b>Read Modes</b>	Click the <b>Read Modes</b> button. All the <b>Modes</b> and their <b>Content</b> (values) will be read from the subject unit and displayed as shown in <b>Figure 6</b>
<b>Set Mode</b>	To change a mode value; highlight the <b>New Content</b> field in the same row as the mode you want to change by clicking on it. Enter the new value in the field and click the <b>Set Mode</b> button. If the value is accepted, the field and the button will turn green. If it is not accepted, the field and button will turn red. The light color area at the bottom of the screen will display context sensitive help message for each mode as the mode is highlighted. For some modes, the values available are indicated in this area.
<b>Commit</b>	Now click the <b>Commit</b> button. This will commit the change to memory in the ScanVue® unit. Multiple changes can be made before committing them. If any of the changes are not accepted, the <b>Set Mode</b> button will turn red and those changes marked in red were not made.
<b>Close</b>	Clicking the <b>Close</b> button will blank all fields allowing a new IP address for another unit to be entered
<b>TextReset</b>	Clicking the <b>TextReset</b> button will apply changes made to text modes so they can be seen immediately. As with other modes, the changes are not permanently stored until the <b>Commit</b> button is clicked
<b>SaveToFile</b>	The <b>SaveToFile</b> button will save the setup to a text file where it can be stored and printed if necessary. This is usually done for troubleshooting or maintaining hard copy records of each unit's configuration
<b>Restart Unit</b>	The <b>Restart Unit</b> button will cause a 'soft boot' of the selected unit
<b>Exit</b>	The <b>Exit</b> button closes the UnitConfig program



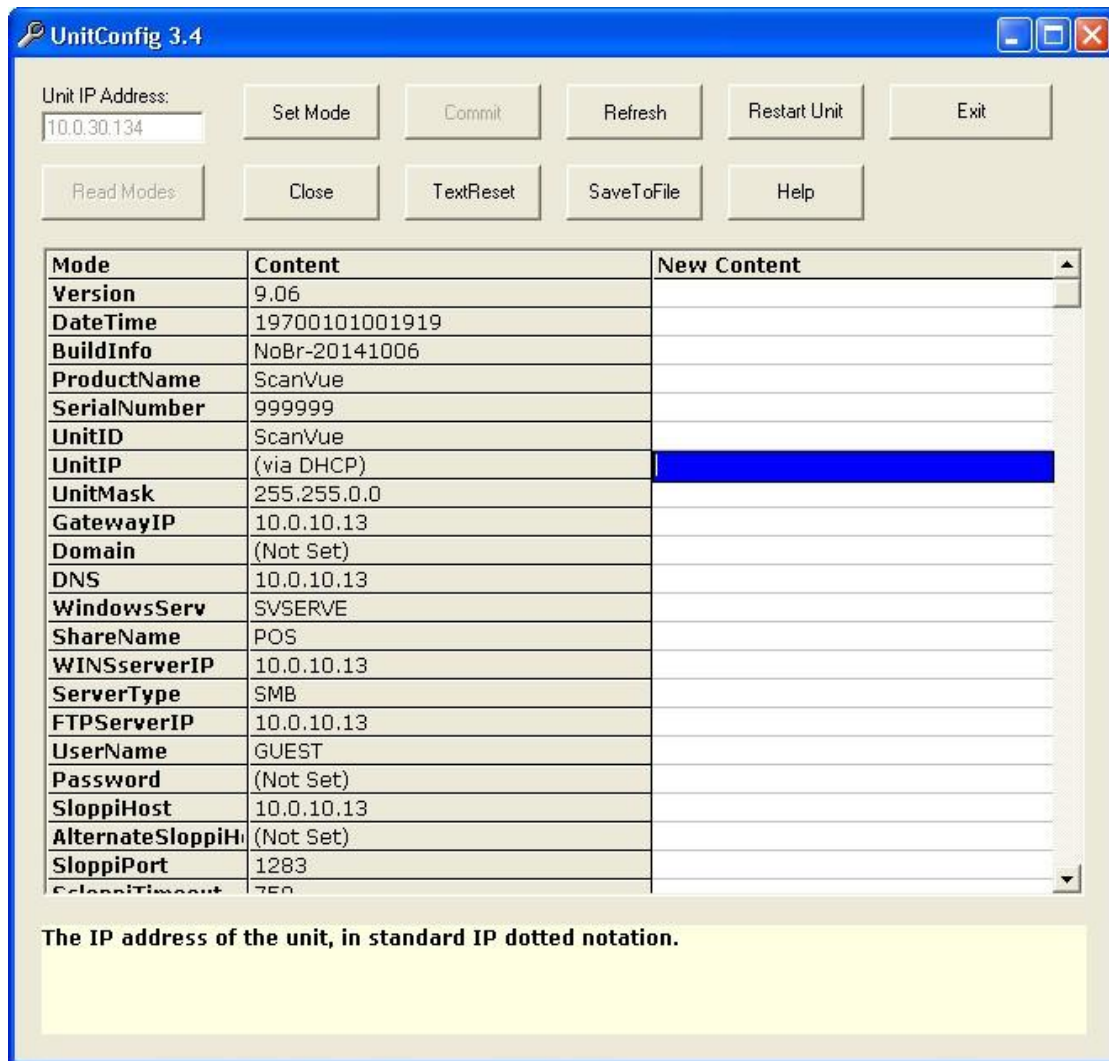


Figure 6—Unit Configuration (UnitConfig) Screen

### Configuration Notes

1. Set **DHCP** in *unitIP* to change to **(via DHCP)** for ScanVue® to obtain an IP Address from a network DHCP server.
2. Most modes can be set to factory default or (Not Set) value by entering **-default-** as the value.
3. **Named Server Feature:** Product info server modes **SloppiIP** and **AlternateSloppiIP** in addition to the QFX demo server mode **QFXServer** may be entered as either a server IP address or as a server name. The name may be up to 12 characters long.



## Moderset Program

**Moderset** (a DOS command line program associated with **UnitConfig**) may be used in place **UnitConfig** to query and set modes via a batch program file or directly from the DOS prompt.

### Examples:

The following command sets ScanVue unit (IP address: 10.0.30.134) to values within **TEST01.INI** file, then commits change to memory and restarts ScanVue:

```
modeset -s -fTEST01.INI -c -r 10.0.30.134
```

The following command sets ScanVue to specific value (Wireless=FALSE):

```
modeset -iWireless=False 10.0.30.134
```

Moderset command can also be used to batch program a group of ScanVue units at one time. Refer to **Moderset Example** folder in the SDK.

Moderset command by itself lists all non-hidden modes and their values

### ModeSet Options:

```
ModeSet [options] [IPAddress]
-v verbose operation
-s set modes according to modeset.ini
-c commit to permanent storage
-r restart unit when complete
-f specify an .ini file, e.g. -fNewModes.ini
-i set a single mode, e.g. -iUnitID=ScanVue5
-g get a single mode, e.g. -gUnitID
-l send literal text
IP address of unit obtained from modeset.ini if not specified.
```



## ScanVue® Supported Modes

**Note:** Mode names are not case-sensitive.

### Fixed Unit Identification

Configuration Mode	Description	Default
Version	Software version number; read-only	xx.xx
DateTime	<b>Not available!</b>	
BuildInfo	The date and time of the software release in the format YYYYMMDD; read-only.	YYYYMMDD
ProductName	Default "ScanVue"; read-only.	ScanVue
SerialNumber	Contains the unique serial number for the unit; read-only.	999999
QueryViaBrowser	IEE factory setup (Always FALSE for Non-Browser configuration) <b>Note:</b> This configuration setting is not available for ScanVue models containing software prior to version (11.01 - "ver. 1.008").	FALSE

### User Configurable Unit Identification

Configuration Mode	Description	Default
UnitID	The host name of the unit, 19 characters maximum	ScanVue
UnitIP	The IP address of the unit, in standard IP dotted notation. Unit IP default is 192.168.0.1 with no connection and with no DHCP server available.	(via DHCP) or... 192.168.0.1
UnitMask	The network mask for the unit, in standard IP dotted notation. Unit Mask default is 255.255.0.0 with no connection and with no DHCP server available.	(via DHCP) or... 255.255.0.0
GatewayIP	The IP address of the gateway machine, in standard IP dotted notation. Required only if access to the various hosts must be routed on the LAN	10.0.10.13
UserName	The username ScanVue uses when logging into the file server	GUEST
Password	The password ScanVue uses when logging into the file server	(Not Set)
ServerType	Sets the file host as Windows networking ("SMB"), FTP ("FTP"), or QFX ("QFX")	SMB



## Setup for Windows Networking (SMB)

Configuration Mode	Description	Default
Domain	Network domain is required when security is a concern	(Not Set)
DNS	Domain Name Server IP Address (if required to resolve network host names)	10.0.10.13
NetworkName	Name of the wireless network (ESSID). Identifies the network wireless router or access point for wireless units	INSTALL
WINSserverIP	The IP address of the WINS server, in standard IP dotted notation, if the file server is not on the local network	10.0.10.13
windowsServ	The host name of the Windows server or IP address of the WINS server	SVSERVE
ShareName	The name of the shared directory on the Windows server	POS

