Implementing and Configuring Warehouse Automation

Sage MAS 500 ERP

1009

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Rev 10

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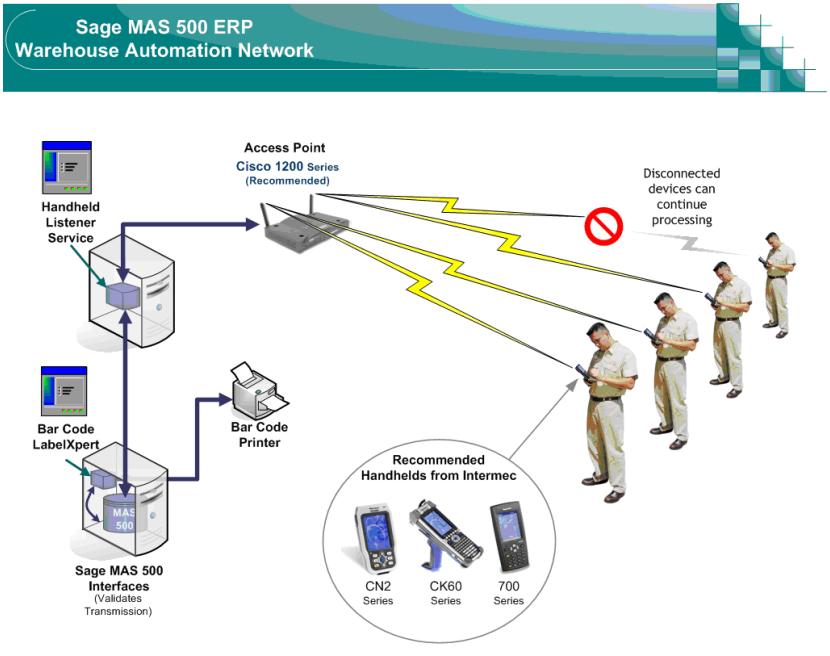
Chapter 1

Introduction

NOTE
You must attend the Sage Warehouse Automation class and be certified to perform the installation and configuration of Warehouse Automation.

The ongoing evolution of computing technology continues to provide new solutions to old problems at a rate that can exceed even the most forward-looking technology leaders. One of the most recent technologies is Wi-Fi or Radio Frequency (RF) networking. While coffee shops and major league baseball ballparks are beginning to offer wireless services for consumers, medium-sized businesses are increasingly leveraging this technology to their advantage.

The low cost of Wi-Fi solutions allows distribution and manufacturing customers of Sage Software to consider an advanced infrastructure for their warehouses that previously was not an option. Sage MAS 500 ERP has seized this opportunity with the release of the Warehouse Automation module. The Warehouse Automation module provides Sage MAS 500 customers with a wireless solution for warehouse personnel who need to perform tasks such as order picking and cycle counts and instantly feed that information back into Sage MAS 500 with proper validation.



Warehouse Automation Integration

The Warehouse Automation system provides five main areas of functionality.

- First, the ability to use a handheld device that allows the user to scan bar codes while performing various data entry tasks.
- Second, it provides radio frequency communication to the host system, allowing real time validated updates to occur.
- Third, a user interface is provided to allow users to reconcile data records that fail validation.
- Fourth, the ability for handheld users to work offline in the event the Sage MAS 500 server or RF connection is temporarily lost. Information captured while offline is uploaded when the connection becomes active, by selecting the application's synchronizer.
- Finally, the Warehouse Automation system allows users to print item bar code labels that were designed using the Bar Code LabelXpert Designer.

Warehouse Automation Server Capabilities

The Warehouse Automation server has the following capabilities.

- Provides the ability to print standard, pre-defined bar coded labels on either laser or thermal label printers from the PC. Launches bar code *network* printing for a single user
- Contains required setup tasks for the handheld devices from the Sage MAS 500 Desktop, which conform to Sage MAS 500 security standards
- Provides Listener functionality for radio frequency communications
- Provides integration to Sage MAS 500 to handle validation and execution of Sage MAS 500 Inventory, Purchase Order, Sales Order, and Warehouse Management transactions
- Provides a user interface for resolution of problems that occur when the data transmitted from the handheld device fails Sage MAS 500 business rules
- Includes a console application to view and maintain wireless clients connected to the server

Handheld Device

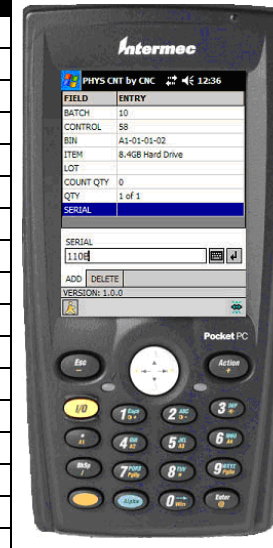
The system's handheld software can be used on any Windows Mobile 5.0, Pocket PC 2003, or CE.NET devices with a wireless connection. The handheld software is written in Visual Basic.net and is hardware independent by design so companies can select the hardware that best meets their individualized needs.

Real-time activity is updated within Sage MAS 500 after each single transaction, such as a pull from a bin or a bin transfer (for example, pick tickets are written to Confirm Picks).

Application Tasks

The handheld device allows the user to perform the following tasks:

Task
Receive Goods
Warehouse Transfers
Inventory Purchases
Inventory Purchase Returns
Inventory Issues
Inventory Sales
Inventory Sales Returns
Bin Transfers
Cycle Counts
Physical Counts
Picking by Order
Picking by Shipment
Picking by Pick Ticket
Packing
Commit Shipment
RMA Customer Returns
Users can optionally use batch posting or simulated real-time posting, depending on the needs of their business. To perform real-time posting, the handheld user receives a group of transactions, then clicks the update button at the bottom of the handheld. This takes all of the transactions in the current entry group, prints and saves an electric copy of the receipts register, and updates the register instantly to update the quantities on hand of the received items.



When a Purchase Order Receipt is completed on the handheld, the user can optionally be prompted to print bar coded labels for that item to a desktop or portable RF belt printer.

The handheld device has the ability to perform picking of one or several orders in one fluid process.

- In Pick by Pick Ticket, when the order selected for picking comes up on the handheld, the system displays all items to be picked one at a time and directs the picker to the appropriate bin for each item. When the picking process is complete, shipments are generated.

- In Pick by Order, the user can select one order to pick from any of the orders in a pick ticket that has been generated.
- In Pick by Shipment, the user can select to pick orders from a previously generated shipment.

Packing can be performed by the packing staff in the warehouse using the Packing task on the handheld. At that time, all scanned items will be assumed to go into box 1, until the next box indicator is selected, with the process continuing until all items have been picked and placed in boxes. The ability to divide the contents of one shipping line into two or more packages is also provided (for example, for 10 widgets ordered as 1 line item on a sales order, 5 go in box 1, and 5 go in box 2.)

The information about the shipped boxes flows directly to Sage MAS 500 and can be viewed from the Edit Shipments task. Users accessing Edit Shipments from the Desktop can view these transactions and send the appropriate shipments to StarShip.

Chapter 2

Types of Data Collection Devices

The following are the types of Data Collection Devices (DCDs) that are available for use with Warehouse Automation, the supported operating systems, and the DCDs that are certified by Sage for use with Warehouse Automation.

- Intermec CN2 (B), Intermec 751, Intermec CN3, and Intermec CK61
- DCD types (for example, data collection terminals and fork lift mounted terminals). For recommendations on supported fork lift mounted terminals or terminals used for manufacturing, contact Scanco.

DCD Operating Systems

DCDs are manufactured with "proprietary" operating systems (such as Palm or Symbian) and with "generic" operating systems made by Microsoft.

The Warehouse Automation client software should run on any DCD that is running Microsoft CE 5.0, Pocket PC 2003, or Windows Mobile (current version); however, there is much more to using these devices than the operating system. Each manufacturer has their own way of implementing their radio frequency radios, wireless security, utilities included, etc. If you already have or want to purchase any DCD that is not certified, Sage Software cannot support the configuration of that device.

Warehouse Automation Supported DCDs

Supported operating systems are all Microsoft based, such as CE.NET 5.0, Pocket PC 2003, and Windows Mobile 5.0. CE.NET is a commercial version and does not include programs such as Pocket Word, that are bundled with Windows Mobile.

Four DCD units have been tested and certified to work with Warehouse Automation. Other DCDs may work but have not been tested or certified. Non-certified units cannot be supported by Sage Software Customer Support.

Client Handheld

- **Operating System:** CE.NET 5.0, Pocket PC 2003, or Windows Mobile 5.0
- **Production Hardware:** Industrial-grade handhelds should be used to host the operating system. These devices should be rugged enough to survive several five foot drops. While other handheld devices use the required operating system, they may not be rugged enough to withstand daily use in a busy warehouse.

The following handheld devices are recommended and are supported with this module.

Intermec CN2 Series – The Intermec CN2 handhelds are small enough to fit in a shirt pocket yet provide a rugged and reliable mobile data collection terminal for your tough handheld computing applications. The CN2 offers features and functionality commonly found in terminals which are much larger and more costly. With the ergonomic design, the CN2 allows for single-handheld operation and the pocket sized form factor making it possible to carry almost anywhere data collection is required.	
Intermec 700 Series – Designed from the ground up for use in harsh environments, the 700 Series devices can withstand multiple 5 foot (1.5 m) drops to concrete and are sealed against rain and dust. The ergonomic case design is sculpted and balanced, maximizing user comfort during long-term use. Radio and scanner options are integrated, not add-ons, which means they are tested to the same ruggedness standards, and do not compromise the environmental or functional characteristics of the unit.	

Intermec CN3 Series – Designed to meet the needs of users performing mission-critical tasks in transportation, logistics, and field service, the CN3 mobile computer delivers a powerful combination of communications technologies in a compact, rugged package. Built to survive the rigors of the road, the CN3 meets rugged, standards-based environmental specifications and provides features that meet the needs of mobile users. The CN3 has 128 MB RAM and is available with an ultra-slim extended battery that delivers easy-to-carry, all-day power.	
Intermec CK61 Series – Intermec's CK61 mobile computer provides everything required by the most demanding environments; a rugged design, all-day battery capacity, next generation processor technologies, and non-volatile storage combine to provide years of reliable service. The CK61 utilizes a magnesium top cover and tough rubber bumpers at each corner to achieve extremely rugged environmental specifications. To ensure years of trouble-free service, the case is sealed against water and dust to IP64 standards and can withstand repeated 6' drops. Onboard non-volatile memory called persistent storage, preserves applications and databases even if the batteries become depleted. An additional 128 MB of persistent storage, enables storage of large enterprise databases and applications. The CK61 also offers an SDIO card slot supporting removable storage cards, which allows easy data recovery from a damaged unit or even more onboard capacity for the largest databases. The CK61 is available with either Microsoft Windows CE 5.0 or Windows Mobile 5.0 software for Pocket PC. Microsoft Windows CE provides significant flexibility to those who want to control the user experience. Microsoft Windows Mobile offers a standard platform which can easily be applied across the enterprise.	

Additional devices such as fork lift terminals and fixed data collection terminals will be certified in the near future. For additions to the supported devices list, refer to the support section of Sage Software Online.

SD Cards

SD cards are devices that increase the memory available in DCDs. When purchasing hardware for your implementation, ask about the availability of SD cards for your devices. SD cards are useful in the event a DCD handheld is damaged because programs and information stored on an SD card are likely to remain undamaged even if the handheld itself is damaged.

Bar Code Printers

Thermal Transfer

Thermal transfer technology uses heat on a ribbon to fuse the image onto a special label material. The material can be paper, plastic or other materials that allow the label to be deployed in harsh environments. This is the type recommended in most cases.

Direct Thermal

Direct thermal transfer printers use heat to make an image on special thermal paper. Thermal labels should only be used for printing labels that have a relatively short life (for example, FEDEX labels). These labels are also adversely affected by sunlight.

Which Printer Type Should Be Used and When

Direct Thermal

- Paper labels
- Short life labels
- Shielded from sunlight

Thermal Transfer

- Paper or synthetic labels
- Long life labels
- Harsh environments

Bar Code Label Media Types

How to Choose

When choosing a bar code label to use, consider the following factors.

- Determine the material that the label will be applied to
- Determine temperature ranges required
- Determine how long the label will be used
- Investigate what the label will be subject to (harsh chemicals, frequent movement of goods, etc.)
- Make sure that the printer ribbon used is compatible with the label material
- Contact a company that specializes in custom bar code labels for advice if the application requires anything other than paper labels

Laser Printing Bar Codes

Bar codes printed on a laser printer are very good for scanning; however, it is not recommended that they be used extensively for labels. The toner will flake off when the label is rubbed against objects, making the shelf life of laser printed labels very short. Also, to print only 5 labels (there are 10 on a page), you will waste 5 labels. Laser labels are also much more expensive than thermal or thermal transfer labels, so when you factor the additional cost for labels with the waste generated by not printing all the labels on a page, a thermal or thermal transfer label printer is more economical.

The use of laser printing on forms such as physical count sheets or pick tickets is appropriate because these documents typically do not require a long life and are less subject to smears or flaking. To print laser forms from Sage MAS 500, Azalea bar code fonts must be installed.

Azalea Bar Code Fonts

Azalea bar code fonts are included on the Sage MAS 500 CD-ROM. These are only used for the Sage MAS 500 Warehouse Automation Bar Code Count Report. These fonts need to be installed on any Sage MAS 500 client machine that will be printing this report. Additional Crystal Reports form modifications are required to use these fonts on other reports.

Printer Types

Network/Local/Wireless/Portable

Bar code label printers are available in various form factors and interfaces. The most common is a desktop printer. This printer contains two spools to mount a roll of labels and a ribbon. The printer can have a parallel interface to a PC, an Ethernet connection, or a wireless connection.

Label printers are also available as portable printers. These printers can sometimes be worn on the user's belt. This allows printing of receipt labels as soon as each product is received to help avoid labeling mistakes. Both Bluetooth and 802.11 wireless interfaces are available for these types of printers.

Choosing a Printer

When choosing label and ribbon supplies consider similar factors as you do when evaluating which printer to use.

- Determine the material that the label will be applied to
- Determine temperature ranges required
- Determine how long the label will be used

- Investigate what the label will be subject to (harsh chemicals, frequent movement of goods, etc.)
- Determine how many labels per day/week/month will be printed
- Determine if the duty cycle of the printer is sufficient for the quantity of labels required
- Determine the label size the printer supports (very small or large)
- Determine if direct thermal or thermal transfer labels will be used
- Make sure the printer print is fast enough to ensure worker productivity
- Determine if the printer is compatible with the Sage Bar Code Pressman and LabelXpert software

Overview of Wi-Fi Wireless Networks

Wireless networks are popping up everywhere, and there are a variety of network protocols available. The following section describes the various available protocols, and identifies the protocols that are certified to work with the Warehouse Automation module.

802.11 B vs. 802.11 G

The B protocol supported speeds up to 11 MPS with the ability to drop down to as slow as 1 MPS. The radio decreases in speed as coverage becomes weaker. The G protocol is backward compatible with B but supports data speeds up to 54 MPS. Most access points will work with either one. Warehouse Automation supported DCDs all have B/G radios and support both protocols.

802.11 A

This protocol is not compatible with B and G. It operates on a 5 GHz frequency instead of 2.4 GHz. The A protocol offers some speed advantages but also requires almost twice as many access points to cover the same area. At the present time only the B and G protocols are certified to work with Warehouse Automation.

