



LOFTWARE
ENTERPRISE LABELING SOLUTIONS

Loftware Print Server and Label Manager

Version 12.1.1

Installation and Configuration Guide

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The Loftware Print Server and Label Manager

The Loftware Print Server® (LPS) is a scalable high-speed, high-volume marking solution for barcode labels and RFID labels. The LAN/WAN and Internet adaptable technology can act as both a middleware solution for automated business processes and as a back-end component for small, medium, and large-scale business systems that desire per-client printing and encoding.

The Loftware Print Server's server-centric approach simplifies administration to a centralized location on the network. Configurations, images, labels, layouts, serial files, and printers can be managed on a single computer or as part of a cluster for fail-safe redundancy as described in the *Clustering* section of the *Loftware Print Server and Label Manager Installation Guide*.

The Loftware Print Server automates printing labels from front end systems: EDI/ASN, Pick-Pack, ERP, MRP, Wireless, WMS and custom systems, regardless of the platform on which they reside. Host applications running on operating systems, such as UNIX, AS/400, HP-UX, Linux, Solaris, can output reports that can be pushed (FTP), pulled (Polling) or bi-directional (TCP/IP Socket, Loftware Connector® for Oracle and Loftware Connector for SAP) to the LPS interface.

Loftware Label Manager

Loftware Label Manager is a suite of software applications for designing and printing barcode labels. Loftware's stand-alone printing modules, On-Demand and Range Print, can be used with Loftware Label Manager for non-automated/low-volume barcode label printing. New printer drivers are continually being added; please contact support@loftware.com for availability of new drivers for printers and RFID devices.

The Loftware Label Manager applications are included with all licensing models of the Loftware Print Server. The LPS includes the tools necessary for high volume / automated printing. With the Loftware Label Manager, you can:

- Create barcode and RFID labels
- Set up and configure barcode and RFID devices
- Customize labels to meet compliance standards
- Use single and double byte character sets in your labels to support Korean, Japanese and other Asian languages
- Build MaxiCode, GS1-128 (Formerly UCC-128), TLC39, and QR Code barcodes
- Define data for RFID labels and tags using EPC or DoD encoding
- Print labels as needed using the On-Demand print module
- Extract label data from different sources, including ODBC 32 compliant databases
- Use wizards for many of the previously mentioned features

Loftware Documentation

Loftware Label Manager

The *Loftware Label Manager User's Guide* describes label creation and printing using Loftware Label Manager, including:

- Label design
- Barcodes
- Device Connections
- RFID Field Encoding, and Smart Label Printing
- On-Demand Printing
- Templates and Wizards
- Double-byte Character Sets
- Databases and ODBC
- Range Printing

Loftware Print Server

The *Loftware Print Server User's Guide* contains advanced information for those seeking an understanding of Loftware's enterprise solutions. This guide is designed to give those who are already knowledgeable about label printing a head start in implementing a printing solution using advanced technologies. Included in this guide is information about:

- The Loftware Print Server
- Thin Clients
- Internet Printing
- LPS Clustering and redundant systems
- Client, Internet, and .NET Control

The Loftware applications listed previously may be run in English, French, German, or Spanish.

Note: You must purchase and license the Loftware Print Server separately from the Loftware Label Manager.

Loftware.com

Visit www.ftware.com for the latest revisions of the Loftware Print Server and Loftware Label Manager user guides. Also, visit the [Loftware Print Server Family Knowledge Base](http://help.ftware.com) at help.ftware.com for additional information and tips on a variety of subjects.

Contact Loftware

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Professional Services

For consultation, implementation services, training or product optimization please contact Loftware's Professional Services Group.

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Technical Support

For installation and configuration questions, please contact Loftware's Technical Support department. Visit www.loftware.com for Loftware's technical support policies.

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Customer Service

For licensing, product information, and ordering questions, please contact Loftware's Customer Service department. Please have your Serial Number and Registration information available, so we can provide service to you quickly and efficiently.

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Fax +1.603.766.3631

E-mail customerservice@loftware.com

Technical Support

Software licenses purchased directly from Loftware include the first year of Technical Support. This initial 12-month support period starts on the day the product is shipped and invoiced from Loftware's factory. When needed, support recipients during this period are eligible to receive unlimited telephone support, access to software upgrades and enhancements and speak with our Systems Analysts.