## Setup for FTP, QFX, PRODUCTINFO (Demoserv)

Configuration Mode	Description	Default
FTPServerIP	The IP address of the FTP server in standard IP dotted notation	10.0.10.13
QFXPort	The IP port to use for QFX communications	1284
QFXHost	The IP address of the QFX server	10.0.10.13
QFXTimeout	The number of hundredths of a second to wait before timing out on QFX communications	750 (7.5 seconds)
SloppiHost	The IP address of the PRODUCTINFO server in standard IP dotted notation. Can also be a host name up to 12 characters long	10.0.10.13
AlternateSloppiHost	The IP address of the backup PRODUCTINFO server in standard IP dotted notation. Can also be a host name up to 12 characters long. If SloppiHost fails to respond to a scan request in 10 seconds, the host server will automatically switch to the AlternateSloppiHost server and remain there until either the unit reboots or the server is turned off	(Not Set)
SloppiPort	The IP port to use when sending product information requests and listening for connections	1283
sloppiTimeout	The maximum wait time, in hundredths of a second, for an initial response to a product information query, kept in non-volatile storage	750 (7.5 seconds)



## Product Query Configuration

Configuration Mode	Description	Default
IgnoreAckNak	Sets ScanVue® to ignore ACK and NACK characters when received at the beginning of an expected packet	FALSE
IgnoreResponseChars	Sets ScanVue® to ignore the number of characters specified, from 0–255 at the beginning of the response packet to a query	0
QueryPadTo	Sets the number of text characters for a barcode query to at least the specified number of bytes by adding NUL bytes after the query string. Value is 0 to 64 - (Has no effect if value <= # bytes in barcode+3)	0
QueryPrefix	Up to 198 characters. If set, it is prefixed to all query requests	(Not Set)
SendError	Controls whether error messages are sent in response to unknown messages, mode set commands with improper parameters, etc	FALSE
SendResponse	Controls whether confirmation messages are returned after setting a mode's value	FALSE
sendUnitID	Controls whether the UnitID string is sent as part of product information requests	TRUE
TrivialComm	The protocol method used for product information queries	TRUE

## Presentation Configuration

Configuration Mode	Description	Default
textCols	The number of columns of text displayed (in pixels)	20
textRows	The number of columns of text displayed (in pixels)	20
MsgChecking	The string that is displayed by the ScanVue® when making a product information request.	“ Checking... One moment please “
MsgUnavail	The string that is displayed by the ScanVue® when the product information server does not respond	“ Unavailable Please try later “
POSTimeout	The number of seconds that text will be displayed before it is cleared and the slide show restarted	30
ShowShortPoll	The delay, in seconds, before trying to read the INI file, if it has never succeeded	60
ShowLongPoll	The delay, in seconds, before checking for changes in the INI file	300



## Miscellaneous Configuration

Configuration Mode	Description	Default												
EventEnd	An 8 character string of hex digits (32 bit mask) which enables ending events for a specific device as defined in the table below	00000000												
EventStart	<p>An 8 character string of hex digits (32 bit mask) which enables starting events for a specific device as defined in the table below</p> <table border="1"> <thead> <tr> <th>Mode</th> <th>Value (mask setting)</th> </tr> </thead> <tbody> <tr> <td>Disable mask</td> <td>00000000<sub>h</sub></td> </tr> <tr> <td>Pushbutton 0 (leftmost)</td> <td>00000001<sub>h</sub></td> </tr> <tr> <td>Pushbutton 1 (2<sup>nd</sup> from left)</td> <td>00000002<sub>h</sub></td> </tr> <tr> <td>Pushbutton 2 (3<sup>rd</sup> from left)</td> <td>00000004<sub>h</sub></td> </tr> <tr> <td>Pushbutton 3 (rightmost)</td> <td>00000008<sub>h</sub></td> </tr> </tbody> </table> <p>Each button press generates message tokens with a similar message packet structure called EVENTS. Start event mask defines the beginning of a device activation. Full explanation of Event mask usage is in the <b><i>Interactive Device Options</i></b> section.</p>	Mode	Value (mask setting)	Disable mask	00000000 <sub>h</sub>	Pushbutton 0 (leftmost)	00000001 <sub>h</sub>	Pushbutton 1 (2 <sup>nd</sup> from left)	00000002 <sub>h</sub>	Pushbutton 2 (3 <sup>rd</sup> from left)	00000004 <sub>h</sub>	Pushbutton 3 (rightmost)	00000008 <sub>h</sub>	00000000
Mode	Value (mask setting)													
Disable mask	00000000 <sub>h</sub>													
Pushbutton 0 (leftmost)	00000001 <sub>h</sub>													
Pushbutton 1 (2 <sup>nd</sup> from left)	00000002 <sub>h</sub>													
Pushbutton 2 (3 <sup>rd</sup> from left)	00000004 <sub>h</sub>													
Pushbutton 3 (rightmost)	00000008 <sub>h</sub>													
RegisterINI	ScanVue® will register itself with the ProductInfo host after successfully reading a new INI file	TRUE												
RegisterStart	ScanVue® will register with the ProductInfo host upon startup	TRUE												
DisplaySetup	Display the first information screen at startup (in seconds)	5												
DisplaySetup2	Display the second information screen at startup (in seconds)	5												
DisplayAll	Display passwords on the information screens	FALSE												



Configuration Mode	Description	Default						
Port2Function	<p>Changes the function of the external RS232 port. Port parameters are fixed for each device (Value). The port passes data transparently in both directions. ScanVue® buffers all input characters until CR or LF received then sends entire string of characters to host. The port function can be changed with the UnitConfig utility.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>OUTPUT</td> <td>Printer - 9600 baud, 8 data, no parity, 1 stop (Output)</td> </tr> <tr> <td>BIDIRECTIONAL</td> <td>Printer - 19200 baud, 8 data, no parity, 1 stop (In/Out)</td> </tr> </tbody> </table>	Value	Function	OUTPUT	Printer - 9600 baud, 8 data, no parity, 1 stop (Output)	BIDIRECTIONAL	Printer - 19200 baud, 8 data, no parity, 1 stop (In/Out)	SCANNER
Value	Function							
OUTPUT	Printer - 9600 baud, 8 data, no parity, 1 stop (Output)							
BIDIRECTIONAL	Printer - 19200 baud, 8 data, no parity, 1 stop (In/Out)							
Port3Function	<p>Changes the function of the second external RS232 port #3. <i>This physical port does not exist, but the settings are used for optional devices.</i> Port parameters are fixed for each device (Value). The port passes data transparently in both directions. ScanVue® buffers all input characters until CR or LF received then sends entire string of characters to host. The port function can be changed with the UnitConfig utility</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>NONE</td> <td>Disabled</td> </tr> </tbody> </table>	Value	Function	NONE	Disabled	(unknown)		
Value	Function							
NONE	Disabled							
BannerText	Allows user to change displayed Greeting Message content. Refer to <i>Customer Messages</i> section for use	" SELF SERVICE\x0A PRICE VERIFIER\x0AScan your item belowfor price/sale info!"						
KeepAliveTime	<p>When set to 0, the unit will operate in its normal mode: that is, it will close the socket on port 1283 when the transaction is complete. If any non-zero value is entered, the socket is kept open by "keep alives" sent at the frequency based on the value set in seconds.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Socket Normal Mode (Default)</td> </tr> <tr> <td>1 or greater</td> <td>Socket Open Mode The delay, in seconds, before trying to read the INI file, if it has never succeeded</td> </tr> </tbody> </table>	Value	Function	0	Socket Normal Mode (Default)	1 or greater	Socket Open Mode The delay, in seconds, before trying to read the INI file, if it has never succeeded	0
Value	Function							
0	Socket Normal Mode (Default)							
1 or greater	Socket Open Mode The delay, in seconds, before trying to read the INI file, if it has never succeeded							



## Additional Configuration for VF Display

<b>Configuration Mode</b>	<b>Description</b>	<b>Default</b>										
BypassNCRPrefix	Instructs ScanVue® to accept NCR prefixed bar codes for programming. NCR prefix mode does not have to be turned off to be able to program the unit with barcodes	TRUE										
ExtCharacterSet	Selects a character set (language) for display. The default character set contains 'European' in 64 positions AO-DF. The extended language character sets are shown in Appendix D. <table border="1" data-bbox="532 699 1263 879"><thead><tr><th>Character Set</th><th>Value</th></tr></thead><tbody><tr><td>ASCII+European</td><td>EUROPEAN (default)</td></tr><tr><td>ASCII+Katakana</td><td>KATAKANA</td></tr><tr><td>ASCII+Cyrillic</td><td>CYRILLIC</td></tr><tr><td>ASCII+Hebrew</td><td>HEBREW</td></tr></tbody></table>	Character Set	Value	ASCII+European	EUROPEAN (default)	ASCII+Katakana	KATAKANA	ASCII+Cyrillic	CYRILLIC	ASCII+Hebrew	HEBREW	European
Character Set	Value											
ASCII+European	EUROPEAN (default)											
ASCII+Katakana	KATAKANA											
ASCII+Cyrillic	CYRILLIC											
ASCII+Hebrew	HEBREW											





## Chapter 5— Interactive Device Options

ScanVue® available options are: 4 Pushbutton Switches and Serial Printer.

### Internally Connected Devices

The ScanVue® Price Verifier is a networked thin client and does not respond directly to any input from a local device. Activating any of the following internally connected devices causes the ScanVue® to transmit the raw input data to a host computer for further action by the server based application.

#### 4 Pushbutton Switches

These switches have no pre-assigned functions but when depressed can send switch number open and close events to the host computer. The user may utilize these switch events in the host software in any manner desired.

The buttons are strategically placed so the bottom edge of the display screen may be used for 'soft' legends allowing the application to navigate through multiple menu levels.

**NOTE:** Touchscreen and MSR options are not available with Pushbutton Switches.

Each button press generates message tokens with a similar message packet structure called EVENTS. Start event masks define the beginning of a device activation. A pushbutton start mask defines when the button is pressed. The mode values are 8 digit hex masks (32 bit) which define the type of device initiating the event as well as the button position. Use **UnitConfig** to set the value (see Table 1). Start and end masks are both present in a transmitted packet but End is always disabled.