802.11 N

A new protocol has emerged that promises much higher data rates. Most of the first devices on the market are certified to Draft 1 of the standard. They are not usually backward compatible with B/G devices and even one N client can slow down the entire network. Promised data rates are typical: 200 Mbps with a maximum of 540 Mbps. At this time, the 802.11 N DCD device is not available or certified for use with Warehouse Automation.

Access Points

Supported Access Points

Access points are the receiving units that transfer the signal from the handhelds into the server that communicates with Sage MAS 500. The quantity of access points and their configuration are determined by a site survey. For more information, see Site Surveys on page 17.

Access Point Recommendation

The Cisco Aironet 1200 Series delivers high capacity, security, and enterprise-class features required in more challenging RF environments. It is designed for wireless LANs in rugged environments or installations that require specialized antennas, and features dual antenna connectors for extended range, coverage versatility, and more flexible installation options.

DCD Radios

Each Wi-Fi device, whether it is a handheld or a forklift-mounted device, contains a DCD radio. DCD radios are typically Wi-Fi certified in one of three ways:

- 802.11B
- 802.11B/G
- 802.11A

The radio type must match the type of access point. If the access point is 802.11A then neither the 802.11B, 802.11 B/G DCD radio will function because not only is this a different protocol, it is a different frequency (5 GHz).

If the DCD radio is 802.11B and the access point is 802.11 B/G then it will function but only at a maximum speed of 11 MPS. If the radio in the DCD is 802.11G then it will operate at speeds up to 54 MPS on a B/G access point.

If the access point is only 802,11B then even if the DCD is 802.11 B/G, it still will be limited to 11 MPS. To get the maximum speed, choose an 802.11 B/G access point and an 802.11 B/G DCD radio.

Integrating with Existing Networks

Access points use a 10/100-Mb Ethernet connection. Typically the access point is in the same location as the antenna. While it may seem that the best place to put the access point is in a wiring closet with the other network components, such as switches, hubs, and routers, this is not the case. The antenna must be placed in an area that provides the best coverage (determined by a site survey). Many people new to wireless LANs want to locate the access points in the wiring closet and connect the antenna using RF coax cable. Antenna cable introduces losses in the antenna system on both the transmitter and the receiver. As the length of cable increases, so does the amount of loss introduced. To operate at optimum efficiency, cable runs should be kept as short as possible.

Also, investigate any other wireless networks that are already installed at or near your facility. Be sure to find out where the access points are located, what type they are, and what channels they are configured to operate on. If they are on the same channels and within range of your Warehouse Automation wireless network, they can cause interference.

Security Types and Differences

The following is a list of the different security types available.

- SSID – Required, but worthless for security because Windows XP turns broadcast off
- TKIP
- EAP
- WPA
- LEAP
- EAP Fast
- PEAP
- WEP – Not recommended

It is important to establish a strong type of security and ensure that the type you choose works with all of the wireless devices on the wireless network. The hardware vendor should advise you how to set up each of the devices that you purchase. It is recommended that you buy all of the hardware from one vendor (even if made by different manufacturers) so that the one vendor can take responsibility for ensuring that all of the devices will work effectively together.

Dangers of Fixed WEP keys

WEP was one of the first types of security. Many individuals that are unaware of security protocols use WEP, believing that this is securing their wireless network. Unfortunately, there are many ways that a relatively unskilled hacker can intercept the WEP keys and easily gain access to the network. Fixed WEP keys are not recommended for the Warehouse Automation module.

802.11x Security

This is the recommended type of security, which has several layers. First, clients and access points have to authenticate to get on the network at all. After that all of the data is encrypted. Finally, the keys are modified every 5-10 seconds. If a hacker was somehow able to get the key, it would expire in 10 seconds. This type of security requires that the access points and wireless clients (DCDs, printers, and PCs) have to be able to have their security settings coordinated. It is common that one protocol will work for DCDs and access points but not work for a printer or a PC. We recommend that one hardware vendor supply all of the wireless devices and help you establish a secure wireless network.

Site Surveys

A site survey is an assessment of exactly what the hardware requirements are for the network to operate at the speed specified by the customer. Surveys can be done to 11 MPS, for example, or the customer may specify a full 54 MPS. The speed controls the number of access points, antennas required, and the placement of all of the components.

The surveyor temporarily mounts access points and various antenna types to determine what the coverage, signal strength, and data speed are in any given location in the coverage area.

The surveyor delivers a report that specifies all of the components necessary, the locations of each access point, and antenna. The surveyor should guarantee that the specified coverage will exist in the coverage area.

Performing Site Surveys

Surveys are typically done by the hardware manufacturer of the wireless infrastructure or by the hardware vendor that is supplying the hardware. Special training is required by each manufacturer in order to be qualified to perform surveys.

When Is a Site Survey Necessary

One access point and two omni directional antennas cover approximately 15,000 square feet at 11 MPS. Another measurement is about 100 feet from the antennas. This is a rough estimate and cannot be relied on due to various anomalies at each facility. If the warehouse is less than 15,000 square feet, a survey is probably not necessary. Any warehouse greater than that should have a site survey conducted. If a site survey is not performed, your implementation team may not be responsible for the performance of the wireless network.

Some individuals believe that if there is not enough coverage they can buy more access points. This may solve the problem, but it is also very critical where the access points are placed and what antenna choices are made. Without a site survey, it is impossible to predict coverage and performance.

Another benefit of a site survey is the identification of other factors that may interfere with the RF network. These factors can include machines, wireless phones, microwaves, and other sources of 2.4 GHz radio waves. Proper placement of access points can overcome these issues.

Chapter 3

Installing Warehouse Automation

This section contains information about installing ActiveSync, Warehouse Automation Server Service Pack, and the Azalea bar code fonts.

Installing ActiveSync on the PC

To install ActiveSync

1. Plug in the power adaptor on the Intermec Docking Station. Place the DCD computer into the docking station.

   This will turn on the DCD and charge the battery. A red light indicates that the battery is charging. A green light indicates that the battery is fully charged.

2. Using a USB cable, connect the Intermec Docking Station to a USB port on the PC.

3. Obtain ActiveSync from your hardware vendor or download it from the Microsoft Web site. ActiveSync is required to install software on to the handheld devices.

4. Follow the prompts to install ActiveSync on your PC.

5. Allow the PC to reboot with the Intermec Docking Station connected and Intermec DCD battery charging.

6. After the PC is fully restarted, ActiveSync will automatically load. Select a guest connection when prompted and minimize ActiveSync.

Installing Azalea Bar Code Fonts

The Azalea bar code fonts are provided on the Sage MAS 500 CD-ROM. These fonts need to be installed on all workstations that will be running the Sage MAS 500 Bar Code Count report and bar coded Crystal Reports.

To learn how to install the fonts, on the Sage MAS 500 CD-ROM, go to the Azalea > Doc folder. Read the c128ToolsDocumentation.pdf and FAQ.pdf documents located in the Doc folder for detailed information on installing the Azalea bar code fonts.

Chapter 4

Configuring Warehouse Automation Profiles and Users

This section outlines how to create and configure a Warehouse Automation profile and to create and configure Warehouse Automation users in Sage MAS 500 for use in Warehouse Automation.

Creating a Profile

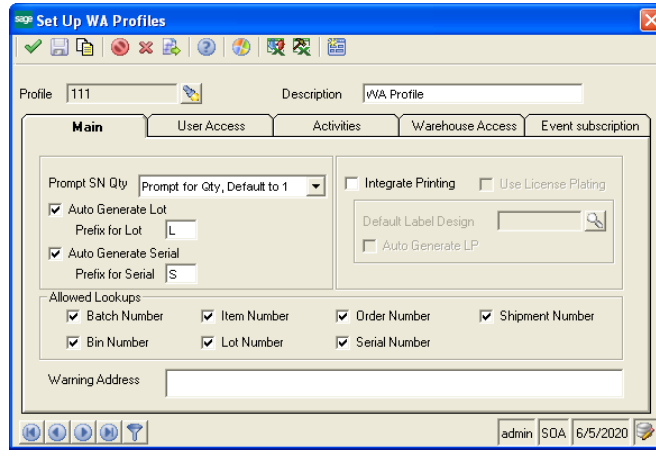
Warehouse Automation profiles define configuration parameters that the DCD operator can use during the data collection process. Profiles also control what tasks can be performed using the DCD. For example, you can configure different profiles for the receiving, shipping, and physical count job functions. Users can then be assigned to one or more profiles to perform the selected tasks.

To create a profile

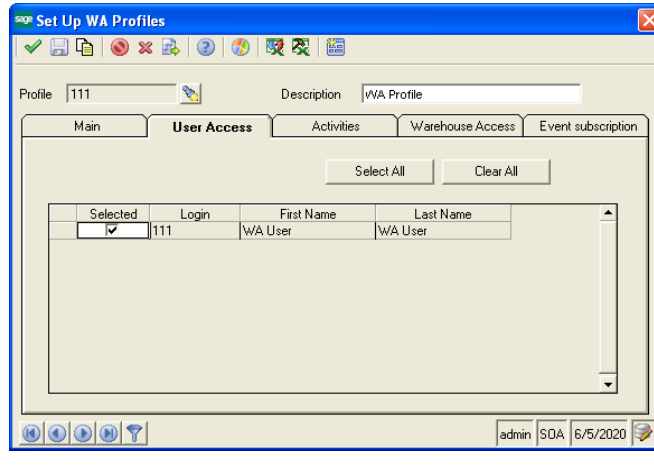
1 Log on to Sage MAS 500.

2 Select Warehouse Automation Maintenance menu > Set Up WA Profiles.

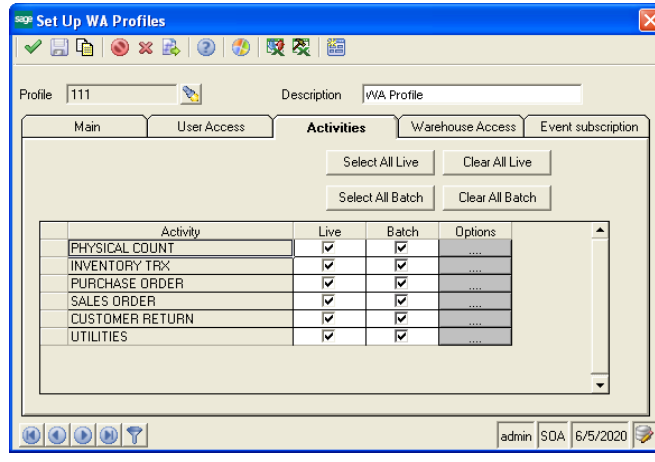
3 On the Main tab, enter the settings that apply to the profile. For more information on this task, refer to the Sage MAS 500 Help system.



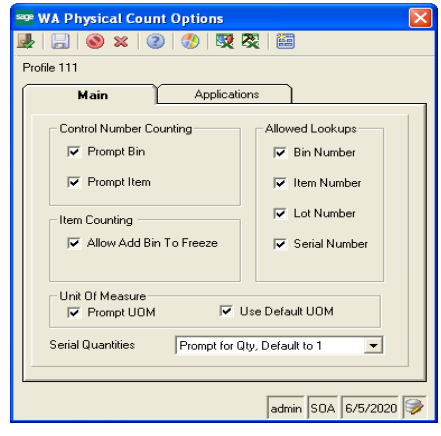
4 The users that have been added using Set Up WA Users appear on the User Access tab. Select the check box in the Selected column to give that user access to this particular profile.



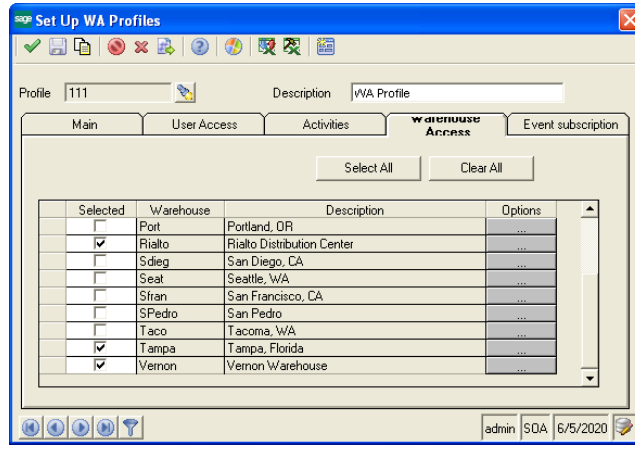
5 Use the Activities tab to set this profile's access to each transaction. You can use these activities in live and batch mode by selecting the applicable check box.



6 Click the Options button to set up the options for each activity. Each activity has its own set of unique settings.

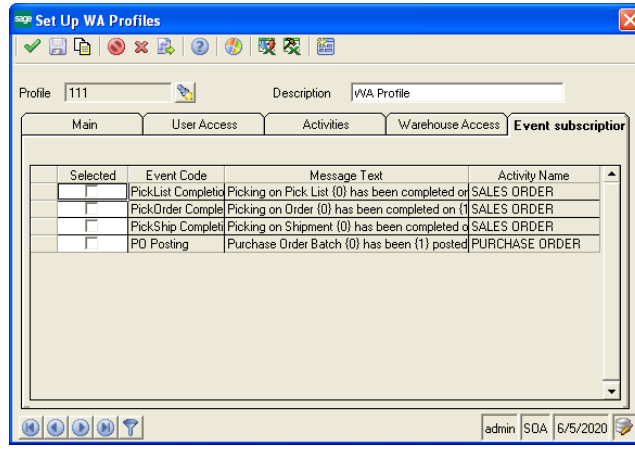


7 Use the Warehouse Access tab to assign users of this profile access to certain warehouses.



8 Click the Options button for each selected warehouse to grant access to printing and to determine which default label design is available to print at that warehouse. The design with the highest priority setting prints first. One is the highest priority.