Premium Annual Support Contract

To ensure uninterrupted telephone support as well as access to the latest software upgrades and enhancements, make sure all your software licenses remain under a Loftware Support Contract. After your first year of ownership, you will be sent a notice to renew your support contract. Please refer to Loftware's Web site for additional information about this very important topic, or if you prefer, call Loftware's Customer Service Department for more information.

During the one-year Support Contract period, Contract Subscribers have access to the following services:

1. Unlimited Technical Support Incidents
2. Access to Loftware's Professional Services Group
3. Automatically eligible to download software upgrades and service packs from our Web site
4. Automatic e-mail notification when new versions of software become available
5. When necessary, access to senior Loftware technical support staff, via phone and e-mail
6. Guaranteed software license replacement for accidentally damaged or malfunctioning hardware keys

Before Calling Support

Loftware has highly trained technicians available to help you with your labeling system. Technical support calls are not accepted until all of the following Technical Support requirements are met:

1. Your product is registered. If you have not registered your software, you may do so at <http://loftware.com> or via fax by using the form included with your software.
2. There is a Support Contract in place that covers the specific license in question.
3. You have checked the user's guide(s) for your answer. If you do not have the User's Guides, both of the guides can be downloaded in PDF format from our web site or read on-line. User manuals are also on the Loftware CD.
4. You have checked the Loftware's Knowledge Base articles on our <http://loftware.com>. Hundreds of frequently asked questions and typical problems are documented there in easy to read articles.
5. If you suspect that your problem is hardware related, try to first determine if it is a problem with your computer, Network, or printer and contact the appropriate company. Loftware does not sell or service any hardware products.

6. Have your serial number and version number of the product you are using ready. These numbers can be obtained by accessing the Help|About menu of the label design mode.
7. Think about how you are going to efficiently explain the problem prior to speaking with a technician. The better the description, the quicker the solution and/or resolution to your problem.
8. If this is a follow up call to a previous incident, please have the incident number ready.

Phone 603-766-3630 Choose Option 3

Fax 603-766-3631

E-mail support@loftware.com

Licensing, Warranty, and Support

The following documents are available on the CD-ROM or Internet download of the Loftware Software:

- Loftware End User License Agreement
- Loftware Third Party Terms and Conditions
- Loftware Software Services Support Agreement

Understanding the LPS Architecture

The Front End

Think of your existing host application as the Front End of your labeling system. Your host application may be a WMS/ERP application or a homegrown application. The following figure is one possible front-end network layout. Your network may be different.