Mode (Description)	Value (Mask Setting)
Disable mask (factory default)	00000000 <sub>h</sub>
Push button 0 (leftmost)	00000001 <sub>h</sub>
Push button 0 (2 <sup>nd</sup> from left)	00000002 <sub>h</sub>
Push button 0 (3 <sup>rd</sup> from left)	00000004 <sub>h</sub>
Push button 0 (rightmost)	00000008 <sub>h</sub>

Table 1— 4 Pushbutton Switch Mode Value Setting



## Externally Connected Devices

### Co-Located Serial Receipt Printer

ScanVue® provides support for the following or equivalent co-located or external serial receipt printer models:

Citizen model CBM-1000II  
Fujitsu model FP-1000

#### Configuring the Serial Port

For serial printer communication, serial port 2 (Configuration Mode: **port2function**) must be set to **OUTPUT** or **BIDIRECTIONAL**. In **OUTPUT** or **BIDIRECTIONAL** mode, serial port 2 is a transparent RS232 data port. ScanVue® receives pre-formatted data and control codes from a printer driver resident on the network host, which it passes, unmodified, through serial port 2 to the printer. Any data returned from printers such as NCR model K590 Self Service Printer when in **BIDIRECTIONAL** mode will be passed up to the network host unmodified. Printer drivers are specific to the printer used and must be provided by the user.

In **OUTPUT** mode the port parameters are pre-configured for the co-located Communication is 9600 baud, 8 data bits, no parity, 1 stop bit.

In **BIDIRECTIONAL** mode the port parameters are pre-configured for printers requiring communication at 19200 baud, 8 data bits, no parity, 1 stop bit.

Use the UnitConfig program or modeset utility to change the serial port configuration mode setting **port2function** to **OUTPUT** or **BIDIRECTIONAL**. If you are using an MS Windows system, open a DOS box and change to the C:\POS directory where modeset utility is located and send the following 2 command lines.

```
C:\POS modeset -iPort2function=OUTPUT {BIDIRECTIONAL} <IP>  
C:\POS modeset -c -r <IP>
```

where <IP> is the unit's IP address.

The printer port settings must be set to the same parameters to be able to communicate with it. If you want to alter the printer communication baud rate or change other parameters, a utility program (**PortSet**) may be used for modifying serial port settings.

#### Printer Cable Wiring

(See **Figure 7** for Serial Printer Wiring Diagram and **Figure 8** for ScanVue® power/serial connector pin assignment)

#### Optional IEE cables available for printer interfacing to ScanVue®:

- Serial interface cable (IEE P/N 38578-01) connects to the supported serial printer D-Sub 25 Pin Female serial connector)
- Y cable (IEE P/N 70665-01) breaks out the ScanVue® DIN8 connector serial port for printer interface
- Printer extension cable (IEE P/N 37082-XX) where XX specifies the cable length

Other manufacturers serial printers may require a different Y cable or port settings. Check with IEE Sales before attempting to connect a different printer.

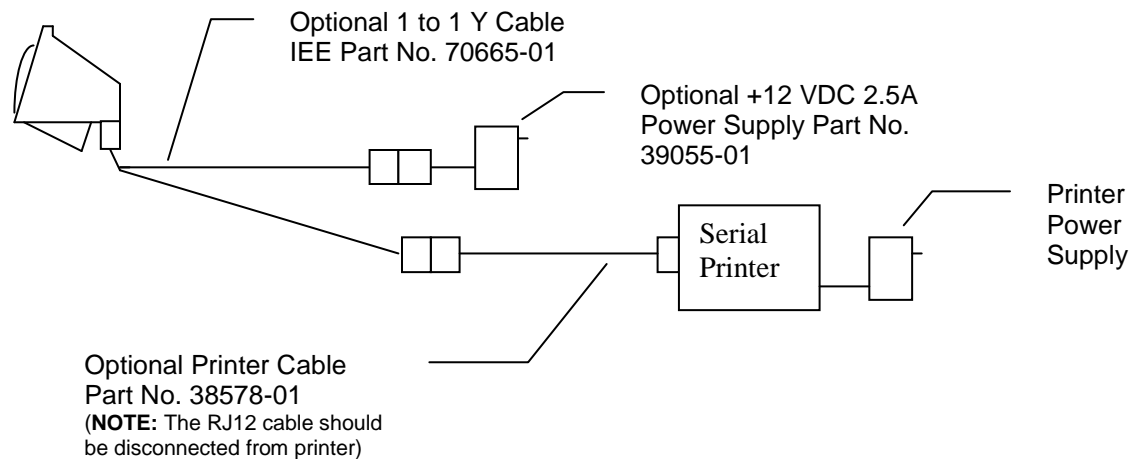


## Sending Data to the Printer

The host server must use nominal-mode ProductInfo packets to send data to the printer (see Chapter 5). The packets required are **Data** type, **Special Text** sub-type. An example of a typical message is:

<u>Byte Count</u>	<u>Value (Oh)</u>	<u>Meaning</u>
0-3	00 00 00 13	Length of packet (19 bytes)
4-7	44 41 54 41	'DATA' Data type
8-11	53 50 45 43	'SPEC' Special Text sub-type
12-18	48 65 6C 6C 6F 21 0A	'Hello!<LF>' Text sent to printer

## Serial Printer Wiring (Typical)



## Serial Printer Wiring Diagram (with Extension Cable)

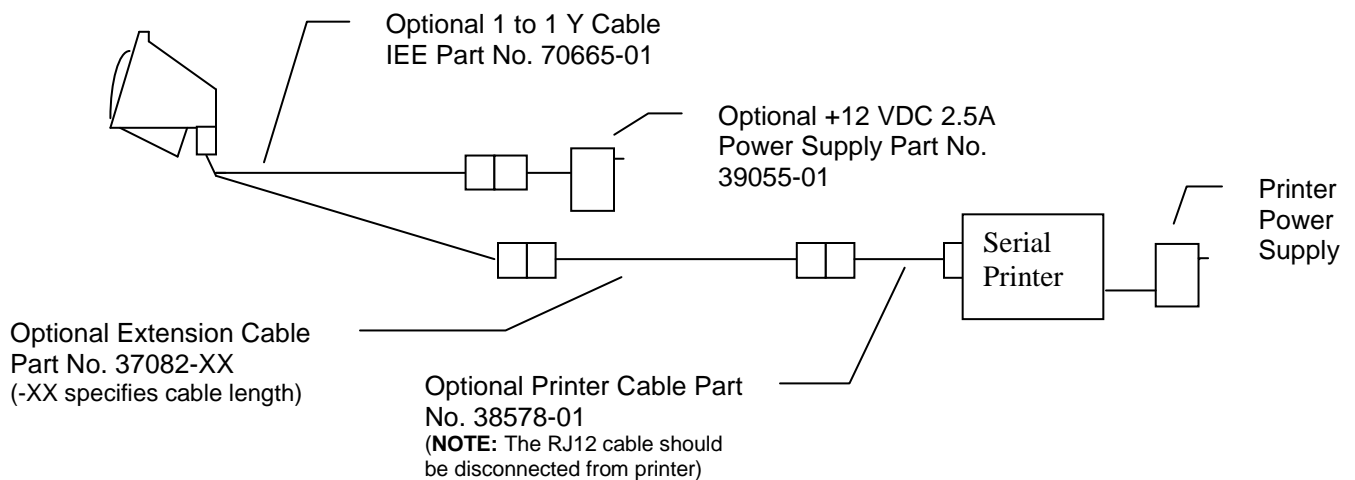


Figure 7—Wiring a Serial Printer



## Power / Serial Interface Connector (DIN 8) Pin Assignments

ScanVue® (Power / Serial) DIN8F

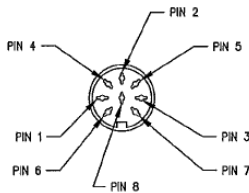
PIN. NO.	FUNCTION
1	GND
2	POWER +12 VDC (2.5A)
3	TXD (RS-232C)
4	DSR (RS-232C)
5	DTR (RS-232C)
6	RXD (RS-232C)
7	POWER +12 VDC (2.5A)
8	GND

Typical Supported Serial Printer  
D-Sub 25 Pin (Female) Connector \*

PIN NO.	FUNCTION
7	SIGNAL GROUND
3	RXD (RS-232C)
20	DTR (RS-232C)
6	DSR (RS-232C)
2	TXD (RS-232C)

\* Citizen CBM-1000II, Fujitsu FP-1000 or equivalent printer

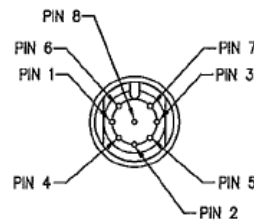
### ScanVue® Power/Serial DIN8F Pinout



Serial Printer Cable 38578-01 DIN8M \*

PIN. NO.	FUNCTION
1	SIGNAL GROUND
2	INTERNAL CONNECTION
3	RXD (RS-232C)
4	DTR (RS-232C)
5	DSR (RS-232C)
6	TXD (RS-232C)
7	INTERNAL CONNECTION
8	INTERNAL CONNECTION

### Printer Cable DIN8M Pinout



\* Optional for Citizen CBM-1000II, Fujitsu FP-1000 or equivalent printer

Figure 8—Interface Connector Pin Assignments



## Appendix A—Configuring ScanVue® for Input Devices

### Data Bytes (Parameters)

Each transmitted event packet contains three 8 hex digit words. Pushbuttons do not set values in the data bytes.

### Structure of EVENT packet

1. EVENT packets report push button and touch screen activations but each device type will send a separate EVENT packet.
2. Separate packets are sent for start events and end events (if used).
3. Push button events do not generate data (only whether they are pressed or not pressed) and thus do not set the parameter values.
4. Pressing a push button transmits a (minimum) 33 byte message packet to the host computer.