9 Use the Event Subscription tab to assign events to this profile.



10 Click the Save button.

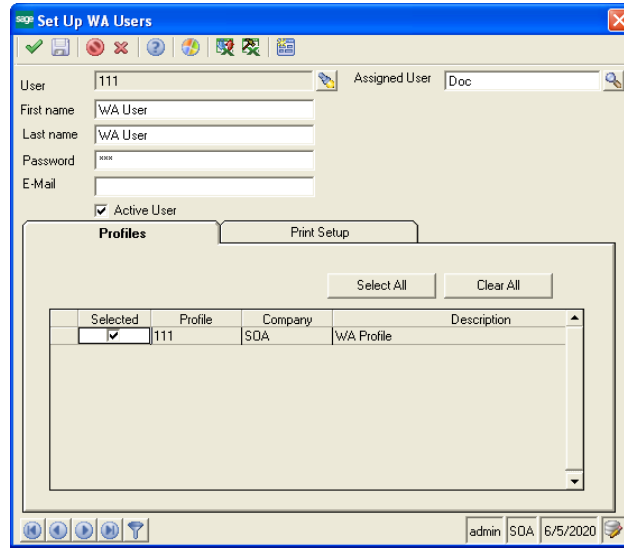
Creating a User

To create a user

1 Log on to Sage MAS 500.

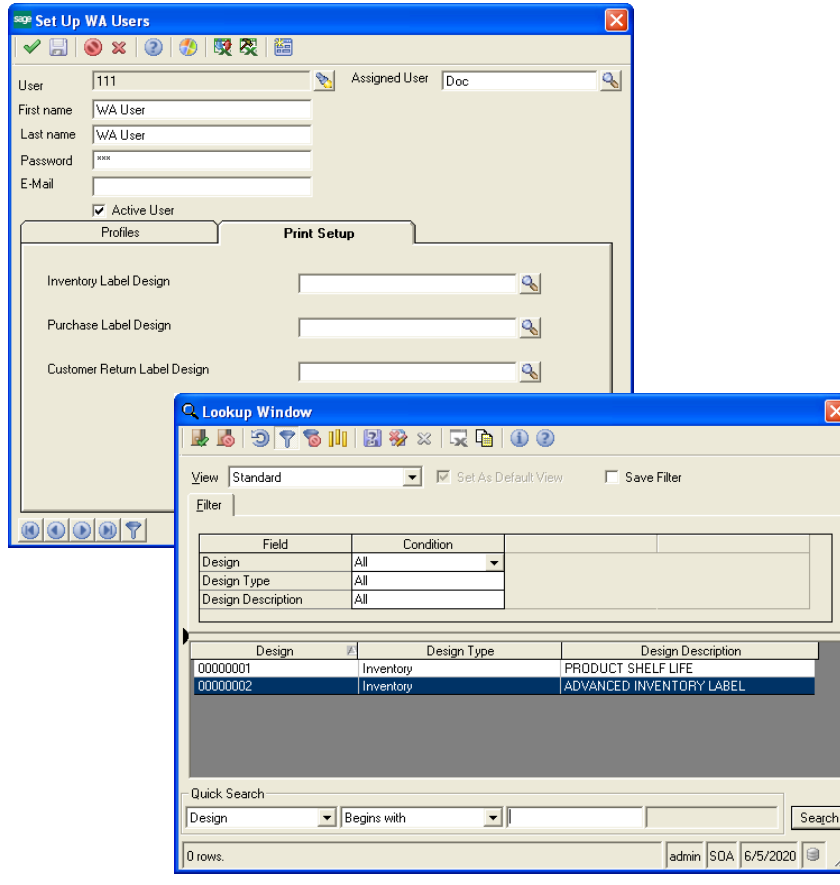
2 Select Warehouse Automation Maintenance menu > Set Up WA Users.

3 Each user can be assigned to multiple profiles in order to be able to perform certain tasks on the DCD. For more information on this task, refer to the Sage MAS 500 Help system.



Use the Profiles tab to select the profile(s) the user will have access to.

4 After the label printing is set up, select the label design the user will have access to when printing in each transaction. Click the Lookup button and select the appropriate label design.



5 Save and close Set Up WA Users.

Chapter 5

Setting Up the Warehouse Automation Listener Service

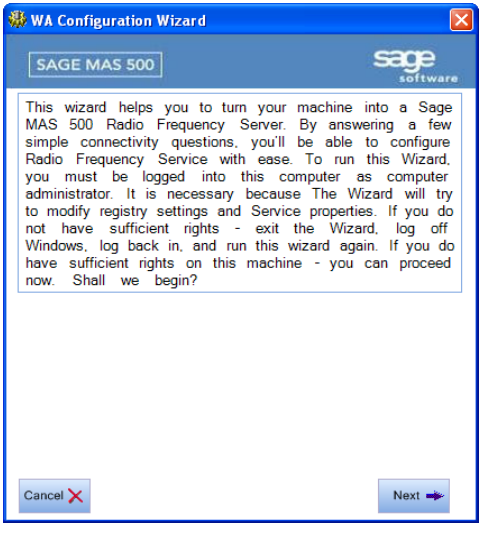
Use the WA Configuration Wizard to set up the Listener service.

WA Configuration Wizard

To configure the Listener service

1 Select Start menu > Programs > Sage Software > Sage MAS 500 > Utilities > Warehouse Automation Configuration Wizard. The user running the Listener should not be started with a local system account. An account such as a Sage MAS 500 administrator account that has sufficient rights for data posting executions in Sage MAS 500 should be used. The user also needs to have sufficient rights to write into the shared directory, WA Deferred Printing, which is necessary to print registers.

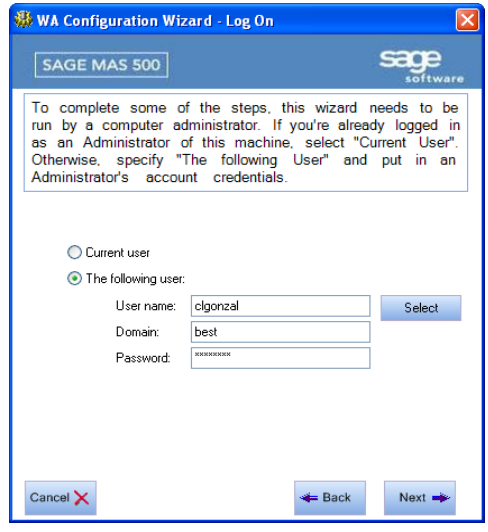
2 The WA Configuration Wizard appears. Click Next.



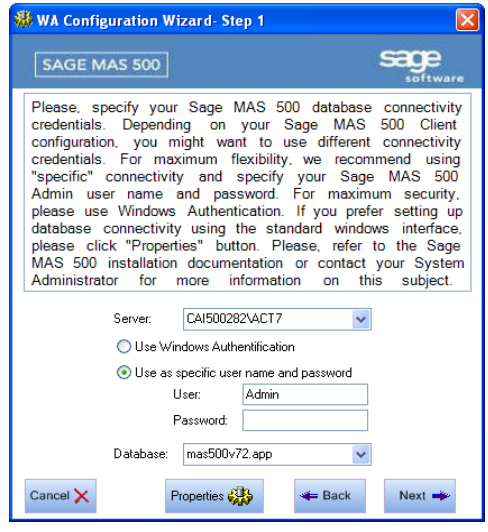
NOTE
The person running the wizard must have Administrator rights.

3 Select whether to run the wizard with the currently logged on user or another user. If you select The following user option, type a specific user name, domain, and password. Click Next.

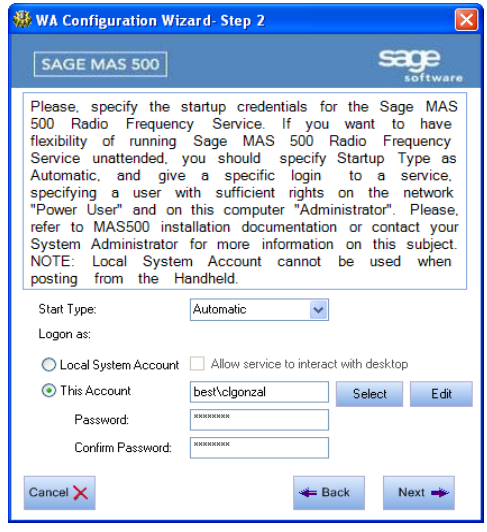
This page may not appear if you are running the wizard on a Windows Vista machine. Use the Run as Administrator option in Vista, if necessary.



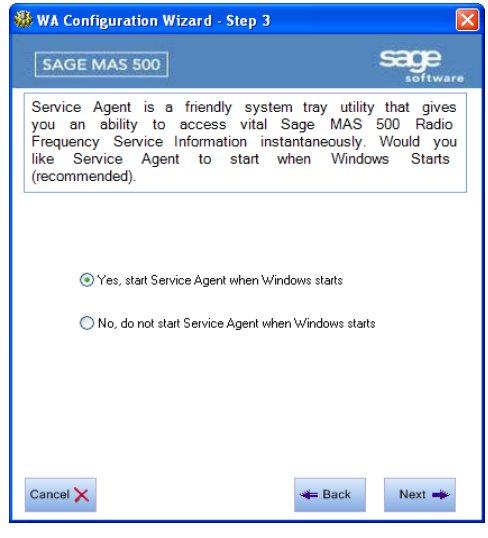
4 Enter the server and database that have Warehouse Automation activated. Make sure the user selected is a valid MAS 500 user. Click Next.



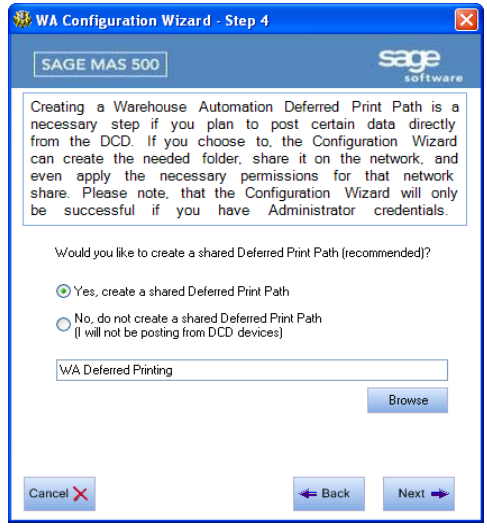
5 If SQL is loaded on the Server that is also the Listener, then select Manual at the Start Type field. Click Next.



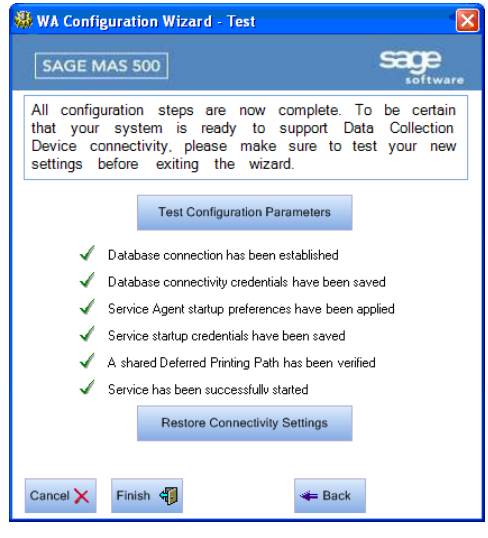
6 Select Yes to start the Service Agent utility when Windows starts. Click Next.



7 Select whether to set up a shared deferred printing path. Enter a path that meets the requirement selected. Click Next.



8 Click Test Configuration Parameters. When the connection tests successfully, click Finish.



If the service failed to start, this may be due to the fact that the account specified does not have Log on as service rights. If this occurs, go to Services and retype the account password under properties of MAS500 Listener service. This will force Windows to assign Log on as service rights for this account.

Start the Listener Service

From the workstation task menu on your desktop, right-click the Listener icon and scroll to Start. The icon will be green when started.

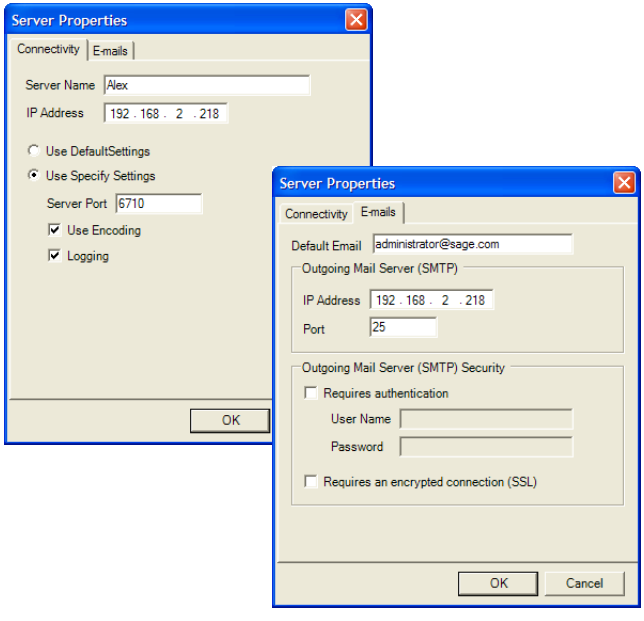
Chapter 6

Understanding the Warehouse Automation Console

This section explains what the Console is, what it is used for, and how to configure its properties. The console is used to view, log out, and disconnect DCD connections. The console also allows you to start, stop, and restart the Listener service on any machine that is running a Listener. You can also configure e-mail properties to enable the console to send e-mail messages.

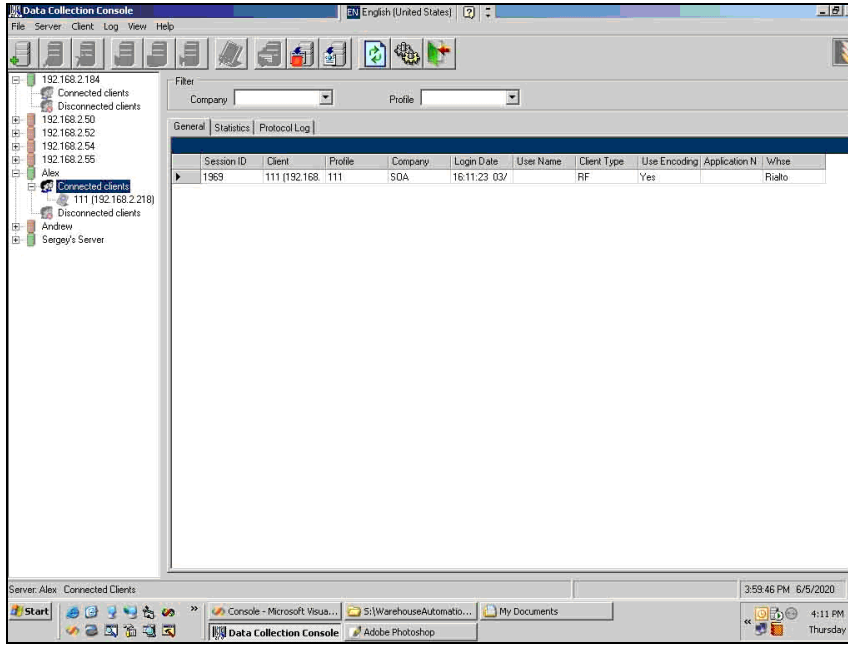
Configuring Warehouse Automation E-mail

The Console has the ability to configure the e-mail server that is to be used for sending e-mail messages. E-mail messages can be sent from the handheld as configured in Set Up WA Users. Warning e-mail messages can also be sent by the system to alert individual(s) about posting errors and other conditions.



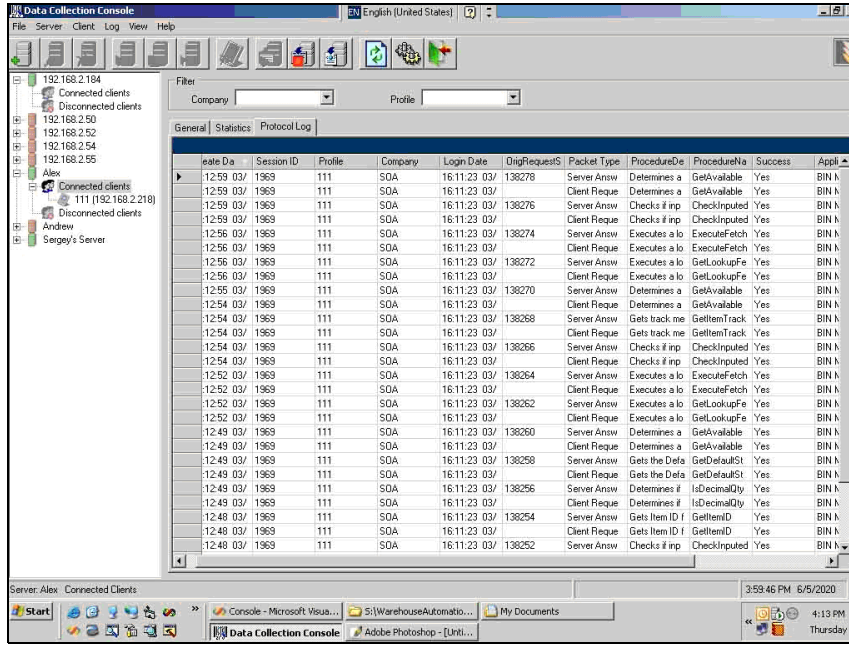
Console Properties and Operations

Select Warehouse Maintenance Activities menu > Console to view activity occurring during the warehouse automation data collection process.