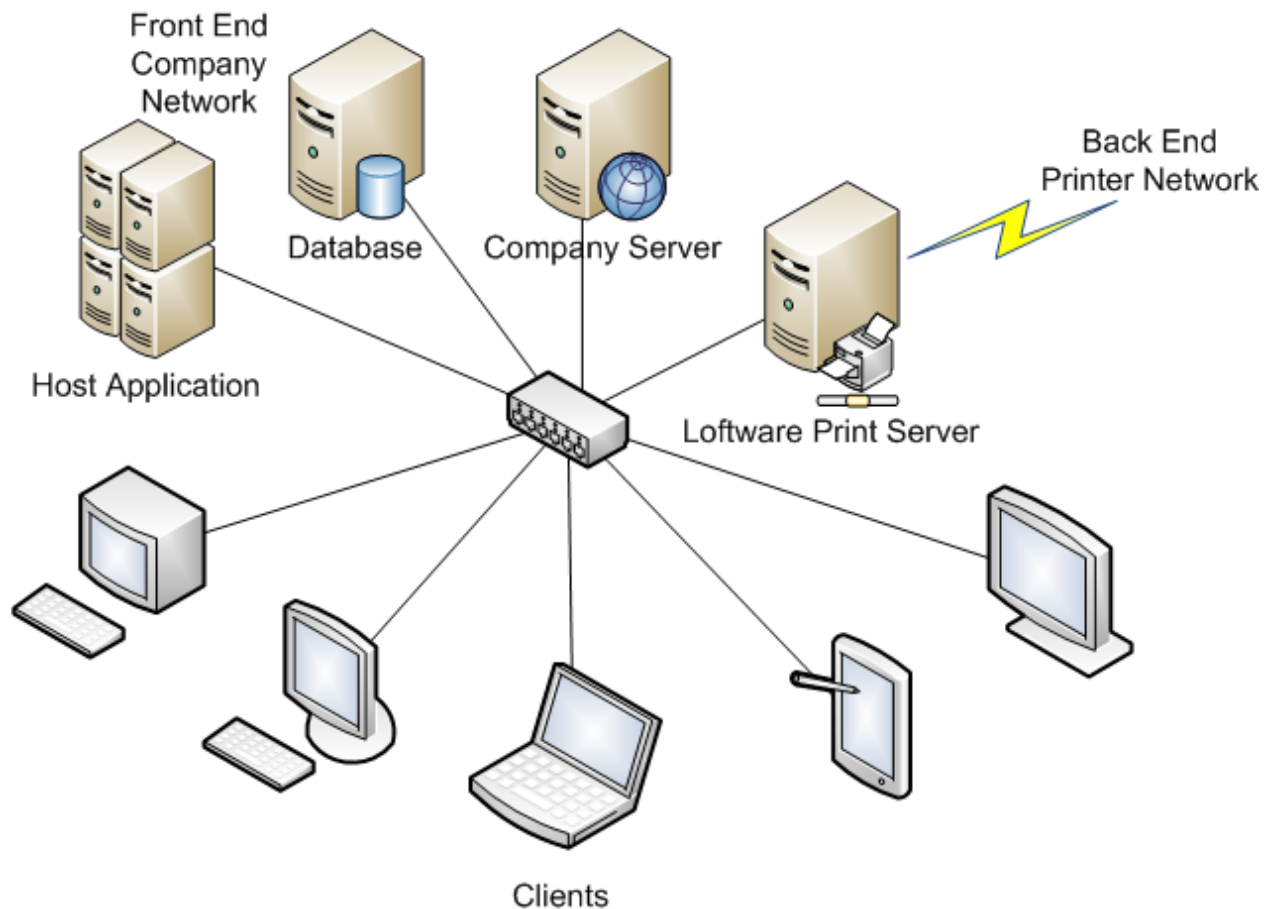


Figure 1.1: A typical company network with link to a Loftware back-end printer network.

The Front End application decides the following:

- The label format (template) to print
- The data for the format
- The number of labels to print
- The destination printer

When these decisions are made, the label-printing event is triggered by sending a request from your application to the LPS via one of its interfaces. The interface ties the front and back ends of your system together.

The Back End

Think of your devices, device connections, and LPS middleware installation as the Back End of your labeling system. Your label designs and associated files are included in this definition of Back End. The following figure is one possible back-end network layout. Your network may be different.