### Examples (shown in hex form)

#### Push button start event packet for button 2 (no unit ID)

```
[00000021 45564E54 00000004 00000000 00000000 00000000 00000000 00000000 00] h
  |      |      |      |      |      |      |      |      |
length EVNT start mask stop mask tick count not used not used not used terminator
                for button 2
```

#### Pushbutton end event packet for button 2, 500mS button press, (no unit ID)

```
[00000021 45564E54 00000000 00000004 000001F4 00000000 00000000 00000000 00] h
  |      |      |      |      |      |      |      |      |
length EVNT start mask stop mask tick count not used not used not used terminator
                for button 2 500 mS
```



## Appendix B—Configuring with Barcodes

### Barcode Scanner Settings

The default settings of the barcode reader are preset for capturing any 1D and 2D bar codes including PDF417 codes. Refer to **Scanner Prefix ID Bar Codes** sheet for UPC and NCR prefix enable / disable barcodes.

#### Configuring ScanVue®

ScanVue® can be configured for the network by scanning barcodes with its barcode scanner instead of sending the commands over the network.

Create barcode labels in Code128 containing the network information as shown in **Table 4**. A program such as ‘**B-Coder Lite**’ or ‘**B-Coder Pro**’ from Taltech or ‘**Avery Label Pro**’ can create these for you.

On-line barcode generators can also be used such as:

[www.barcodesinc.com/generator/index.php](http://www.barcodesinc.com/generator/index.php)

[www.nationwidebarcode.com/barcode-generator](http://www.nationwidebarcode.com/barcode-generator)

Follow the step-by-step procedure outlined in the following pages to configure ScanVue® using barcodes:

1. Power up the ScanVue® unit. Wait until it finishes booting, the 2 blue info screens have been displayed and the IEE logo clears. If you have an RF unit, a red connection diagnostic screen may appear if the unit doesn't connect to your network. Either way, you are ready to reconfigure.
2. Scan the specific labels (listed in **Table 2**) required to change the configuration to your network's parameters. ScanVue® will display the raw code, then the setup name and entered value.
3. When all the setup labels have been scanned in and visually verified, scan the following Bar code **Save Settings and Reboot**. This causes the complete configuration setup to be written to ScanVue® non-volatile memory and reboots for the changes to take effect.

#### Save Settings and Reboot



4. If it is required that you need to change barcode scanner configuration for your application, please contact IEE for Barcode Scanner configuration support.



Mode/Setting	Barcode	Description	Default Setting
Unit ID	IDLSS.....S	A unique unit name, 19 characters maximum.	SCANVUE®
Unit IP <sup>1,4</sup>	UIAAAAAAAA	IP Address. Each unit must have a unique address.	10.0.0.227 or DHCP
Network Mask <sup>1,4</sup>	UMAAAAAAAA	IP Sub-net mask	255.255.0.0 or DHCP
Windows Server <sup>2,5</sup>	WSLSS.....S	Host name of the file server, 83 characters max.	SVSERVE
Shared Directory <sup>2</sup>	SDLSS.....S	Share name on the file server, 83 characters max.	POS
File Server IP <sup>1,5</sup>	SFAAAAAAAAA	IP Address of the FTP-based file server.	Not Set
Network User Name <sup>2</sup>	WULSS.....S	Used to connect to the file server, 19 characters	GUEST
Network Password <sup>2</sup>	WPLSS.....S	Used to connect to the file server, 31 characters	Not Set
Network Name <sup>2</sup>	NNLSS.....S	ESS ID-network name for wireless networks	INSTALL
DNS IP <sup>1</sup>	DNAAAAAAAAA	IP Address of DNS	Not Set
Gateway IP <sup>1</sup>	GWAAAAAAAA	IP Address for routed or segmented networks.	Not Set
WINS Server IP <sup>1</sup>	WWAAAAAAAA	Required for Windows networking.	Not Set
Domain/Workgroup <sup>2</sup>	DWLSS.....S	Domain or workgroup name, 83 characters max.	IEE
Product Info IP <sup>1</sup>	DSAAAAAAAA	IP address of users ProductInfo server.	10.0.10.13
Product Info Port <sup>3</sup>	DPnnnn	Port number for ProductInfo.	1283
Product Info Timeout <sup>3</sup>	TOnnnn	Duration (secs) product information is shown	30
10baseT Ethernet <sup>3</sup>	WN0000	Selects hard wired Ethernet	Hardwired=T, otherwise=F
Save Configuration	KQ0003	Save configuration in EEPROM.BIN file & reboot.	N/A
Factory defaults	IN123456789	Scan twice; restores factory default configuration	N/A
Reboot unit	IN987654321	Scan twice; reboot without saving config	N/A
Show config screen 1	IS0001	Displays 1 <sup>st</sup> config status screen	N/A
Show config screen 2	IS0002	Displays 2 <sup>nd</sup> config status screen	N/A
Show config screen 3	IS0003	Displays 3 <sup>rd</sup> config status screen	N/A

Table 1—Barcode Configuration Labels

**Barcode Configuration Label Notes:**

<sup>1</sup> IP addresses ('XXXXXXXX') are in hex notation. Each of the quads in the address becomes a pair of hex digits (e.g., 10.0.0.10 is encoded as 0A00000A).

<sup>2</sup> String values start with the count of characters ('L') followed by the characters of the string ('SSSSSS'). ScanVue® preserves the case of characters in strings even if it is not meaningful to the network or host. The length field is always 2 digits i.e., 3 must be 03.

<sup>3</sup> Numerical values ('L' and 'NNNQ') are decimal. Numerical values must be followed by a non-digit character. Purely numerical parameters (e.g., Product Info Port) should be followed by an upper-case alpha character to prevent confusion caused by check-characters and stop codes.



<sup>5</sup> Setting the Host name also sets SMB file-access mode. Setting the File Server IP also sets FTP file-access modes.





Command barcodes must be at least six characters long, including the two-character prefix but excluding the check character and any start and stop characters. Extra padding characters may be added to guarantee this. Padding characters should be upper case alpha characters and are ignored. Numerical values may be zero padded (e.g., '0001' instead of '1').



The following single and paired characters should NOT be used in barcodes: A, F, E0, FF, B1, B2, B3



## Support Barcodes

INFO SCREEN BAR CODES	
<p>Info Screen 1</p>  <p>IS0001</p>	<p>Info Screen 2</p>  <p>IS0002</p>

CONFIGURATION BAR CODES	
<p>Save Settings and Reboot</p>  <p>KQ0003</p>	<p>Unit IP (via DHCP)</p>  <p>UIFFFFFFF</p>
<p>Hardwired Network</p>  <p>HN0000</p>	<p>Wireless</p>  <p>HN0001</p>

IEE DEFAULT BAR CODES	
<p>Factory Default Settings</p>  <p>IN123456789</p> <p>Note: Scan Twice</p>	<p>Reboot Only</p>  <p>IN987654321</p> <p>Note: Scan Twice</p>





## SCANNER PREFIX ID ENABLE BAR CODES

### Enable UPC prefix IDs



CC003324

When enabled, the scanner will transmit a prefix before any UPC/EAN bar code.

The prefixes are as follows:

A (UPC-A),  
E0 (UPC-E),  
F (EAN-13), and  
FF (EAN-8).

### Enable NCR prefix IDs



CC003332

When enabled, the scanner will transmit a prefix before the following code types.

The prefixes are as follows:

A (UPC-A),  
E0 (UPC-E),  
FF (EAN-8),  
F (EAN-13),  
B1 (Code 39),  
B2 (ITF) and  
B3 (Code 128 & other codes).

### Disable custom prefix IDs



CC003325



## SCANNER UPC-A TO EAN-13 ENABLE CAR CODES



Unlock Settings



enable UPC-A to EAN-13



M10159\_01

Save Settings



Lock Settings



## Appendix C—ScanVue® Initialization File

### Overview

A default initialization file **scanvue.ini** should have been placed into the shared POS directory on the network server. The ScanVue® unit must find the **.ini** file in the shared directory to obtain unique mode settings.

The **ScanVue.ini** file controls the behavior of every unit linked to that server by defining the defaults for the display such as wait message and response message after scan.

In addition, the **.ini** file provides a way for ScanVue® units to be grouped together and access different mode settings as a group. For example; in a multi department store, each department can be displaying different wait messages at the same time, each one showing promotions or teaser advertising tailored to that department's specific products. Text messages can be changed as desired with specially created versions for holidays or sales events.

### Rules for the ScanVue.ini File

1. The **.ini** file is a text file consisting of sections for specifying different parameters. Each section is marked in enclosing square brackets i.e. [Group].
2. Sections may be in any order. Initialization lines may be in any order within a section.
3. Lines that start with a single quote ( ' ) or pound sign ( # ) are comments. Blank lines and white space (except possibly in a value field) are ignored.
4. Initialization lines consist of a token, followed by zero or more blanks or tabs, followed by an equal sign, followed by zero or more blanks or tabs, followed by the initialization value for the token, i.e., TOKEN=Value
5. Tokens/Value pairs may be directed to an individual unit by preceding the token with the Unit ID enclosed in angle brackets i.e., <Tools1> Text\_Rows = 4
6. Tokens/Value pairs may be directed to all units in a group by preceding the token with the Group name enclosed in angle brackets i.e., <Shoedep> MsgChecking = Shoe Department
7. Group names may consist of alpha and numeric characters only.
8. Tokens and sections that are unrecognized are ignored. Default values are used when a token is not present.
9. Values are set in the order they appear in the file. If there are duplicate tokens in a section, the value used is the last one on the list except when a Unit ID is specified. If the Unit ID is specified, only that token/value pair will be used, regardless of the position within the section.