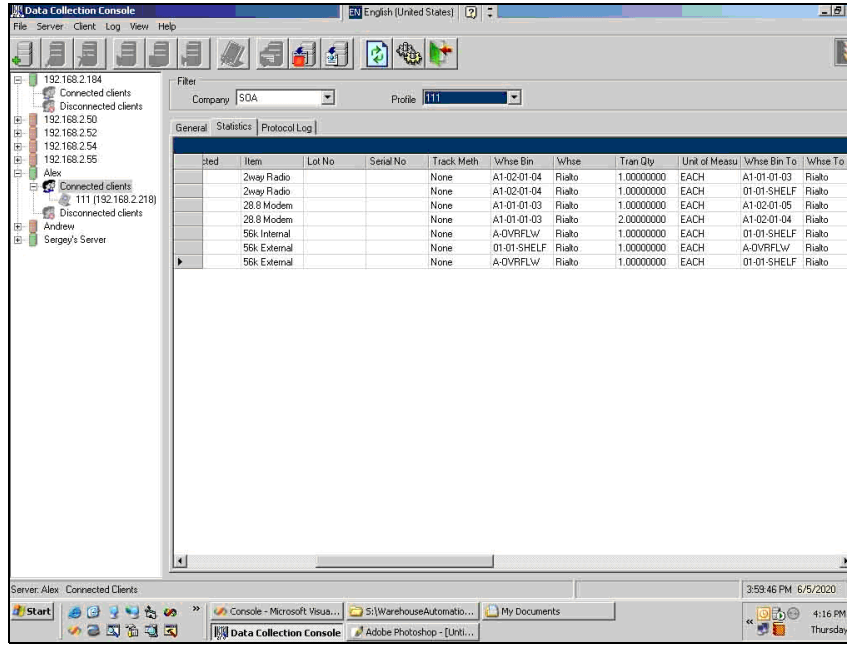


On the left side of the window, all the Listener workstations that are in the network appear, along with the DCDs that are connected to and disconnected from each one. After selecting a Listener's IP address, you can perform various functions using the buttons located along the top of the window.

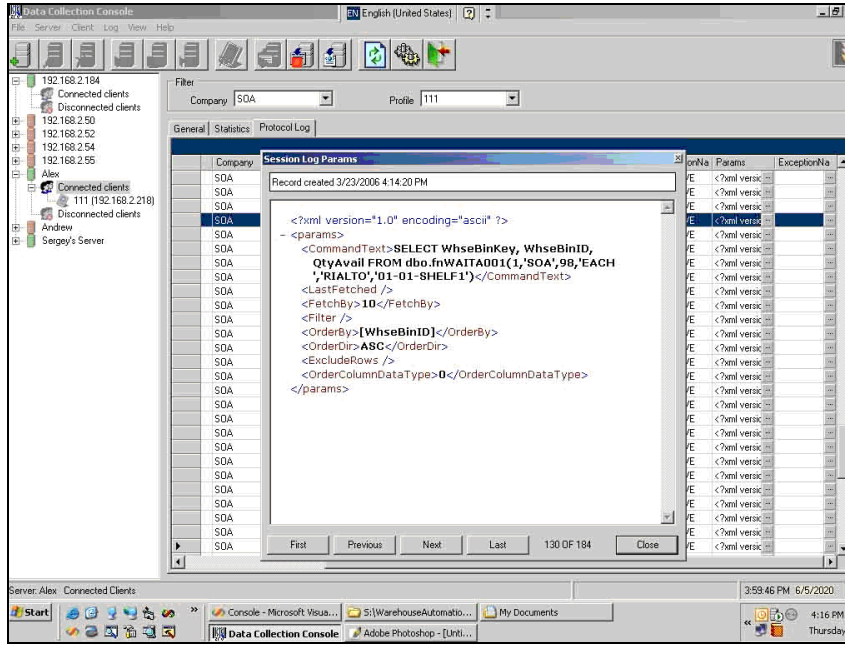
If logging is enabled, selecting the Protocol Log tab displays requests from DCDs and answers. This information is normally used for troubleshooting.



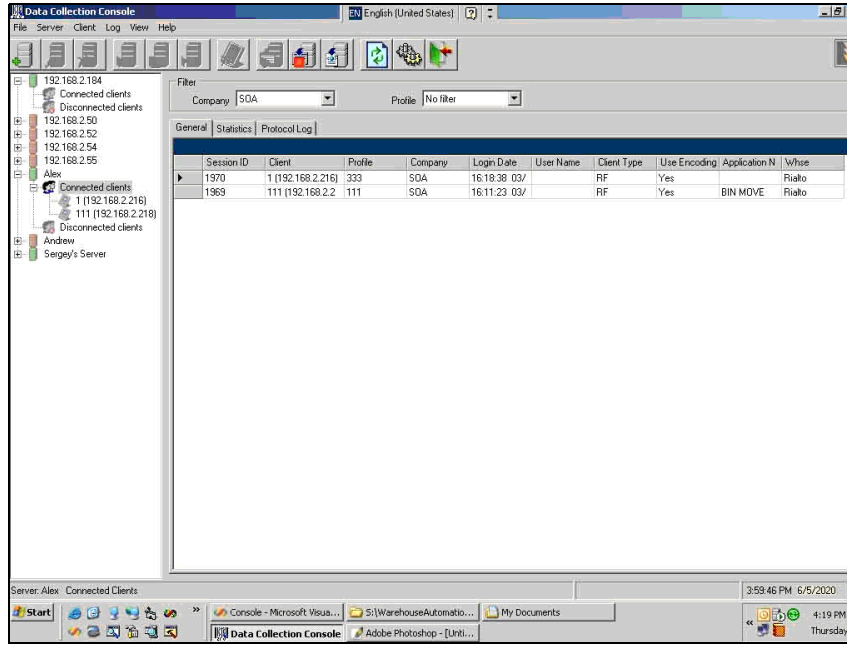
Selecting the Statistics tab displays transactions that have occurred. You can filter the information by company and profile.



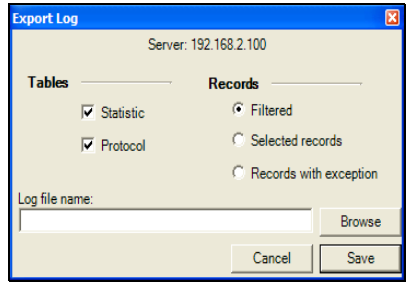
An individual packet can also be viewed for troubleshooting.



The General tab displays which DCDs are connected and what actions they are performing.



If logging is enabled, you can also export the Protocol log and Statistic log. These files are created in XML format.



Chapter 7

Required Sage MAS 500 Settings

This section contains important settings that need to be made in Sage MAS 500 to properly function with Warehouse Automation.

Purchase Order Matching

The Warehouse Automation module does not support purchase order matching at this time. To use the Warehouse Automation client to perform the receipt of goods activity:

1. Select Purchase Order Maintenance menu > PO Setup > Set Up PO Options.
2. Select the Other tab and clear the Match Receipts to PO check box. If purchase order matching is required, receipt of goods must be performed using the Sage MAS 500 desktop application instead of the Warehouse Automation module.

RMA for Customer Returns

To use this activity with the Warehouse Automation client, an RMA must be issued in Sage MAS 500 for any customer returns that are to be processed by the Warehouse Automation client. The following setup options are recommended, but not required.

1. Select Sales Order Maintenance menu > SO Setup > Set Up SO Options.
2. Select the Return tab and select the Require RMA for Returns check box.

Default Weight and Volumes

If you enable purchase order activities in the Warehouse Automation profiles, the following message appears: "Default Weight and Volumes will be used if PO Options > Receiving > Update Volume and/or weight is set to required."

The Warehouse Automation client will not prompt for weight and volume when performing purchase order receipt activity. If your option is set to required, the Warehouse Automation client will use the defaults.

Track Quantities in Bins

Warehouse Automation is supported when warehouses do not use bins or when warehouses use bins but track quantities at the bin level. Set up bins using Inventory Management Maintenance menu > IM Setup > Set Up Bins.

Chapter 8

Installing the DCD Client Software

The DCD client software consists of installing the following:

- DCD Manager
- .NET Compact Framework
- SQL CE
- Warehouse Automation

Installing the DCD Manager

To install the DCD Manager

1 Insert the Sage Warehouse Automation CD into the CD-ROM drive of the local workstation.

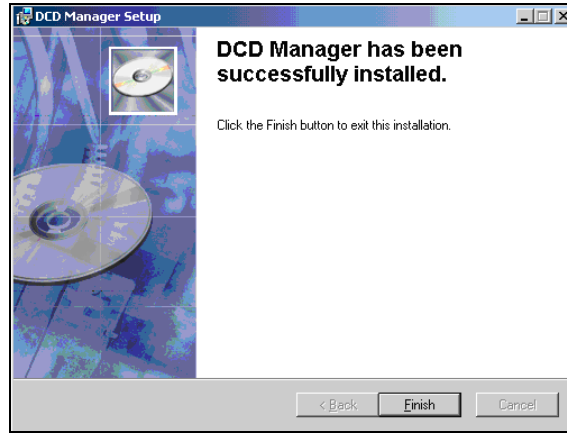
2 Right-click Start menu > Explore and locate the CD-ROM folder.

3 Click the DCD Manager folder and double-click DCD Manager.msi.

4 Click Next.

5 Accept the license agreement and accept the defaults to install.

6 Click Finish.



Launching the Warehouse Automation DCD Clients Manager

To launch the Warehouse Automation DCD Clients Manager

1 Connect the computer to the DCD using the USB cord to the docking station.

2 Select a guest partnership on ActiveSync.

3 Open the DCD Manager by selecting Start menu > Program Files > DCD Manager.

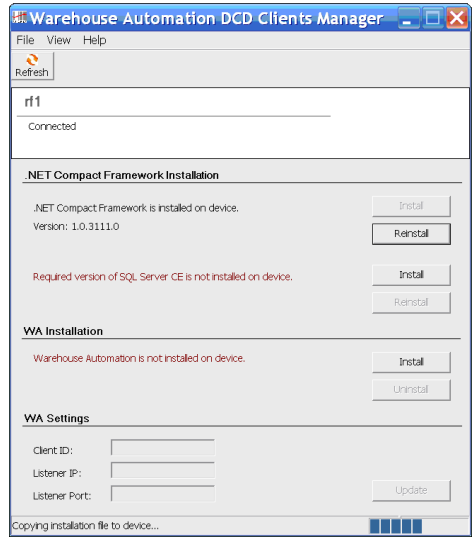
4 Click INSTALL for /NET Compact Framework, if the option is available.

5 Follow the prompts and accept the defaults.

6 Click INSTALL for /SQL Server CE, if the option is available.

NOTE
Do not install Warehouse Automation at this time.

7 Follow the prompts and accept the defaults.

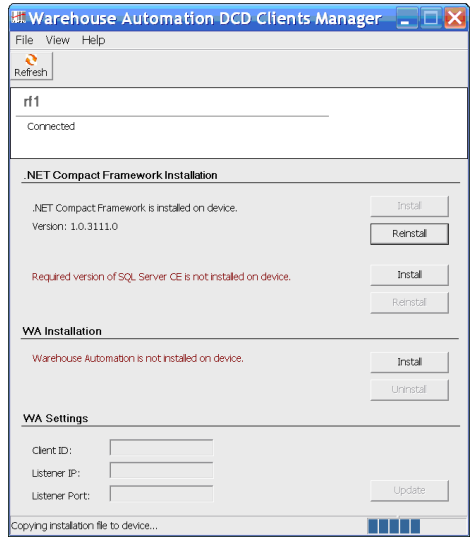


Installing Warehouse Automation on the SD Card

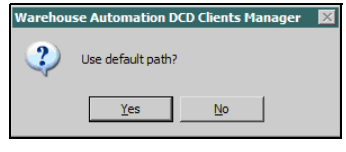
After installing the Warehouse Automation DCD Clients Manager, you can install Warehouse Automation.

To install Warehouse Automation on the SD Card

1 Click Install in the WA Installation section in the Warehouse Automation DCD Clients Manager window.



2 The following dialog box appears. Click No.



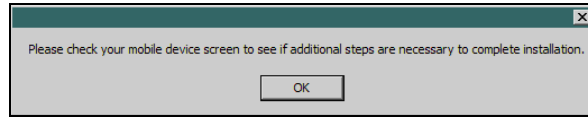
3 The status bar displays the progress. After the copying of files is complete, click OK.

In the DCD, a screen similar to the following appears. To specify the location and folder where to install Warehouse Automation, perform the following steps:

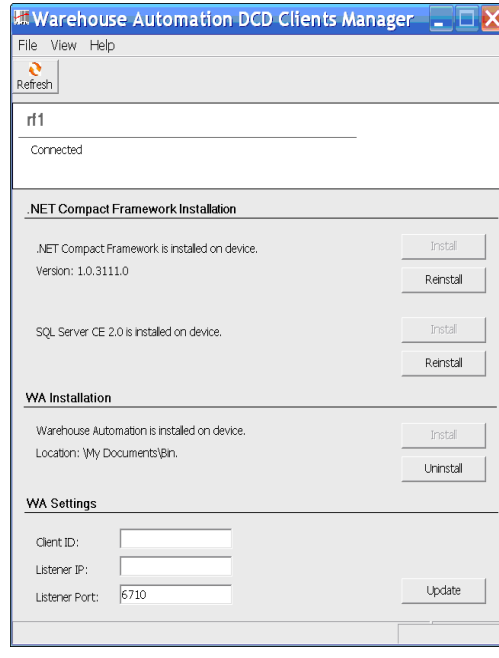
1 At the Location field, select SDMMC Disk from the drop-down list to install on the SD card in the DCD.

2 At the Folder field, select Folder from the drop-down list to create a WA folder on the SD card to install the software.

3 Click OK to finish the installation process.



4 The DCD manager will refresh the client information after the software is installed.

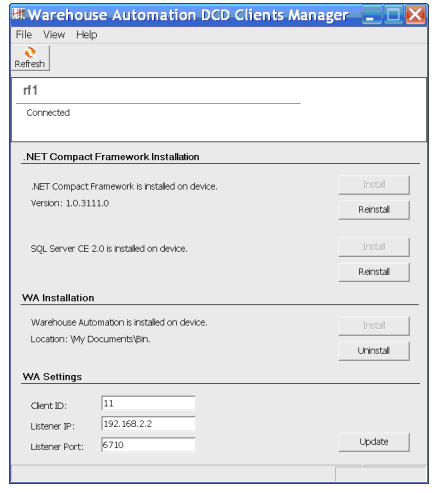


To set the Warehouse Automation Settings

NOTE
The Listener can be a workstation used for Sage MAS 500 tasks or it can be a dedicated Listener server.

1 Enter the following at the fields:

- Client ID: Enter a unique number for each DCD.
- Listener IP: Enter the IP address of the Listener you want to use for this DCD.
- Listener Port: Accept the default port.