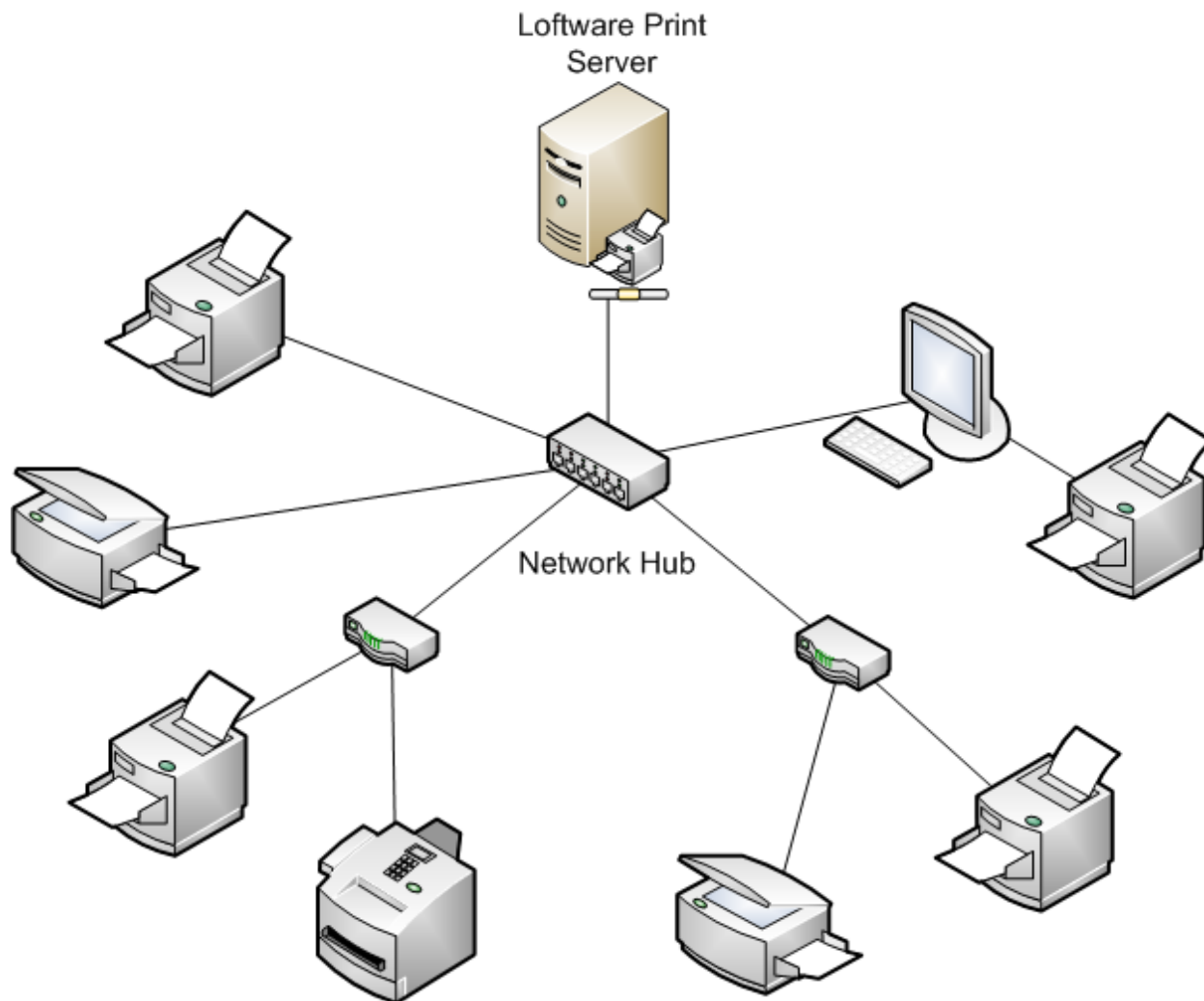


Figure 1.2: Back End of an Enterprise-Wide Barcode Labeling System.

This diagram shows several banks of devices connected to the network, each with its own TCP/IP network address. The printers could be attached to shared workstations instead of using TCP/IP if the printer is going to be shared with other applications. With the correct Loftware license key, an unlimited number of devices can be addressed by a single LPS server.