## Sections & Commands

**(Note: commands are not case sensitive)**

<b>[DISPLAY]</b>	Configures the way text is shown on the display.
Text_Rows	Number of rows in line–display operation mode.
Text_Cols	Number of columns or characters in line–display operation mode.
MsgChecking	A text string displayed when a barcode is scanned. The default string is <b>Checking...Please wait</b> . When the host returns the price and description, it overwrites this message.
MsgUnavail	A text string displayed when a barcode is scanned and the host cannot be reached. The default string is <b>Unavailable...Please try later</b> .

<b>[GROUP]</b>	Assigns individual units to a group.
GroupName	The Token is the name of the group and the value is a list of one or more Unit IDs, separated by commas that belong to that group. The same group name can appear on more than one line, with more Unit IDs listed. Units may belong to more than one group.

**Note:** if both ScanVue (LCD) and Scanvue (VFD) units are used in the same installation , the VF models should be placed in a different group than the LCD models to prevent graphics images being sent to them as they do not respond to images and will display a blank screen after the “unavailable....try later” message.

<b>[REDIRECT]</b>	Allows specified unit to be redirected to another initialization file
UnitID	The Token is the unit’s ID number, and the value is the UNC for the new initialization file. If ScanVue® recognizes its ID in the list of IDs, it uses the value to obtain the new .ini file. A list of which initialization files have been referenced in this process must be kept so that loops can be detected and terminated.



## Example of Initialization File

**# Define which ScanVue® units are grouped together.**

```
[GROUP]
ToolDept      =tools1, tools2, toolsentrance
Cosmetics     =cosmet1, cosmet2, makeup1
HouseWare     =kitchen, china, bridal, appliance
FourLine      =tools1, tools2, cosmet1, kitchen
TwoLine       =toolsentrance, cosmet2, makeup1, china, bridal, appliance
TextOnly      =stationery, tirecenter, garden
```

**# Set up the display characteristics**

```
[DISPLAY]
<FourLine>   Text_Rows   =4
<TwoLine>    Text_Rows   =2
              Text_Cols  =20
Msgchecking  = Checking...Please Wait
```

**#Department Description**

```
<ToolDept>   MsgChecking = Tool Department
<Cosmetics>  MsgChecking = Cosmetics Department
```

**# Members of these groups are directed to a different .ini file**

```
[REDIRECT]
<ToolDept>   InitFile     =tools.ini
<FourLine>   InitFile     =housewares.ini
```



## Appendix D—Font and Language Sets

VF display models have the fixed built-in character set shown in Table 5. The empty code positions from A0-DF can be filled with one of the language character sets shown in Tables 6-9 [see section on ScanVue VFD p50] with European as the default.

N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F
30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F
50	51	52	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F
60	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F
70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E	7F
80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF
E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF
F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF

Table 2—Default ASCII Character Set for VF Display



A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF

Table 3—European Character Set for VF Display

A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF

Table 4—Katakana Character Set for VF Display



A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF

Table 5—Cyrillic Character Set for VF Display

A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF
B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF

Table 6—Hebrew Character Set for VF Display





## Appendix E—ProductInfo Protocol

### ProductInfo Protocol Requirements

This section describes a bi-directional message passing protocol called 'Product Information Protocol' that was created especially for retail store price-verifier applications. The protocol is designed to be generic and is not tied to any specific retail hardware device. Any network topology or configuration capable of using or connecting to TCP/IP will be able to support ProductInfo based applications.

The IEE ScanVue® retail products use a sub-set of the ProductInfo protocol to meet their functionality requirements. The specific implementations for these products are covered in their respective user manual application programming interface (API) section.

#### Introduction

The ProductInfo Protocol provides a network-based messaging system whereby a client can obtain item price and description text information about specific products from a database located on a back office server. The protocol will be submitted as an RFC for the Internet community.

#### Protocol Types

There are two forms of the protocol: trivial and nominal. The trivial version consists purely of <NUL> terminated text sent from the client to the host, or from the host to the client. From the client, it is a product query; from the host it is a text response. This may not support all the features of any particular device, so nominal mode must be used for advanced features.

The trivial and nominal cases can be distinguished by examination of the first byte; in trivial mode it will always be a printable ASCII character—in nominal it will be zero (unless you are sending individual packets in excess of 16MB). When a trivial-mode message is received by the server it is interpreted as a product query; it optionally contains the client's identification and white space preceding the product code. When received by the client, it is interpreted as a single, text response to a query. In either case, sessions are closed by the server.

In the nominal case, messages consist of a length, followed by a token, possibly followed by more information as specified by the length and the token.

#### Normal Socket Mode (Default)

The format is the same in both directions but the implementations at either end may or may not understand all the same tokens. In normal operation, the client opens a connection for each request, and keeps it open until the server instructs the client to close it. The client can also wait for the server to open a socket, to allow asynchronous operation. Either side may act as client, or server, or both.



## Open Socket (Keep-Alive) Mode

The price verifier is designed for a socket listener on the host server to open port 1283 from an inquiry from the price verifier and close the port when the request is complete.

A special mode has been implemented that will send keep-alives to the socket at the frequency entered into UnitConfig. In this mode, the socket is kept open as long as the keep-alives are sent. Other processes can be run between the price verifier and the host that are unrelated to the price verification task.

To keep the socket open: enter any non zero integer (seconds) into the **KeepAliveTime** mode using UnitConfig.

## Errors

In the interest of robustness, both ends will accept any message whether defined or not—invalid messages are discarded. A maximum reasonable message length may be used as a means to detect implementation bugs that could result in loss of synchronization; such errors terminate the connection. If the client detects a loss of synchronization it may send an error token following re-establishment of the connection in order to log the error on the server. If the server detects this condition, it can log it directly.

Following a query, the client may choose to take an error action if it receives nothing from the server within a defined timeout period.

## Status Requests

The server can make capability queries and/or mode changes before, after, or in lieu of sending any response. The client may send capability messages regardless of whether the key name is known to the server; the server retains this information. When the server needs to know the value of one of these capabilities, it consults this retained information. If it is not known, a capability query may be sent and the server may wait a moment for a reply to be received. This reply will asynchronously update the server's information, and the value should be found there by a subsequent lookup following the brief interval required for the client to respond to the query. If it remains undefined, it can be assumed that the client declined to respond, most probably because that capability name is not known to it.



## Client Mode Changes

The notion of a mode setting is to allow the server to select between optional behaviors or parameters in the client. If the server wants the client to adopt a certain mode setting, it sends the command. The client will do so, if applicable. If not, optionally, an error report may be generated in response. Mode values are set by using token–value pairs. Mode values can be queried by sending the mode name alone. Error reports are used primarily as a debugging tool. The string starts with an error number, optionally followed by white space and explanatory text.

### Packet Types

Packet Types		Data Types	
<u>Function</u>	<u>Token</u>	<u>Function</u>	<u>Token</u>
Terminate connection	TERM	No Operation	NOP_
Capability query	CAPQ	Display Text	TEXT
Capability response	CAPR	Special Text <sup>1</sup>	SPEC
Mode Set/Query	MDSQ	UNC	UNC_
Mode Response	MODR	URL	URL_
Error report	ERR_	File	FILE
Product query	PROD		
Data	DATA		
Registration	RGST		
Event	EVNT		

<sup>1</sup> The meaning of any Special Text is implementation–defined.



## Nominal Mode Packets

*General* Every nominal-mode packet starts with a header containing the packet length and the token and may contain no other data. Packets are described below.

*Terminate Connection:* Requires only the length and the token.

Byte #	Length				Token			
	0	1	2	3	4	5	6	7
	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>T</b>	<b>E</b>	<b>R</b>	<b>M</b>

*Capability Query:* The name of the capability to be queried is a string following the header. Capability names are case insensitive. The header for a SendUnitID capability query would be

Byte #	0	1	2	3	4	5	6	7
	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>C</b>	<b>A</b>	<b>P</b>	<b>Q</b>

The query string "SENDUNITID" and a terminating <NUL> immediately follow the header.

*Capability Response:* If the capability being queried is known, a response is sent. The name of the capability and its value is a string in token/value format following the header. The header for a SendUnitID response might be:

Byte #	0	1	2	3	4	5	6	7
	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>C</b>	<b>A</b>	<b>P</b>	<b>R</b>

The response string "SENDUNITID=TRUE" and a terminating <NUL> immediately follow the header. There can be white space on either or both sides of the equals sign. The value starts with the first non-white space character. Values can be empty. If the capability query is a zero-length string, ScanVue® responds with a <CR><LF> separated list of all supported capabilities and their types. If the query is a single asterix (\*), ScanVue® will respond with a <CR><LF> separated list of modes and their values.



*Mode Set/Query:*

The name of the mode and its value are in a token/value string following the header. If the mode name alone is in the string, it is a query. Mode names are case-insensitive. The header for a SendUnitID query would be:

Byte #	0	1	2	3	4	5	6	7
	0	0	0	19	M	D	S	Q

The query string “SENDUNITID” and a terminating <NUL> immediately follow the header. To set SendUnitID, the string would be (e.g.) “SENDUNITID=ON”, and byte 3 would be 22 instead of 19.

*Mode Response:*

If the mode being queried of set is known, a response is sent. The name of the mode and its value is a string in token/value format following the header. The header for a SendUnitID response might be:

Byte #	0	1	2	3	4	5	6	7
	0	0	0	22	M	O	D	R

The response string “SENDUNITID=ON” and a terminating <NUL> immediately follow the header. There can be white space on either or both sides of the equals sign. If the mode query is a zero-length string, ScanVue will respond with a <CR><LF> separated list of all supported modes and their types in the form “MODENAME=TYPE,SIZE” where TYPE is BOOLEAN, NUMBER, or STRING, and SIZE is the number of bytes in the STRING and only appears for STRING. If the mode query is the single-character string “\*”, ScanVue will respond with a <CR><LF> separated list of all supported modes and their current values.