2 Click Update. This will create a file called Settings.xml under C:\Program Files\DCD Manager on the workstation where DCD Manager is installed. It also creates the Settings file on the DCD under My Device\Program Files\WA\Bin. This file must exist on the DCD in order to launch the Warehouse Automation application.

3 Close the DCD Manager window.

There is an application under Device\Program Files\WA\Bin called Settings Editor. If any of the Warehouse Automation Settings need to be updated, you can update them from the DCD using Settings Editor instead of launching the DCD Manager application from the workstation.

Chapter 9

Entering Warehouse Automation DCD Client Activities

This section describes how to navigate through the DCD screens and how to complete each activity in the DCD.

Logon and Navigation Icons

On the DCD, tap Start Programs > Launcher. You can also add the Launcher application to the start menu. The application will take a few seconds to load. After the DCD successfully connects to the Listener, the following screen appears.

To launch the DCD

1 Enter a valid user name that was created in the Set Up WA Users task and either tap the Enter button with the handheld's stylus or press Enter on the DCD.

2 Enter a valid password for that user.

3 Enter the profile ID that was created in the Set Up WA Profiles task.

4 Enter the warehouse. This is the warehouse where the DCD operator is located. This is used as the “From” warehouse for all transactions.

5 The DCD displays the main menu. Select to display large or small icons.

At the bottom of the screen there are five icons.

- Tap the first icon to exit the Warehouse Automation client.
- Tap the second icon to log off but keep the application loaded.
- Tap the third icon to display your logon information.
- Tap the fourth icon to display version information.
- The last icon when blue, indicates that you are connected to a Listener (live mode). If the icon is red, you are operating in batch mode.

Physical Count Entries

NOTE
The user can enter a unit of measure and the DCD will calculate the stocking UOM quantity counted.

After selecting an activity, the DCD displays all the activities that have been enabled for the profile.

Control Count

Select Physical Count > Control Count to perform a physical or cycle count, using the control number of the count card as the key field to locate control records.

Before entering counts using the handheld, the batch must be created and items must be selected and frozen in Sage MAS 500 > Inventory Management Activities menu > Process Physical Inventory.

Bin Count

Use this option to perform a physical or cycle count having the bin number being the key field to locate control records. This allows counting of all count cards in the bin entered.

Item Count

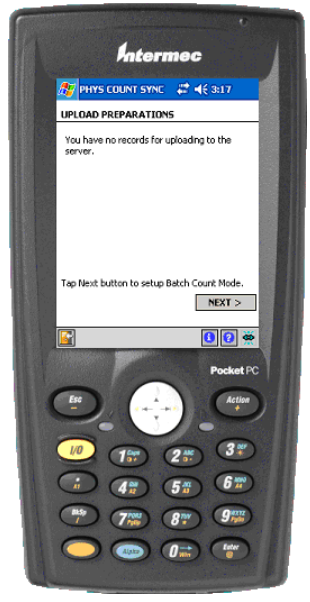
Use this option to perform a physical or cycle count having the item number being the key field to locate control records. This allows counting of all count cards for the item entered.

Missing Count Cards

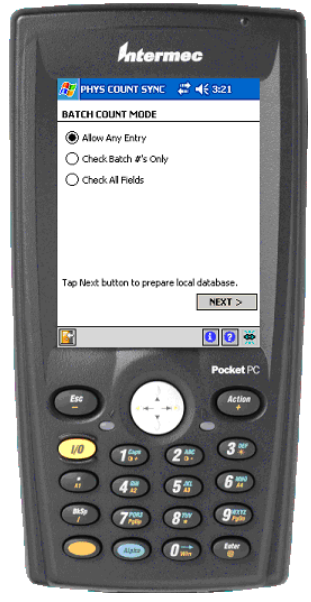
This option displays all control numbers that have not been counted for a batch and allows entry of a count from within the task. This option can also be used to enter a zero count for an item.

Physical Count Synchronizer

All of the DCD modules have synchronizers. These applications allow you to transfer information from Sage MAS 500 to the DCD to populate a local SQL database on the DCD and to transfer information from the DCD to Sage MAS 500. The first screen (Upload Preparations) displays whether or not you have any records to upload to Sage MAS 500.



The Batch Count Mode screen allows you to specify which fields to validate during the count while in batch mode. If the Allow Any Entry option is selected, then no fields are validated when the handhelds are used in batch mode.



The Download Options screen allows you to specify all or a specific batch to download data for.

The DCD populates its local database with the data required to perform the validations that were specified.

Inventory Transactions

Select Inventory Trx from the Activities menu to access the following options.

Transfer Out

This option is used to perform a one-step transfer from one warehouse to another.

Posting Inventory Transactions

The green arrow is a Posting icon. After entry of one or several inventory transactions, the Inventory Management batch that was created by the Warehouse Automation DCD is posted. A register prints to a file in the directory specified in the Warehouse Automation Listener installation as the Deferred Print Path. If your system options are not set up to allow posting of Inventory transactions from the Warehouse Automation module, the green arrow icon will not appear.

Bin Move

Use this option to record the movement of an item in the warehouse from one bin to another.

Issue

Use this option to record an inventory issue from the DCD.

Purchase

Use this option to record an inventory purchase (receipt of goods) from the DCD.

Sales

Use this option to record an inventory sale from the DCD.

Purchase Return

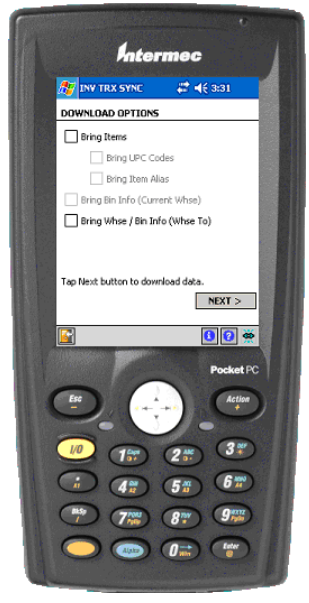
Use this option to perform an inventory purchase return from the DCD.

Sales Return

Use this option to perform an inventory sales return from the DCD.

Inventory Synchronizer

Use this option to download data from Sage MAS 500 to perform inventory transactions in batch mode with validation being performed on the local DCD database.



If you want to download item information, you can then choose to include UPC and alias item information to enable the DCD to cross reference bar codes that are not equal to the Sage MAS 500 item number. You can also choose to include bin information to validate the item's location in the warehouse.

Purchase Order Transactions

Select Purchase Order from the Activities menu to process purchase order receipts.

Four additional icons are added to the toolbar at the bottom of the screen for Purchase Order activities, if specified for this profile.

- The green arrow is a Posting icon. After entry of one or several purchase orders, the purchase order batch that was created by the Warehouse Automation DCD is posted. A register prints to a file in the directory specified in the Warehouse Automation Listener installation as the Deferred Print Path.
- The Bar Code icon is a toggle (on and off). If the toggle is on and the Integrate Printing check box is selected in the Set Up WA Profiles window, a purchase order receipt label prints when this icon is clicked.
- The PO icon is for processing purchase order type orders.
- The TR icon is for processing transfer type orders.

Receive by Item

Use this option if the key field that you want to search for is an item. For example, if you are receiving several purchase orders at the same time and you want to avoid sorting the items by purchase order, you can enter the item and the DCD will return purchase orders that contain that item. You can then choose which purchase order to receive against.

Receive By PO

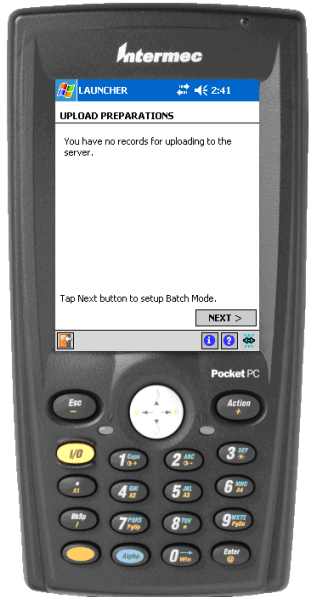
Use this option if the key field that you want to search for is a purchase order number.

Receive By Line

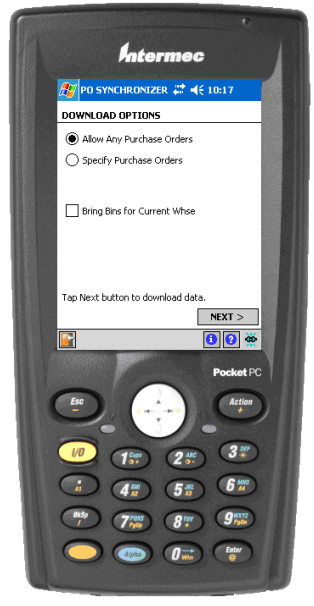
Use this option if the key field that you want to search for is a purchase order number and then line number.

PO Synchronizer

Use this option to download data from Sage MAS 500 to perform purchase order transactions in batch mode with validation being performed on the local DCD database. This is useful in circumstances when receiving may be required in locations that are out of radio frequency range or if the Sage MAS 500 database is at another location.



If the Allow Any Purchase Orders option is selected, then no purchase orders or items are downloaded. Purchase order data is not validated while working in batch mode.



If the Specify Purchase Orders option is selected, the following window appears.

You can select either all open purchase orders or specific purchase orders to be validated while working in batch mode.

Sales Order Transactions

Select Sales Order from the Activities menu on the DCD.

Sales Order Activities

The activities displayed are based on those activated in the active profile, that is, if the active profile does not have access to one or more activities, the inactive activities do not display in the list.

Picking by Pick List

Before items can be picked on the DCD, pick lists must be generated in Sage MAS 500. After a pick list is selected on the DCD, it is locked in the Sage MAS 500 system until all of the pick lines on the pick list have been completed or the outstanding picks list has been cleared.

After a pick list has been completed, the shipment can be generated and committed, edited, or packed.

Pick by Order

This task has two screens, a Header screen and a Details screen. After the pick list is generated, the user can select to pick one order from that pick list. After completion of all of the lines on that order, a shipment can be generated for that order and remaining orders on the pick list remain unlocked until accessed by a DCD.

The Header screen of this task is responsible for capturing the customer number (based on setup) and sales order number. The pick list number (if a single pick list is available, this prompt becomes a display-only field) and a shipment number (if a single shipment is present for this order/pick list, this prompt becomes a display-only field) is also part of this screen.

The Details screen of this task is responsible for collecting item, order line, unit of measure, bin, lot, and quantity being picked. The serial may depend on the picking method (not all fields will always be an input field), and some may be based on setup options or specific situations. Its responsibilities also include displaying the quantity to pick, quantity picked, and quantity available.

Pick by Shipment

This task has two screens, a Header screen and a Details screen. After the pick list and a shipment is generated, the user can select to pick one shipment. After completion of all the lines, the shipment can be moved or committed to the packing operation.

The Header screen of this task is responsible for capturing the customer number (based on setup) and shipment number. The pick list number (if a single pick list is available, this prompt becomes a display-only field) and a sales order number (if a single shipment is present for this shipment/pick list, this prompt becomes a display-only field) is also part of this screen.

The Details screen of this task is responsible for collecting item, shipment line, unit of measure, bin, lot, and quantity being picked. The serial may depend on the picking method (not all fields will always be an input field), and some may be based on setup options or specific situations. Its responsibilities also include displaying the quantity to pick, quantity picked, and quantity available.

Packing

The SO Packing screen has two options: one for the content of the carton and one for the information regarding the carton such as weight, freight class, tracking number, and declared value. The prompts that appear and how they operate are controlled by the Set Up WA Profiles task.

Commit Shipments

The Commit Shipments option performs the same function as in the Sage MAS 500 client. Shipments can be committed from either the Desktop or the DCD.

Picking Synchronizer

Use this option to download data from Sage MAS 500 to perform picking transactions in batch mode with validation being performed on the local DCD database.

Packing Synchronizer

Use this option to download data from Sage MAS 500 to perform packing transactions in batch mode with validation being performed on the local DCD database.

Outstanding Picking

Use this option to complete pick lines that have been locked. Locking occurs when the pick list is started, but not completed. Until it is completed, Sage MAS 500 prevents a shipment from being generated for the items on this pick list. All ship lines that have not been fully picked appear in outstanding picking; however, if you are using the Pick by Order or Pick by Shipment task, only the lines of that order are locked.

If additional quantity needs to be picked for this ship line, you can enter the additional data here, instead of returning to Picking. If no additional quantity needs to be picked for this ship line, then tap the green check mark icon. The DCD will ask you to confirm that you want to adjust the quantity to pick. If you select yes, then the quantity to pick will be adjusted down from the original quantity to pick. If no quantity has been picked for the ship line and you tap the green check mark icon and select yes to adjust the quantity, then the quantity to pick will be changed to zero and the ship line will be removed from the pick list. You must select Sage MAS 500 Sales Order Activities menu > Create Pick List to select these items on a new pick list.

Customer Returns

To complete a customer return using the DCD, the item must have originally been invoiced from Sage MAS 500 and an RMA must have been issued in Sage MAS 500.

Customer Returns by Item

Use this option if the key field that you want to search for is an item. For example, if you are receiving several RMAs at the same time and you want to avoid sorting the items by RMA, you can enter the item and the DCD will return RMAs that contain that item. You can then choose which RMA to receive against.

Customer Returns by RMA

Use this option if the key field that you want to search for is an RMA number.

Customer Returns by Line

Use this option if the key field that you want to search for is an RMA line number.

Customer Returns Synchronizer

Use this option to download data from Sage MAS 500 to perform customer return transactions in batch mode with validation performed on the local DCD database.

Utilities

Send Message

Use this option to send an e-mail message from the handheld. Only e-mail addresses set up in the active profile are valid. The message is chosen from a lookup of predefined system messages such as "Going to lunch now."

Locator by Bin

Select the Locator by Bin option to locate an item by searching the bin first and the item second. This option contains two tabs to view information about an item that is in a bin. The Common tab displays information such as the item number, lot or serial number, and quantity on hand. The Details tab displays the UPC, stocking, purchasing and shipping units of measure, and the cost and price of items.

Locator by Item

Select the Locator by Item option to locate an item by searching the item first and the bin second. This option contains two tabs to view information about an item that is in a bin.

Readbar

Readbar is a utility to scan a bar code and view what the bar code contains.

Speed Test

This utility is designed for use by support personnel to troubleshoot issues.

DB Inspector

The DB Inspector utility displays how many records are contained in the local DCD database.

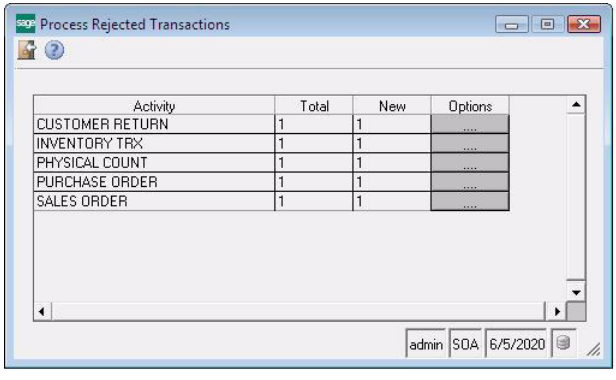
Rejected Transactions

Under normal circumstances there will not be any rejected transactions when the DCDs are operating in live mode. Occasionally, transactions are rejected when the DCD has been operating in batch mode and either data has changed in Sage MAS 500 since the last time the DCD performed synchronization or the DCD was operating in fault-tolerant mode, where data was being entered without any validation tables contained on the DCD.