The Interface and the Transparency Line

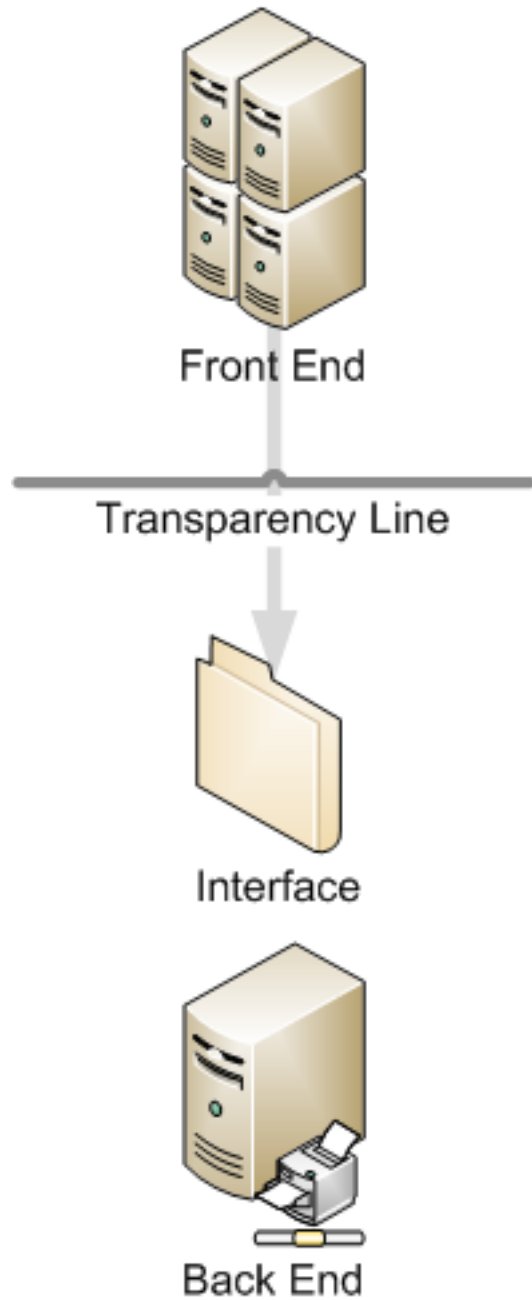


Figure 1.3: The relationship between the Front End and the Back End and the Interface

The Interface

The interface is what allows your Front End program to communicate with the LPS. The Front End makes decisions on what labels to print based on various criteria. Once this information is known, it is

communicated through the interface to the Back End where it is processed. There are several different types of interfaces to choose from, each having its own benefits.

Interface	Benefits
File	The File interface allows Front End applications to make requests to the LPS via a file drop to a shared network drive. The LPS detects the file and processes the request. Any program in any language can use this interface.
TCP/IP Socket	The TCP/IP Socket interface allows Front End applications to have bi-directional communications directly with the LPS through a socket without the need for file transfer or shared drives. Many aspects of the LPS configuration are available to the front end program through the socket, such as Label List, Field List, Device Configurations, etc. Device status and EPC data pass back are also available in this interface. This interface is for advanced programmers only and is only available in the LPS Premier product. This interface is usually used by UNIX programmers but can be used by C++ or C# programmers as well.
Direct Socket	The Direct Socket interface is similar to the TCP/IP interface mentioned previously. The difference is that it is much easier to code to because it is unidirectional. Print Requests are assembled in an XML or JSON file and sent through the socket. No status is available other than the fact that if you cannot open the socket, the LPS probably is not running. This interface is usually used by UNIX programmers, but can be used by C++ or C# programmers as well.
Connectors	Software Connector® establishes a high-speed connectivity bridge between enterprise applications and the Software Print Server (LPS). Software has connectors available for Oracle, SAP, and Java.
ActiveX	The ActiveX Interface and the .NET Interface allow programming languages to send printing requests to the LPS from anywhere on the LAN, WAN, or Internet. Under the covers, these tools actually use a socket connection for speed and reliability. These tools are available to Windows applications.
On Demand Print Client and the Web Client	The On Demand Print Client and the Web Client allow label requests to be made from any client computer on the network or across the Internet by prompting the operator for keyboard or database key information. No programming is required to use these client programs.

The Transparency Line

The transparency line depicted in Figure 1-C indicates that the Front and Back ends are transparent to one another. Applications do not need to know anything about the printers or how they are connected. Likewise, the Back End has no knowledge of what comprises the Front End or how it operates.

The transparency line is a critical factor for making the LPS effective as a middleware solution. With this, Software technicians, analysts, and engineers do not need to have detailed knowledge of your Front End system in order to support you.

By following the procedures outlined in the following sections, you can achieve remarkable flexibility in your system without having to cross the line. The LPS takes care of the printing details so that Software customers can concentrate on their business processes.

Related Information

For detailed information about the LPS interfaces, refer to the *Loftware Print Server User's Guide*.

Loftware Print Server System Requirements

System requirements are dependent on a number of factors, including:

- Concurrent users
- Printers driven
- Volume of labels printed

As load increases, memory, processor speed and the number of processors may need to be adjusted. Loftware's Professional Services Group (PSG) can help determine your system requirements.