*Error Report:*

Error reports are primarily intended for debugging purposes. If enabled, error reports are sent if, for example, the host queries a capability that the client does not accept. Such error strings are in the format of a number possibly followed by white space and explanatory text. There is no assignment of numbers to specific errors, but the value zero should be reserved for non-error conditions. An “OK” error response could be:

Byte #	0	1	2	3	4	5	6	7
	0	0	0	13	E	R	R	_

The response string “0 OK” and a terminating <NUL> immediately follow the header.



*Product Query:* The product query string immediately follows the header. The header for a request about product ABC would be:

Byte #	0	1	2	3	4	5	6	7
	0	0	0	12	P	R	O	D

The query string “ABC” and a terminating <NUL> immediately follow the header. Mode settings can cause the client to send its unit ID and a <TAB> character before the product data, and/or add terminating <CR> and/or <LF> characters at the end of the query string.

*Data:* Data can be one of several types. The data-type token immediately follows the packet-type token, and the data follows after that. The header for a data packet to display the word “hi” would be:

Byte #	0	1	2	3	4	5	6	7	8	9	10	11
	0	0	0	15	D	A	T	A	T	E	X	T

The data string “hi” and a terminating <NUL> immediately follow the header.

*Registration:* Registration information consists of three sequential <NUL> terminated strings following the header. The first string is the unit ID, the second is the product-type identification, and the third is the IP address of the registering client. The header for a registration packet for “Entry”, product type “SCANVUE® 200102161901”, and IP address of “10.0.0.227” would be:

Byte #	0	1	2	3	4	5	6	7
	0	0	0	79	R	G	S	T

Each registration string and its terminating <NUL> immediately follows the header or the previous registration string. When a client receives a registration packet, it should respond by sending its own registration.



**Event:** A client can support up to 32 application specific events and can report the beginning and end of each event with a 100<sup>th</sup> second timer (which need not be supported). Events are mapped into a 32-bit word, in standard network order. Clients may allow the host to enable and disable individual events, or to select reports only for starting or ending events. The packet header for events from UnitID "Unit1" is:

Byte #	0	1	2	3	4	5	6	7
	0	0	0	26	E	V	N	T

Immediately following the header is: the 32-bit map of events that have started since the last report, the 32-bit map of events that have ended since the last report, a 32-bit timer value and a NUL terminated string that is the sending unit's UnitID. The bytes following the header if event zero started and event one ended at time 5 from UNIT1 would be:

000100020005 85787384 490.

## Client Requirements

### Capabilities

The following capabilities must be supported by a client:

Capabilities	Description
Timeout	Changing the client's protocol timeout value is supported
SendUnitID	Sending the unit's ID can be enabled and disabled
TrivialComm	Controls the default communication method used for queries

### Modes

The following modes must be supported:

Configuration Mode	Description	Default
Timeout	Hundredths of a second represented in a 32-bit value. This specifies the amount of time that a client will wait, after sending an initial query, before it terminates the connection to the server and displays an error message (if no other response has been received)	300 (3 seconds)
TrivialComm	Controls the communication method used for queries. The response to a trivial-mode query need not be in trivial-mode.	TRUE
SendUnitID	Controls the inclusion of the Unit ID in a trivial-mode query.	TRUE
SendError	Controls the sending of error reports	FALSE
SendResponse	Controls the sending of responses to mode set commands	FALSE



## QFX Quick File Transfer Protocol

QFX is a very low overhead protocol that is a much simpler and faster alternative to FTP for moving files quickly across the network. There is no authentication. The QFX server allows only read access to files in and below its default directory; this is the extent of security.

QFX packets consist of a 4-byte (network order) packet length, a 4-character token, and possibly data. Packet length includes the 4-byte length field.

Tokens are:

INFO	File information request/response
SEND	File send request/response
DIFF	File timestamp comparison
ERRR	Error response

INFO exchange:

request:	[ length ][ INFO ][ filespec <NUL>]
response:	[ length ][ INFO ][ YYYYMMDDhhmmss size <NUL>] Four digits for year, two each for month (January is 01), day (01–31), hour (00–23), minute (00–59), and second (00–59), followed by a single space-character, and finally the size of the file, in bytes.
response:	[ length ][ ERRR ] Requested file does not exist or request is malformed. Explanatory message is optional, should be string consisting of number, whitespace, optional text.
request:	[ length ][ SEND ][ filespec <NUL>]
response:	[ length ][ SEND ][ file data ]
response:	[ length ][ ERRR ] Requested file does not exist or request is malformed. Explanatory message is optional, should be string consisting of number, whitespace, optional text.
request:	[ length ][ DIFF ][ filespec <NUL>][ YYYYMMDDhhmmss<NUL>]
response:	[ length ][ DIFF ][ Bool ] Bool value is TRUE if the file's date/time are DIFFERENT than the provided timestamp and FALSE if it is the same.
response:	[ length ][ ERRR ] Requested file does not exist or request is malformed. Explanatory message is optional, should be string consisting of number, whitespace, optional text.

[filespec] uses UNIX style forward-slash directory notation. It is the responsibility of the server to convert the notation to the native method, and to guarantee that the path cannot extend outside of the default directory.

The directory `'/'` refers to the current directory; a leading `'/'` is ignored. The QFX server must guarantee the requested file is in or below its current directory.

Line-terminators are newline characters; carriage returns are optional.

The server is responsible to read text files and transmit them with appropriate line breaks. Specifically, this applies to VAX/VMS.





## Appendix F— Communication Diagnostics

### Diagnostic Screens and Messages

ScanVue® software has a built in diagnostic that will automatically attempt to determine and resolve network connectivity problems when the unit is powered up. By their very nature diagnostics are not completely fool proof, but they are powerful tools and many times can pin point problems exactly or provide a strong clue to the actual problem. The host must be able to ping the unit for the diagnostics to be meaningful.

Diagnostic screens have a bright red background, with text displayed in yellow on a blue background. The first line of the display will indicate the type of connection being attempted—Windows networking (SMB), FTP, or Quick File Exchange (QFX). The unit will display, at most, one diagnostic screen between restarts. If you have multiple problems they will show up one at a time.

The second line indicates the general class of error, **Internal**, **Connect**, or **Transfer**. The third line will name the specific error, and if a file name is involved, it will be displayed on the fourth line.

#### **Internal Error**

An **Internal** class error usually relates to a ScanVue® device failure and should never be seen. If the unit can be pinged it is working well enough to eliminate device failure as a cause of not connecting.

#### **Transfer Error**

**Transfer** class errors indicate problems with transferring data over the network after a connection has been established to the host. Again, the explanations provided are not necessarily the only possibilities.

Data Transfer	The unit is not able to send messages to the host even though it has a valid connection. This can be caused by broken server software or for some protocols, by firewalls between the unit and host.
---------------	--



## Connect Error

A **Connect** error is the most likely type to occur. The explanations given may not be the only possible reason for the message.

Connect Fail	A general failure to connect to the host. If the host can ping the unit, getting this error should not be possible.
Connect Timeout	The initial connection was made but the host has not responded to further communication in timely manner.
Refused	The host is there and the unit can connect to it. The host may not have an appropriate server running, or security may otherwise refuse to allow the connection.
Logon	The user name and/or password are incorrect.
Protocol Fail	For Windows networking, the unit and the host could not find a mutually acceptable protocol level.
Share Unavailable	The directory requested does not exist, or is not shared, or protections prevent the unit from connecting to it.
Host Resolution	The specified host name cannot be resolved to an IP address. This can happen if the host name is incorrect or if the host is on another subnet and there is no WINS server available or the WINS server IP has not been set.
Transfer	This may be a transient error that will not re-occur if you power cycle the unit and try again. Normally you should never see this message, as it indicates a failure of software and/or hardware on the host, the network, or on the unit.
SMB Connect Refused	This can occur in the following the following cases: <ol style="list-style-type: none"><li>1. The share POS directory is not accessible; either because the share does not exist, or user permissions are not set to allow access.</li><li>2. The scanvue.ini file may not exist in the share.</li><li>3. The share may exist but access may be denied because "Guest" account is disabled, or the account identified to access this share may not be applied to the permissions tabs (remember there is both a Sharing tab and a Security tab).</li><li>4. The user account identified may not be set in the Unit Configuration of the ScanVue® unit, or the password for the account may not be set correctly.</li></ol>



## Appendix G— ScanVue® VFD Applications

### Description

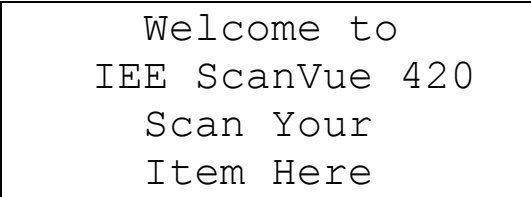
ScanVue® VFD has a 4 line x 20 character x 5mm high, 5x7 dot matrix vacuum fluorescent display and shows text in a fixed font size and pitch. The default character set is US-ASCII extended with 64 European characters. There are three (3) more 64 character extended language sets Cyrillic, Hebrew and Katakana that can be selected from the UnitConfig program by entering the character set name in the mode **ExtCharacterSet**. This feature allows the end user to set the character set to the language of choice. Once ScanVue® VFD is set to display one of these optional character sets, any message sent to the display will use the characters in that chosen language set. The language character sets are shown in **Appendix D** and always contains the US-ASCII characters shown in Table 5 plus one of the optional 64 character sets shown in Tables 6-9.