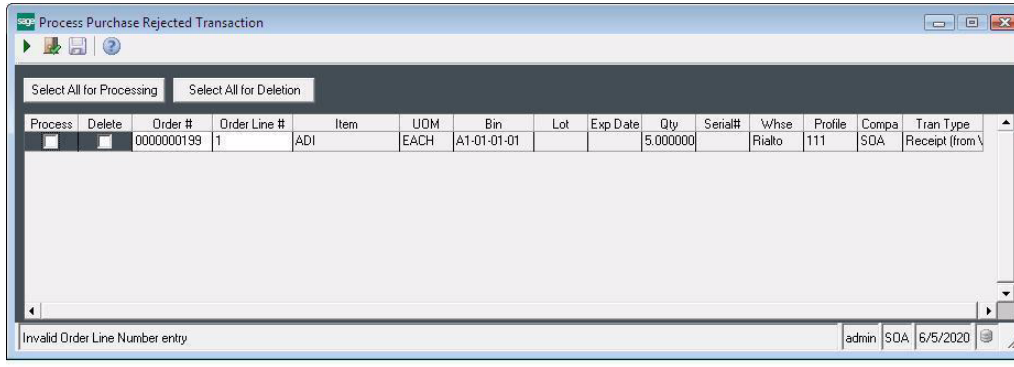
An example of a rejection in live mode might be that a purchase order was received on the DCD and posting was not enabled. After entry on the DCD, a user went into Sage MAS 500 using the client and deleted the purchase order prior to the batch being updated. The transaction would be rejected and the reason would be "Invalid PO."

Processing Rejected Transactions

Select Warehouse Automation Activities menu > Process Rejected Transactions. Click the Options button for an activity.



If there are rejected transactions for the type of activity selected, the following window appears.



In this example, the purchase order number is invalid. You can select the correct purchase order number and then select the Process check box and continue processing. This creates a purchase order receipt batch in Sage MAS 500.

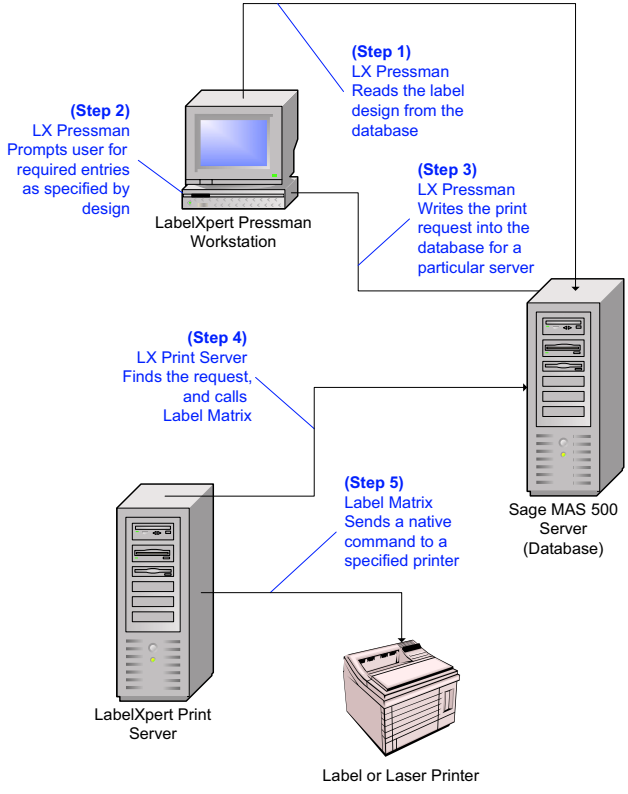
You could also choose to delete the transaction and enter it manually using the Sage MAS 500 client.

Installing LabelXpert Print Server and Label Matrix

This section describes how to install and configure the LabelXpert Print Server and install Label Matrix.

LabelXpert Pressman

LabelXpert Pressman is the printing functionality included at no additional charge in the Warehouse Automation module. Use it to print pre-defined bar code labels. This functionality should not be confused with LabelXpert Designer, which allows the design and configuration of custom labels.



Installing LabelXpert Print Server

The LabelXpert Print Server is a .NET service that is responsible for managing and sending print requests to the printer that is defined in the Label Matrix application for that label.

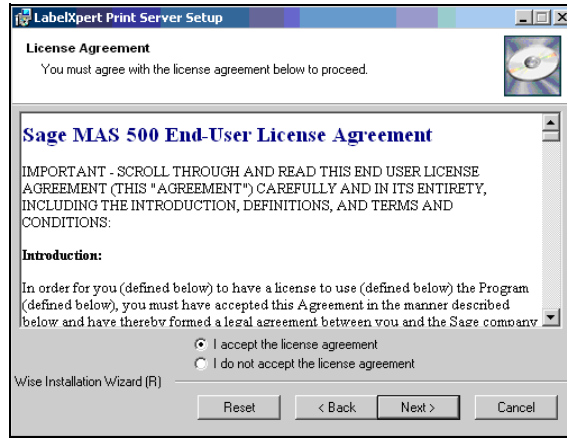
Install LabelXpert Print Server on the workstation where the printing requests will be spooled.

To install the LabelXpert Print Server

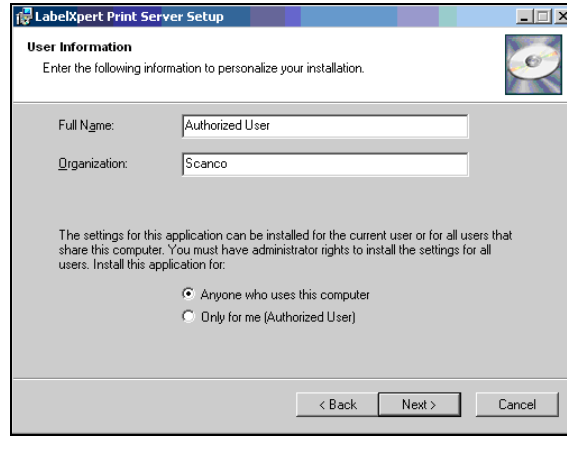
1 Place the Sage MAS 500 LabelXpert CD-ROM into the CD-ROM drive.

2 Click to install LabelXpert Server. Click Next.

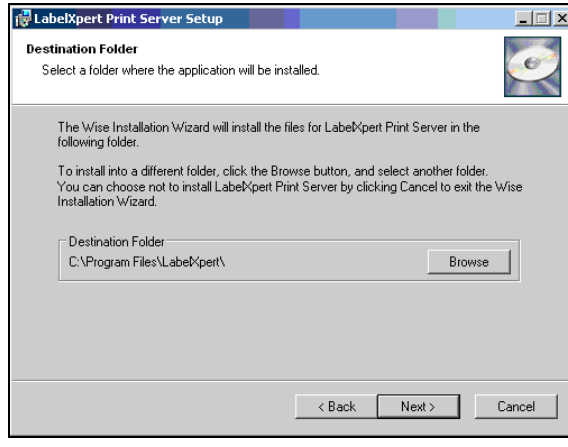
3 Select the I accept the license agreement option to accept the terms of the license agreement. Click Next.



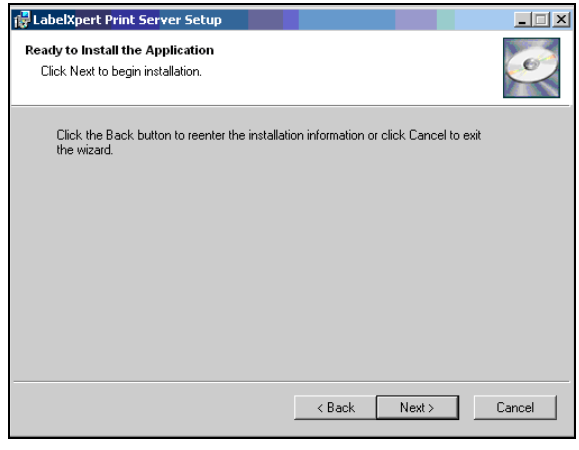
4 Accept the defaults and click Next.



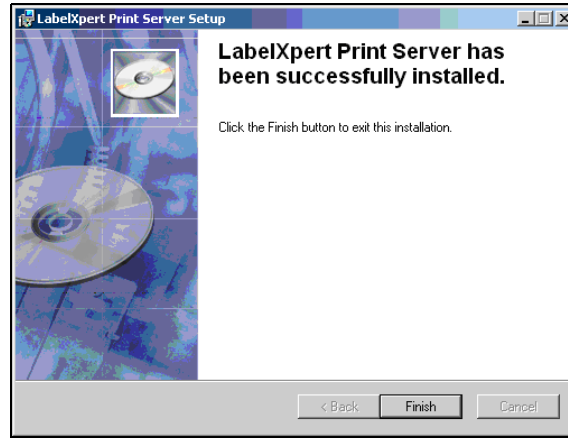
5 Accept the default path and click Next.



6 Click Next to begin the installation.



7 Click Finish to complete the LabelXpert Print Server installation.



Installing Teklynx Label Matrix

Label Matrix is a label design and printing software package distributed by a company called Teklynx. A single-user copy of Label Matrix is included in the software license of Warehouse Automation. Label Matrix works with the LabelXpert Pressman, which is also included with Warehouse Automation to print bar code labels.

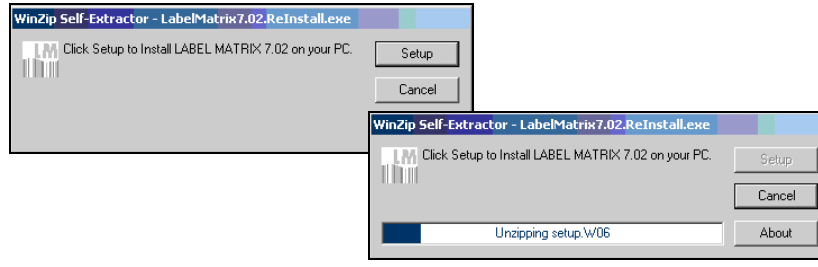
Both of these programs also work with the LabelXpert Designer program which, if purchased separately, allows you to design your own labels.

To install Label Matrix

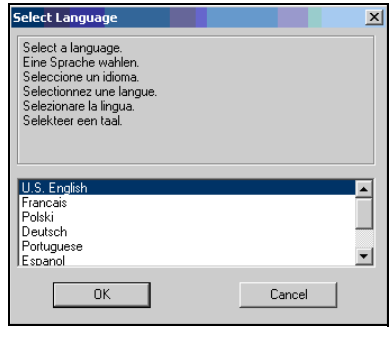
1 Place the Label Matrix CD-ROM in the CD-ROM drive of the same workstation that you installed the LabelXpert Pressman application.

2 Click Label Matrix.exe to install.

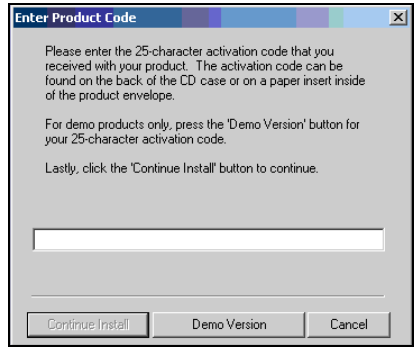
3 Click Setup to unzip the files on to the workstation.



4 Select the correct language and click OK.

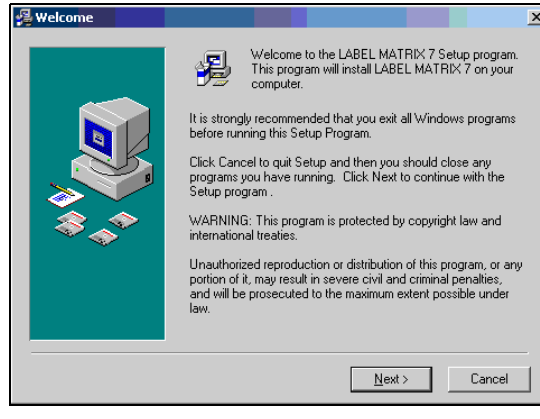


5 Enter the activation code located on the CD-ROM package. Click Continue Install.

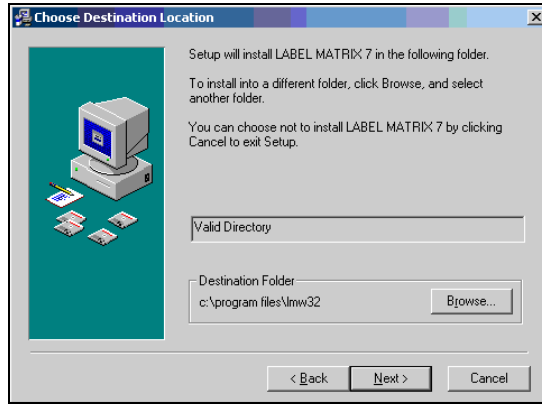


6 Click Yes to accept the terms of the license agreement.

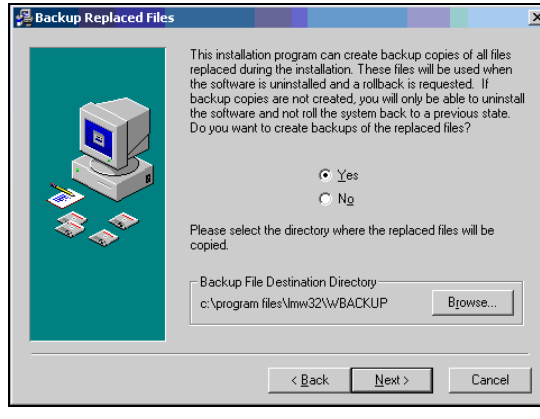
7 Click Next.



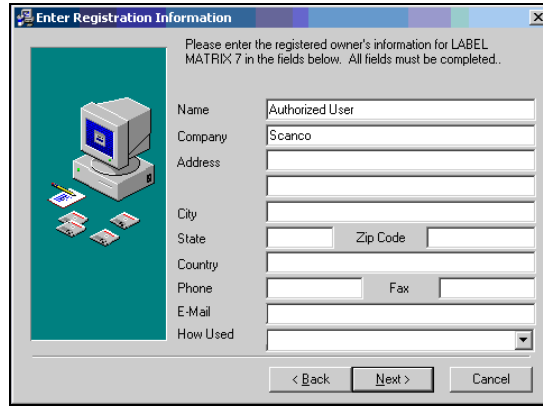
8 Click Next to accept the default destination folder.



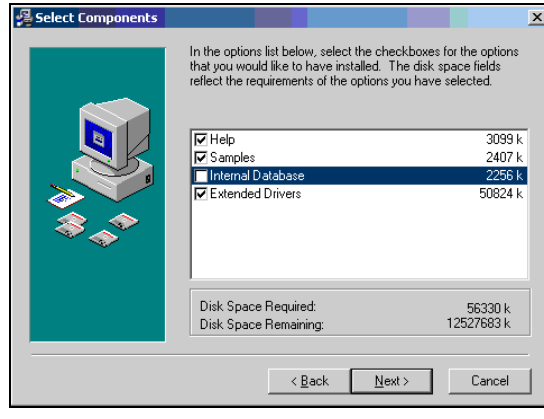
9 Select the Yes option to back up files that will be changed and click Next.



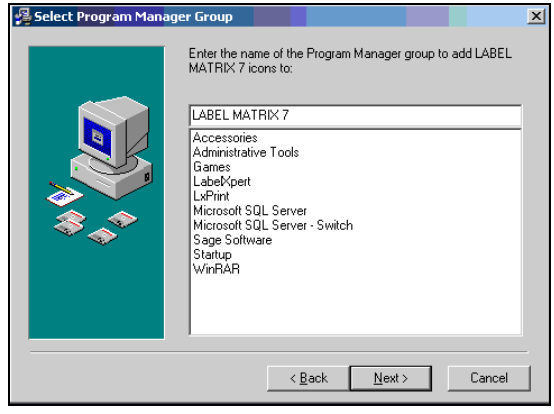
10 Enter the registration information. Teklynx will not support the product unless it is registered. Click Next.



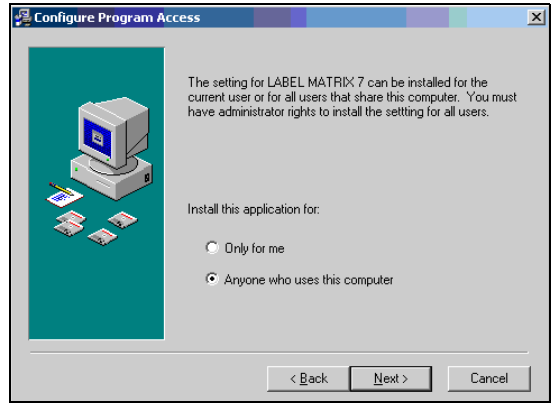
11 Select all the check boxes, except Internal Database; there is no need to install the Internal Database. Click Next.



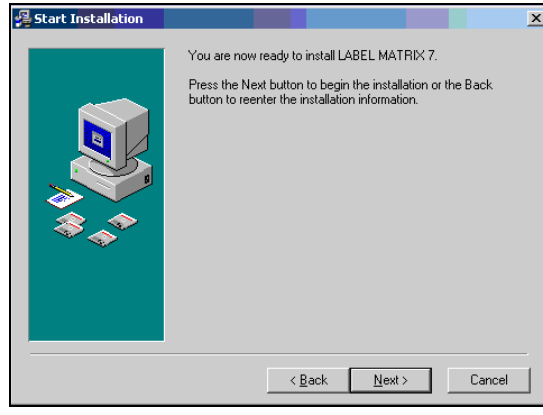
12 Click Next to accept the defaults.



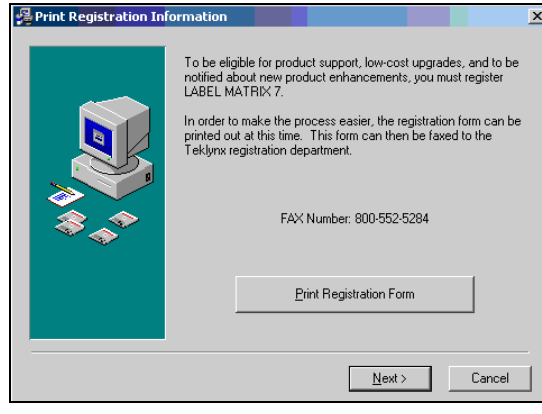
13 Install the application for any user on this computer and click Next.



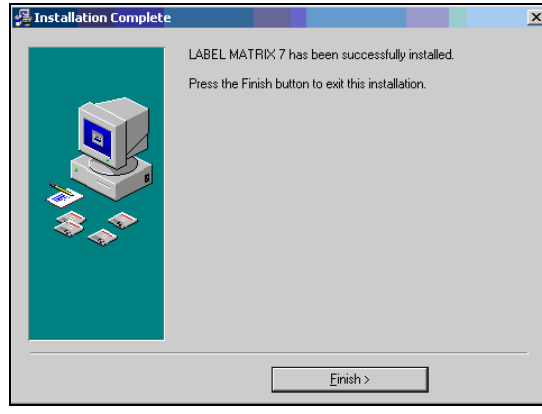
14 Click Next to complete the installation.



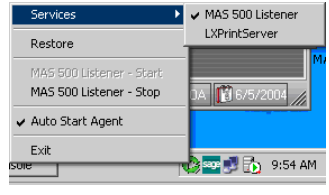
15 Print out the registration form and fax it to Teklynx and click Next. Support will not be available if this is not done.



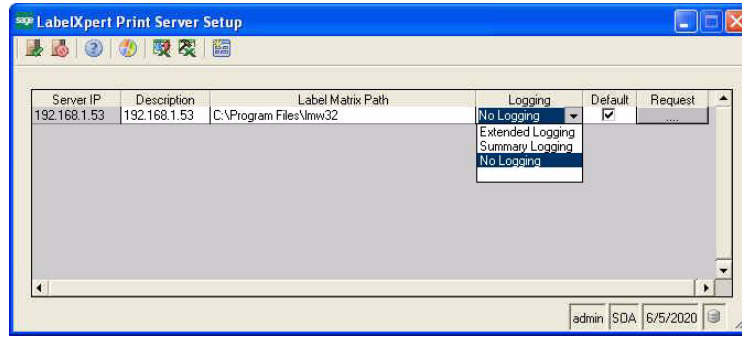
16 Click Finish to complete the installation.



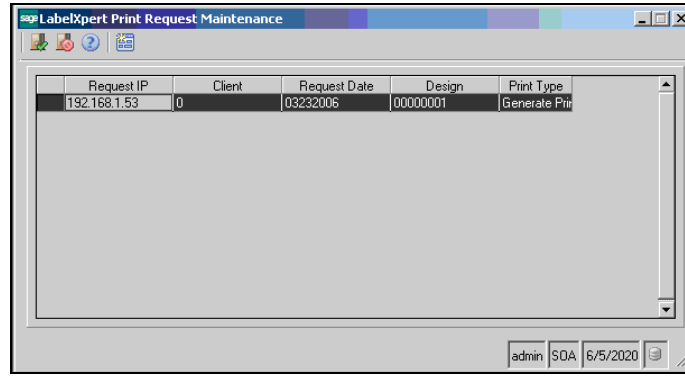
17 Start the LabelXpert Print Server service by right-clicking the green circle icon found in the computer's active system tray.



18 After the service is started, use the Sage MAS 500 client to make changes and configure the service by selecting the Label Expert Maintenance menu > Set Up LabelXpert Print Server.



19 Click the Request button to specify logging options (usually only when troubleshooting) and set the default Print Server.



20 Press the DEL key to delete requests.

Chapter 12

Installing LabelXpert Pressman and Printing Standard Labels

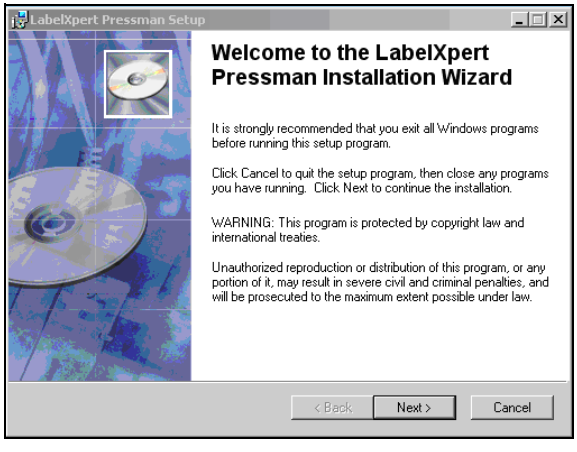
This section describes how to install LabelXpert Pressman and how to print the labels that are included with the Warehouse Automation module.

LabelXpert Pressman

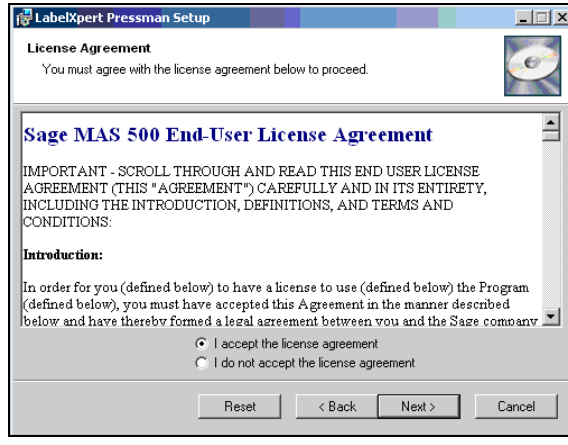
LabelXpert Pressman is an application used to print labels. LabelXpert Pressman requires Windows Media Player version 9.

Installing LabelXpert Pressman

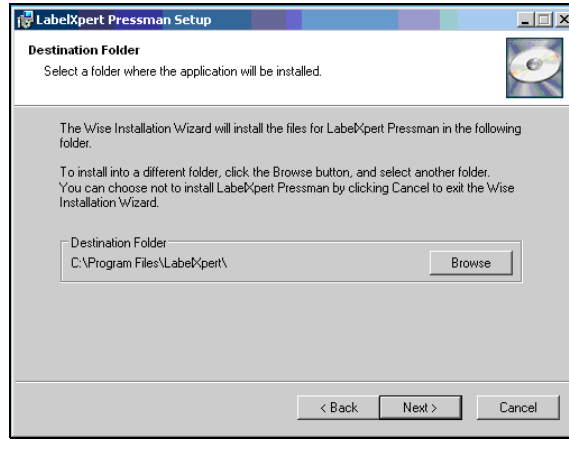
1 Insert the Sage MAS 500 Warehouse Automation CD-ROM in the computer where you want to be able to print labels from. This can be installed on any number of workstations. Click Next.



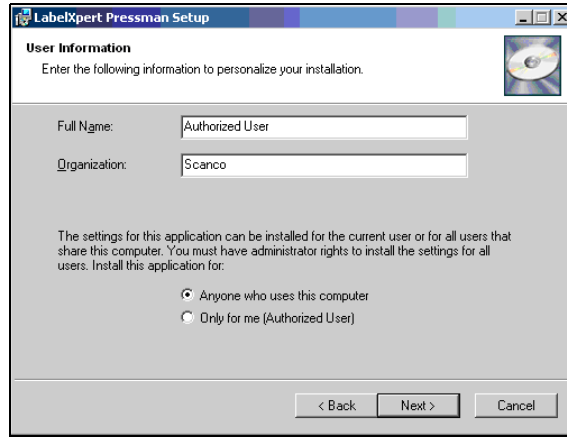
2 Select the I accept the license agreement option and click Next.



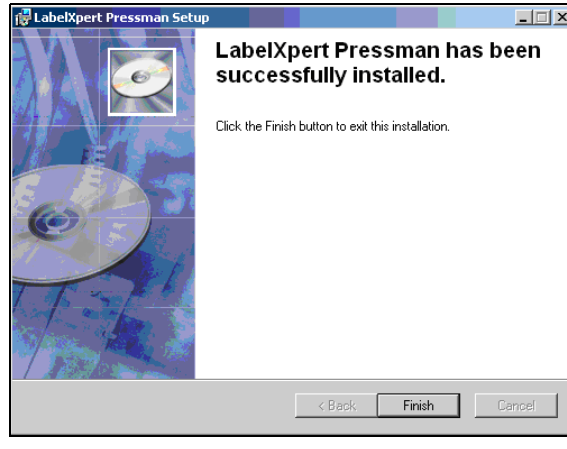
3 Accept the default destination folder to install LabelXpert Pressman and click Next.



4 Select the Anyone who uses this computer option and click Next.



5 Click Finish to complete the installation.



Configuring LabelXpert Pressman

After LabelXpert Pressman is installed, it must be configured.

To configure LabelXpert Pressman

1 Select Start menu > All Programs > LabelXpert > LabelXpert Pressman.

2 Enter the Sage MAS 500 login credentials and click OK.

3 The LabelXpert Pressman window appears.

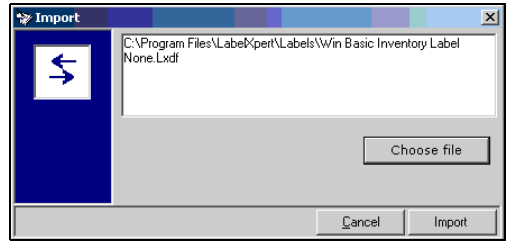
Importing a Standard Label Design

To import a standard label design

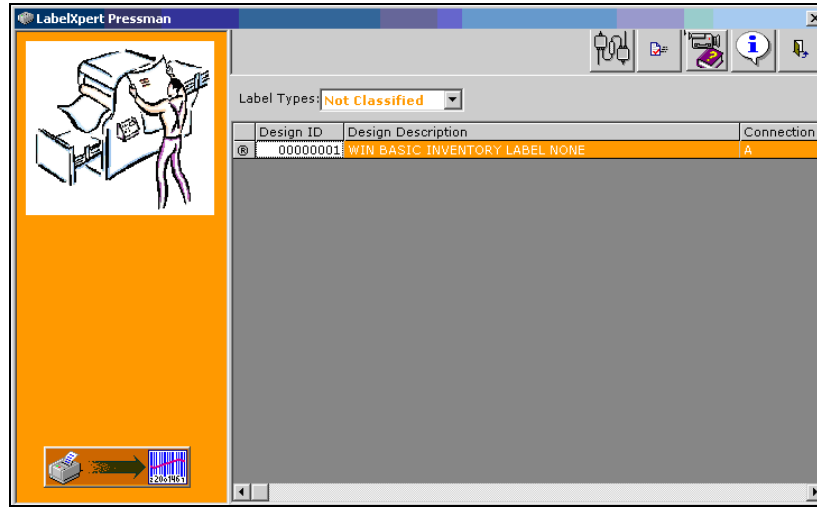
1 Click the Import Label Design button located in the top right corner of the LabelXpert Pressman window.

2 Navigate to the LabelXpert > Labels folder. Click Open.

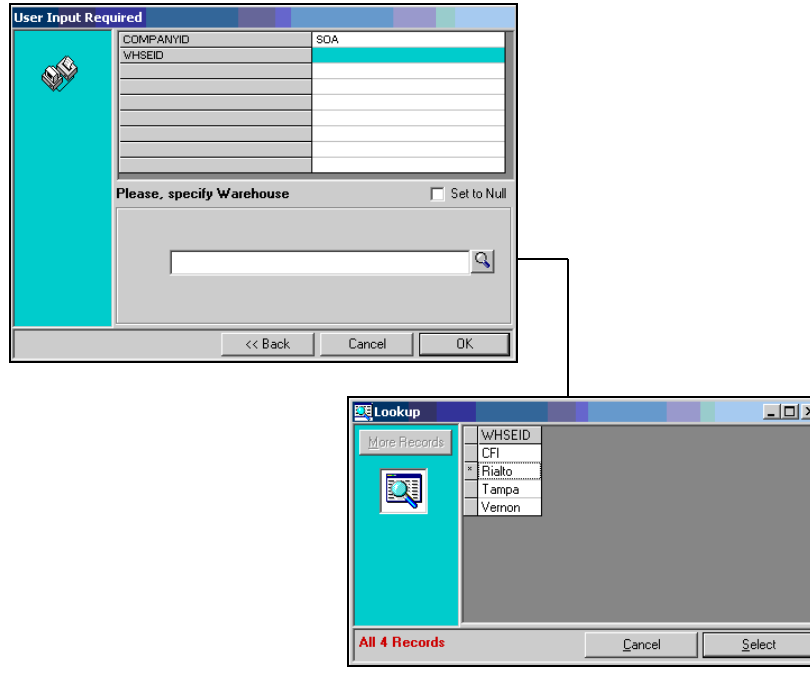
3 Several label designs for both the Zebra Z4M printer and a Windows laser printer appear. Select a label design. Click Choose file to import the label design.