The user may change any or all of the 3 internal customer messages (factory default is English) into one of the 4 language character sets available on the VF display. This will allow the user to display customer messages in the language of the country the unit is installed in.

As this model cannot show graphics or inherently run a slideshow, the customer greeting screen shown in Figure 9 is normally displayed as a static screen. It is possible to create a loop of linked text messages on the server side that can be sent to ScanVue® VFD in a timed sequence to create a 'text slideshow'.

### Operation

When ScanVue® VFD finishes booting up it will display the info status screens first, then the logo screen and finally the static greeting screen shown in Figure 9. This screen will be continuously displayed until either an item is scanned or the host server sends a different message.



```
Welcome to  
IEE ScanVue 420  
Scan Your  
Item Here
```

Figure 9—Greeting Screen



When a barcoded item is read by the scanner, ScanVue® VFD sends the ASCII characters to the server using the protocols described in Chapter 4 and 5. The mode SendUnitID will transmit the units ID as well as the ASCII characters when set TRUE (default). If the VF unit is mixed with LCD units in the same installation, it is important to keep this mode set true so the server application can discriminate between VF and LCD unit requests and not send graphics images to VF units. A VF unit receiving an image will display the default no response message then will display a blank screen. The host server should respond to a VF unit with a formatted text information block (TIB) of all 80 characters, including the blanks, to locate the actual text in the required positions on the lines (Figure 10)—there are no direct text formatting commands in the present version.

Vintners Merlot Wine
1/5 Gallon        \$11.49
ON SALE TODAY
\$8.99

Figure 10—Item Description & Price Display

## Text Slideshow

If you want to send multiple messages in sequence, this must be controlled from the host server end. For instance, a text based series of messages for continuous advertising could be sent to the display under control of the host. The host would have to have the sequence of messages in a message file (or multiple small files) and send them in a sequential loop with a delay for adequate viewing time. The loop control would require an interrupt when the host receives data from the ScanVue® VFD barcode reader to stop the message sequence, retrieve the item description and price, display it for a set time and then return to the message loop.

## Changing Language Character Sets

**Appendix D** shows the VF displays' default ASCII font set with 64 empty character codes between A0 and DF and the four extended language character sets that can fill these empty positions. Initially, the default character set is US-ASCII+European. The ASCII characters are always available but the extended character set can be changed from UnitConfig by selecting the mode ExtCharacterSet and entering the appropriate value in the New Content box. Only one extended language at a time can be loaded.

Extended Language	Value
ASCII+European	EUROPEAN (default)
ASCII+Katakana	KATAKANA
ASCII+Cyrillic	CYRILLIC
ASCII+Hebrew	HEBREW



## Customer Messages

Three (3) internally generated customer messages are built into ScanVue® VFD. These messages give specific information to the customer while using the price verifier. Text content and language can be changed for use in other countries. The messages are:

**Checking.....One moment please** Message displayed when an item has been scanned and there is a delay in returning the price and description—usually due to heavy network traffic.

**Unavailable.....please try later** Message displayed if ScanVue® VFD times-out before the server returns price and description or an error message—usually means the network is down.

**Welcome to IEE ScanVue 420....Scan your item here** Greeting screen (see Fig 9). This is the static 'greeting screen' that is displayed to a customer.

## Changing Messages

1. Change the ScanVue® VFD character set to the one you want to use from UnitConfig. Make all the changes before restarting. The default character set is US-ASCII+European.
2. When creating new messages, standard characters (that is, those available on your computer keyboard) can be entered directly from the keyboard. Non-standard characters must be entered in hex code form. Hex codes consist of 4 hex digits (\xdd; where \x specifies that a hex code follows, and dd is the hex code for the character you want as shown the character code table) but occupy only 1 character space on the display.
3. **Checking...** and **Unavailable...** and **Welcome to IEE...** messages can be changed by entering the new text in the **msgChecking** or **msgUnavailable** or **BannerText** rows in the UnitConfig program screen. Non-standard ASCII characters must be entered as hex codes as described above.
4. After changing these messages, click the **Set Mode**, **Commit** and **Reboot** buttons in sequence. The unit will reboot and the new messages will be saved and active.

The text file string in **BannerText** to create the default message is shown below. In this example \ is used to define the start and end of the text string and \* to denote a space. The example is only shown this way to make it clear, and is not required when you create an actual message—however the blank spaces to get the correct alignment are required.

```
\*****Welcome*to*****IEE*ScanVue*420*****Scan*Your*****Item*Here*****\
```



## Creating Customer Messages on ScanVue® VF Display Models

The ScanVue® VFD model has 4 language character sets, ASCII+European (default), ASCII+Cyrillic, ASCII+Hebrew and ASCII+Katakana that can be changed with a mode command from UnitConfig. The 4 extended language sets are shown in Appendix D.

There is no display formatting utility or language character conversion capability in this version, so messages (80 characters max including blank spaces) must be padded with spaces to center text or get it to appear as you want on the display. Non standard ASCII characters must be entered in hex code format.

### Network Messages

Three network related customer messages generated within the price verifier can be changed by the user. The default messages that can be altered are:

Mode	Default Content
msgChecking	Checking..... One moment please
msgUnavail	Unavailable.....Please try later
BannerText	(Not Set)

Using the UnitConfig program, locate the mode (row) for the message you want to change, highlight the New Content box and enter the new message. Refer to UnitConfig Screens in Figures 11, 12 and 13.

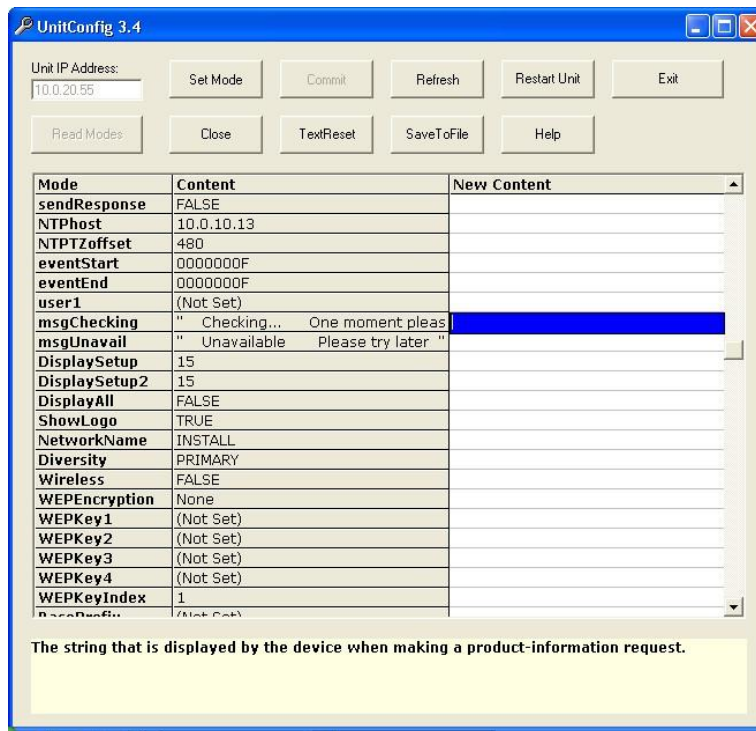


Figure 11—UnitConfig Screen, msgChecking Mode

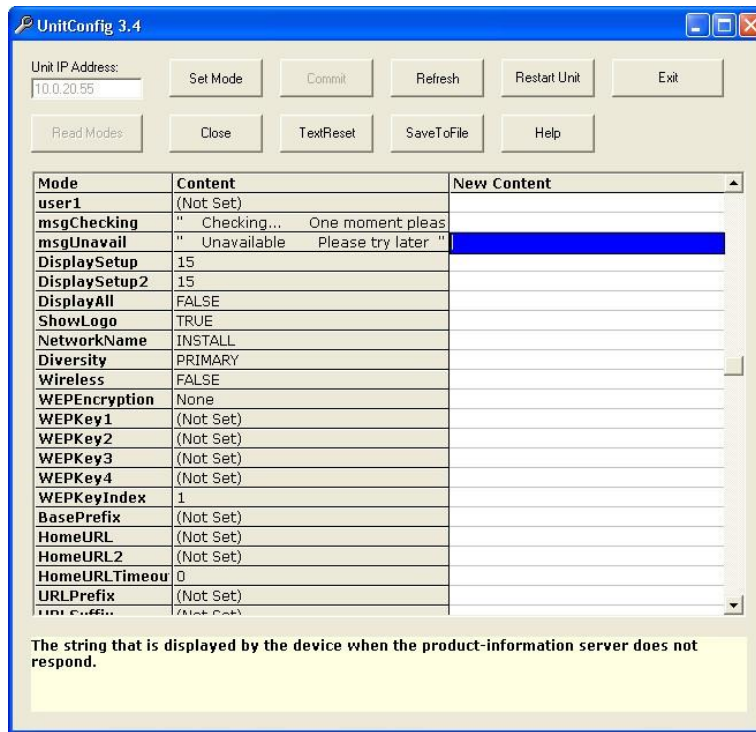


Figure 12—UnitConfig Screen, msgUnavail Mode

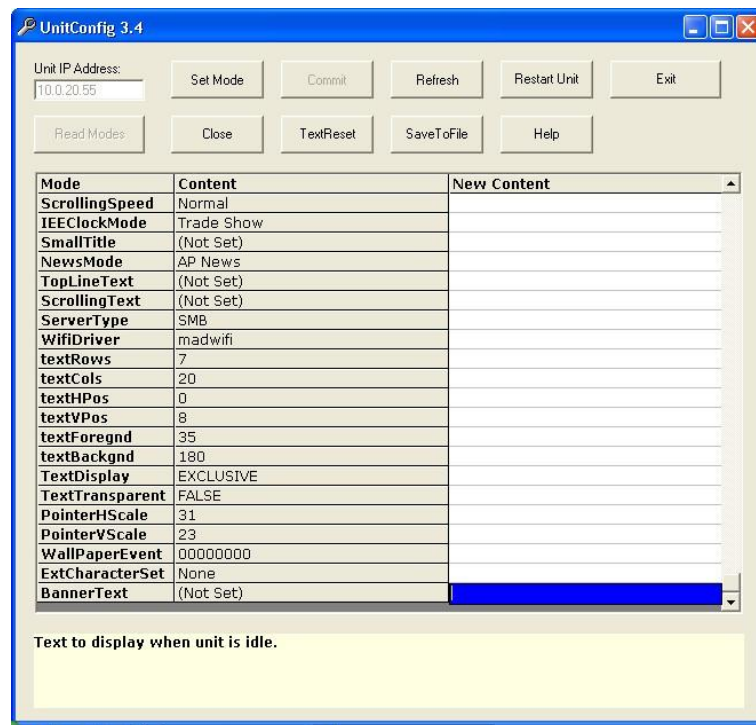


Figure 13—UnitConfig Screen, BannerText Mode



When the message has been entered, click the buttons Set Mode, Commit and Restart in sequence. **Wait....** The unit will reboot but it takes about 1 minute before the initialize screen appears.