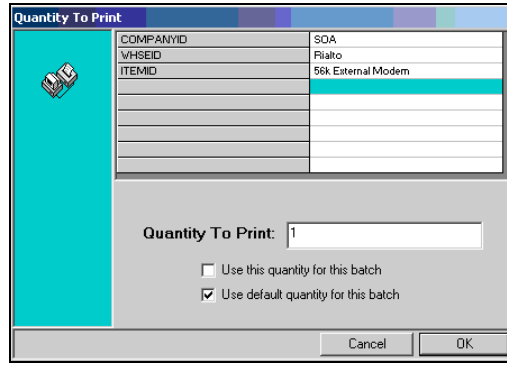
4 Select a label design and click the Print Design button in the lower-left corner of the screen.



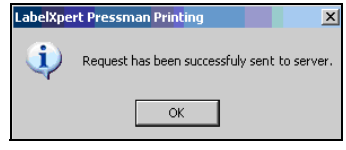
5 Enter the information that is required for this label design. In this example, warehouse information is the first prompt in this particular label design. Click the Lookup button to display all the warehouses in the Sage MAS 500 database for a given company. Click OK.



6 After selecting the item to print the label for, enter the quantity of labels to print and click OK.



7 Click OK.

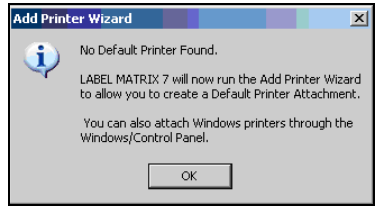


Configuration of the Printer

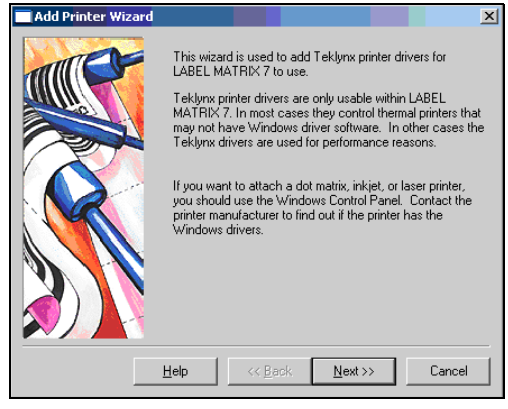
The first time any workstation prints a label through LabelXpert Pressman, you will be prompted to choose the print driver. If you are installing Pressman on another machine, the message will not appear on the machine that you are installing to.

NOTE
This message appears on the machine that the LabelXpert Print Server was installed.

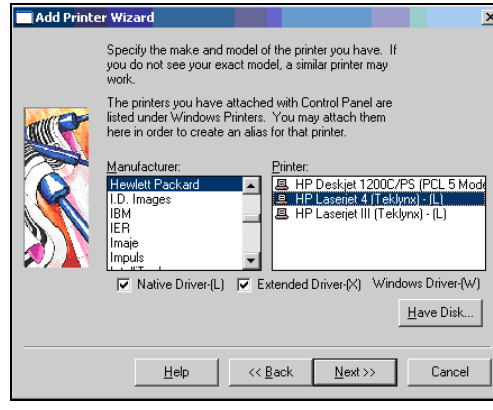
1 Click OK to choose the correct print driver.



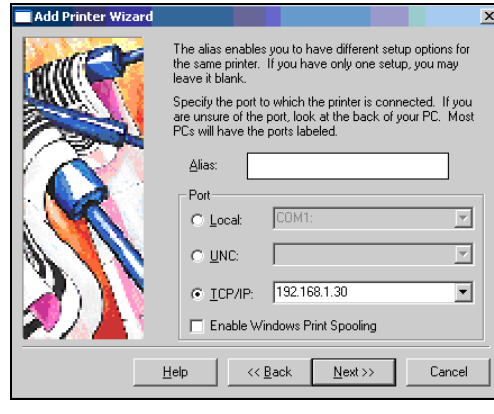
2 A printer configuration screen appears. Click Next.



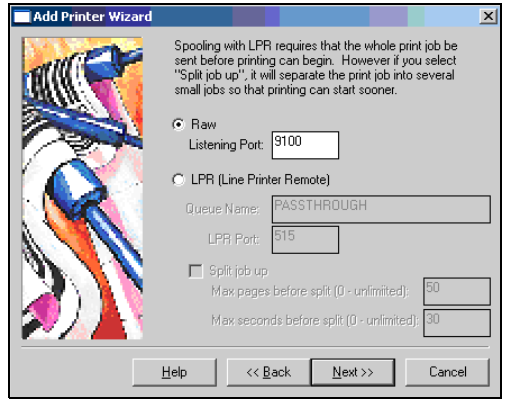
3 Select the appropriate printer manufacturer and model and click Next.



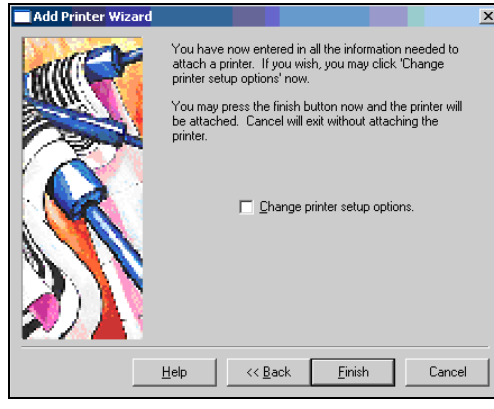
4 Select the local connection or the IP Address of the printer and click Next.



5 Accept the spooling defaults and click Next.



6 Click Finish to complete the installation.



Appendix A

Troubleshooting Common Issues

The following section details some of the most common issues that support personnel are likely to encounter with the Sage MAS 500 Warehouse Automation module handheld computers and wireless networks.

NOTE
For information on Vista support, refer to the Warehouse Automation Release Notes.

There are two basic systems that you can troubleshoot: hardware and software. The first determination that needs to be made is which system is causing the difficulty that the user is experiencing.

Second, it is recommended that you determine if this is a new installation or if the systems were working and have suddenly stopped working. If the system is new, usually any issues are caused by incorrect or missing setup activities. If the installation is not new, then either a component has failed or something has recently changed at the site. This document assumes that the user has purchased certified hardware. If the user has non-certified hardware, it is recommended that as soon as basic troubleshooting determines it is a hardware issue, the customer be referred to their hardware vendor.

Troubleshooting New Installs

Testing the Wireless Network

The installer should have configured the access points with specific fixed IP addresses. It is not recommended that the user allow the access point to obtain an IP address through DHCP. It is very difficult to work with an access point if its IP address is not known.

Try pinging the access point. This is done by running the cmd program from the Start menu > Run in Windows. Enter the following command (where 192.168.1.100 is the IP address of the AP that you want to test):

```
ping 192.168.1.100
```

Make sure to enter a space after the word ping.

If you receive a reply from the access point, you have confirmed that the "wired" portion of the wireless network is functioning. If you receive no response, the access point has either failed or the IP address is not correct for that access point. You need to correct this before any further troubleshooting is possible. The vendor of the access point needs to work with you to get this corrected.

If the access point does reply, then you can proceed to the next step, testing the wireless portion of the network. Certain handhelds have built in utilities for making a determination if the handheld is associating with an access point. If the hardware was supplied by Scanco, it will most likely be made by Intermec. Intermec units all have a utility called Core that can be loaded to test the network. To load Core, click Start menu > File Explorer > Flash File Store > Apps > Core and click Core, click 802… and click Choose. Core will now appear on the Start menu. After launching it, Core displays connection information. If three red ball icons appear in the lower right, there is no connectivity to any access points; green icons indicate connectivity.

If the handheld is not connected, there could be several reasons, some of which may be device specific. On Intermec units, there is an icon located in the bottom right of the screen. Tapping this icon displays what networking choices have been made. If wireless networking is not selected, the handheld radio is not powered on. If it is selected and the handheld is still not showing a connection in the core program, it could be a security problem, a setup problem, or a failure of the handheld radio.

Setup problems include not having the correct Service Set Identification (SSID), invalid IP address and subnet mask for the network, handheld radio, and security settings. Connect to the access point by launching a web browser and typing the IP address of the access point.

Radio Settings – Power: On the Power tab, both the On Battery Power and On External Power check boxes should be cleared. On the Battery tab, Wireless Network Edit Selected Profile, set your SSID and Security preferences. Clear the Enable Power Management check box.

Security settings can be difficult to troubleshoot. It is recommended when determining if a problem is a hardware problem or a security problem, both the handheld and the access point be reset to no security (none). If there are multiple access points, they should be powered off and the testing done with one access point that is close to the handheld's location. If Core still displays the three red ball icons, there is no connectivity to the access points. The hardware vendor should be contacted at this point. If there is connectivity, then the security settings need to be changed on all of the access points and the handheld needs to be set to match the new security parameters.

Software Connectivity

After wireless connectivity is established, software setups must be evaluated. In Sage MAS 500, open the Console application, choose a Listener server address and view its properties. Note the IP address and port number. Next, connect the handheld to the cradle using a USB connection and launch the DCD Manager application. After the handheld connects, view the properties and ensure that .NET framework is installed, CE SQL is installed, the handheld launcher is installed, and finally that the IP address of the Listener and the port match that of the Listener in the console. If everything is not installed, re-install the missing applications. If the IP address or port differs, change them to match the Listener properties and try to connect again.

Listener Service

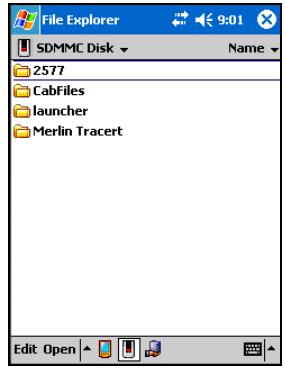
On the workstation that the Listener is installed, ensure that the service is running. There is a circle icon in the system tray. If the circle is green, the service is running. You can start the service by right-clicking the icon, or by highlighting the Listener in the Console application and clicking the Start Service icon. Review the properties of the Listener and determine that they are all set correctly.

To determine where the issue lies when confronted with a connection problem, test all of the connections. The following steps will determine where the connection problem is; you need to check the handheld to the access point and the Listener, then the network connection to the access point and the Listener.

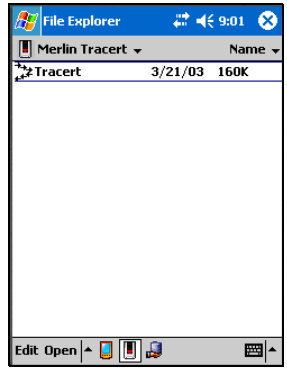
Verify the handheld is within range of the access point. With the handheld, open to the Core program, walk around the facility to see the range of the access point. When you see three green circles, the connection is excellent. If the circles turn red, the handheld is not in range of, or cannot detect, the radio of the access point.

To verify the handheld is in range of the access point

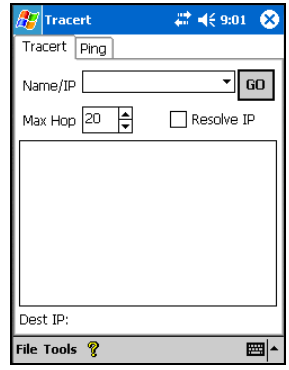
1 Test the handheld radio. Verify it is able to connect with the handheld radio of the access point. On the handheld, click Start menu > File Explorer > SCMMC Disk. On the SD card, locate the Merlin Tracert folder (if you purchased the DCD Utilities).



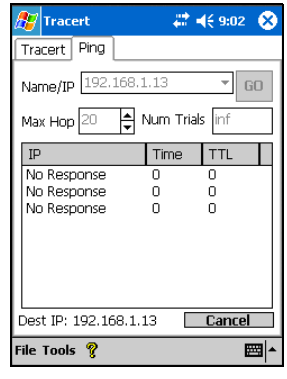
2 Open the folder, then open the Tracert program.



3 Click the Ping tab.



4 Type the IP address of the access point and click GO.



If Tracert displays a connection, the radios of the handheld and of the access point are working correctly, the problem may be that one or the other are not configured correctly.

If the radio of the handheld does not connect, the problem may lie in the radio of either piece of hardware. If the configuration of both are the same, run the Registry Save, warm boot the handheld, and then try to connect again.

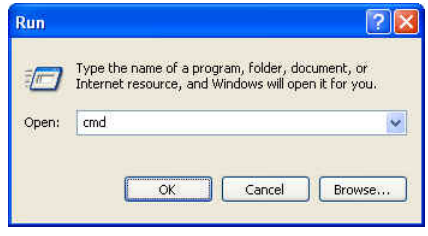
If the connection still is not working, try to connect another handheld to the access point with the above procedure. This will confirm if the setup is incorrect or that the handheld radio may be damaged.

If more than one handheld cannot connect, and you have confirmed that the configuration is correct and equal on both the access point and the handhelds, there may be a problem with the radio or the connection of the access point.

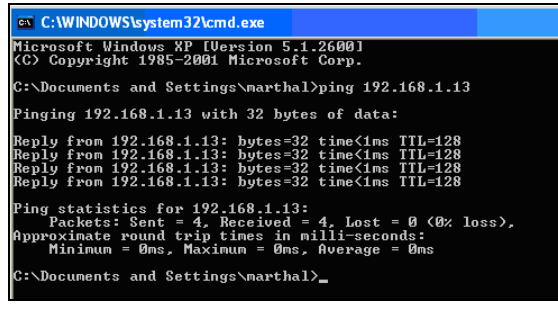
To check the access point connection

1 On a workstation that is connected to the network, select Start > Run.

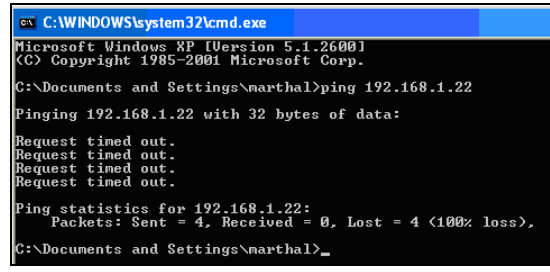
2 Type cmd and click OK.



3 Type the IP Address of the access point. If the access point appears on the Network you will receive a response that the Server replied.



4 If the access point does not appear on the Network, you will receive a timed-out message. Contact an IT person to troubleshoot this problem.



5 After all the connections are confirmed as working and the handheld still does not connect, the problem is likely a set up issue with the handheld or the access point. If you continue to experience connection problems, call your hardware technical support team for further assistance.

Troubleshooting Existing Installs

If this is not a new installation, then either a component has failed or something has recently changed at the site. The obvious question is has anything changed in the network: new servers, new workstations, or new handhelds. Do all of the handhelds fail or just one? If one handheld is failing, have the user get another and match the settings to ensure that they are the same. Check the battery in the handheld and determine if replacing it allows that handheld to work. If all of the handhelds disconnect at a certain place in the warehouse, troubleshoot the access point that is nearest to that location and verify connectivity to a handheld.

Warehouse Automation Support Procedures

When the issue is a hardware problem, contact the hardware vendor.

When the issue is a software problem, contact Sage Software Customer Support. At Sage Software you will be connected to a Warehouse Automation specialist.

Reference Material

Standards Organizations

- Health Industry
  http://www.hibcc.org/AUTOIDUPN/standards.htm
- GS1 – UPC, UCC, SCC http://www.uc-council.org/gs1us.html
- AIM http://www.aimglobal.org