**Example 1:**

Changing “ **Checking... one moment please** “ into Spanish.

Highlight the New Content box in the msgChecking row as shown in Figure 11.

Enter “ **Verificando... Un momento por favor**“

The quotes delineate the starting and ending positions of the message including spaces. In this message, there are 3 blanks at the start of the top line and 3 blanks at the end of the top line to center the word **Verificando...** The U in Un starts at the 1<sup>st</sup> position in the second line (as the display word wraps after the 20<sup>th</sup> character). As the second line is exactly 20 characters, there are no blanks inserted and the quotes close off the message after the word **favor**. This message entered as shown will display;

```
Verificando...
Un momento por favor
```

**Example 2:**

Change “ **Checking... one moment please** “ into French.

Highlight the New Content box in the msgChecking row as shown in Figure 11.

Enter “**\x66rifier.. Un moment s'il vous pla\xC6t** “

In this example, 2 of the characters é (hex code \xC6) and î (hex code \xCC) are non standard and must be entered using the hex code method shown on page 43. When counting characters, hex codes occupy 1 character space position on the display. The message as entered will display as:

```
Vérifier.. Un moment
s'il vous plaît
```





## Greeting Message

### **Example 3:**

Change the **Default text** English greeting message shown below to Spanish.

```
Welcome to  
IEE ScanVue 420  
Scan Your  
Item Here
```

Figure 14—Default English Greeting Message

Highlight the new Content box in the BannerText row.

Enter

```
" D\xC6 la bienvenida a ScanVue420 Escudri\xCEe su Art\xCAcule aqu\xCA "
```

In this example text file the hex codes count as 1 character space.

The new text file will display as shown below.

```
Dé la bienvenida  
a ScanVue420  
Escudriñe su  
artículo aquí
```

Figure 15—Spanish Greeting Message



## Appendix H—Mounting Bracket Outlines

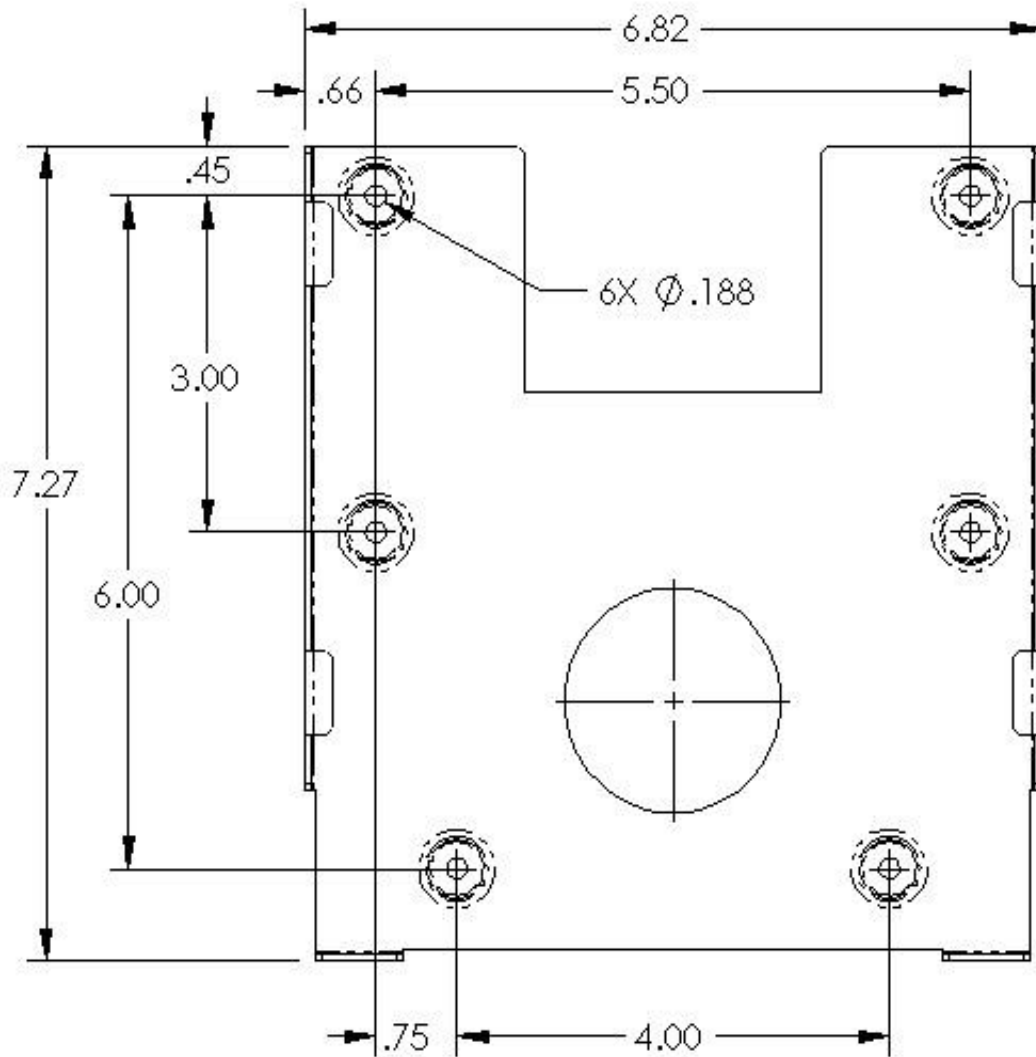
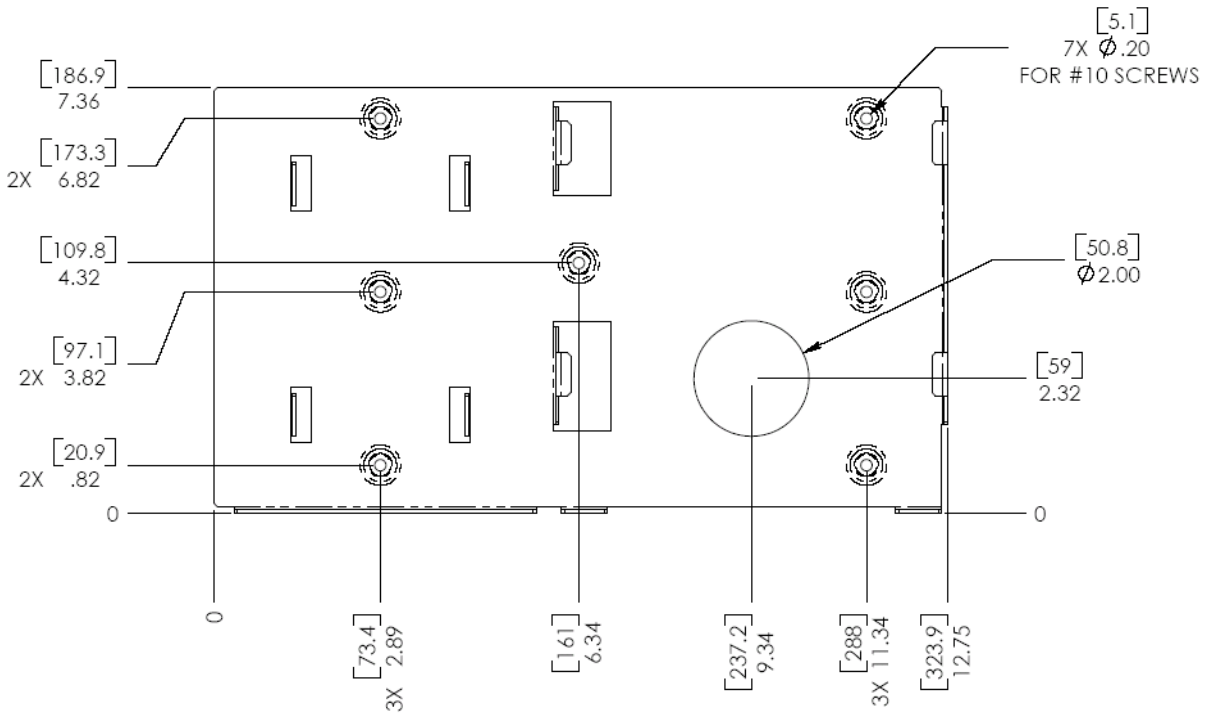


Figure 16—Slimline Wall Mount Bracket



DIMENSIONS ARE IN INCHES [mm]  
GENERAL TOLERANCES  $\pm 0.020$  IN.

Figure 17—Co-Located Printer Wall Mount Bracket