Virtual Environment Support

Loftware provides limited support for products running on operating systems compatible with LPS Family products in a virtual environment running VMware® or Microsoft Hyper-V®. For VMware or Hyper-V specific support or issues, please contact VMware support or Microsoft support directly or via your vendor.

Loftware requires that companies seeking to use any of the LPS Family software products in a virtual operating system environment purchase a license for each Loftware product used in every virtual environment in accordance with the license model for that Loftware product. That is, an installation of an LPS Family product running within a virtual operating system environment must be licensed to the same terms as an LPS Family product running in a physical (non-virtualized) one.

LPS Family products running in a virtual environment require software license keys and a static MAC address for each virtual operating system environment.

End of Support Notices

Please review the [End of Support Notices](#) on [loftware.com](#). If you are running Loftware solutions on one of the systems listed in the End of Support Notice, you are encouraged to upgrade to a supported system.

Loftware Print Server

The following are the system requirements for Loftware Print Server® 12.1.1.

Server Requirements

Consider these requirements the minimum to run the Loftware Print Server (LPS). Medium and high-volume systems may require more or faster processors and higher available RAM and disk space in order to achieve desired performance and throughput. LPS will perform best when not limited by available RAM, disk space, or processor speed.

To optimize server utilization when using Print Groups, consideration should be given to the server platform size, configuration and available resources. Loftware recommends having a server configuration of the following.

- **Processor Cores:** Two cores per Printer Group plus one core for the system
- **RAM:** 2GB per Printer Group plus 4GB or the system

Important: LPS is not supported on any server that is acting as a Domain Controller.

Component	Requirement
Computer Processor Speed	2.0 GHz Quad Core
Computer Memory (RAM)	4GB, 8GB Recommended
Computer Hard Disk Space	Minimum 4GB Available Disk Space
Networking	IPv4 (IPv6 not supported)
Operating System	<p>Microsoft Server Operating Systems</p> <p>Windows Server 2019 (nonclustered)</p> <p>Windows Server 2016 (nonclustered)</p> <p>Windows Server 2012 R2</p> <p>Windows Server 2012</p> <p>Important! Ensure that fonts you want to use with LPS or LLM are installed for all users so that they are accessible to the LPS service. To accomplish this in Windows Server 2019 or Windows 10, you must log on using an account with administrative privileges and select the Install for all users command to install the font.</p> <p>Tip: It is recommended that you apply all significant operating system updates prior to installing LPS.</p> <p>Note: LPS and LLM products, controls, clients, and connectors run as 32-bit applications on 64-bit Windows operating systems.</p>
Connected Devices	License dependent

Component	Requirement
Virtualization	VMware® support Microsoft Hyper-V® support

Recommended System Specifications

The following specifications apply to LPS environments with a single printer group of less than 500 printers. If your environment requires multiple groups and more than 500 printers, please contact Loftware for assistance determining the appropriate system requirements for your configuration.

Operating System	Low Volume	Medium Volume	High Volume
Windows Server 2019 (nonclustered)	2.0 GHz Quad Core 8 GB RAM 20 GB Available Disk Space	2.0 GHz Quad Core 12 GB RAM 50 GB Available Disk Space	2.0 GHz Quad Core 20 GB RAM 100+ GB Available Disk Space
Windows Server 2016 (nonclustered)	2.0 GHz Quad Core 8 GB RAM 20 GB Available Disk Space	2.0 GHz Quad Core 12 GB RAM 50 GB Available Disk Space	2.0 GHz Quad Core 20 GB RAM 100+ GB Available Disk Space
Windows Server 2012 R2	2.0 GHz Quad Core 4 GB RAM 20 GB Available Disk Space	2.0 GHz Quad Core 8 GB RAM 50 GB Available Disk Space	2.0 GHz Quad Core 16 GB RAM 100+ GB Available Disk Space

Client Requirements

The Loftware Print Server Clients include:

- On Demand Print Client
- Loftware Print Server Status Client
- ActiveX

Important: The version of the LPS client being used must match the version of the LPS the client is being used with. For example, only version 12 clients are supported with version 12 of the LPS.

Loftware Print Server Client Requirements

Component	Requirement
Computer Processor Speed	2.0 GHz Dual Core
Computer Memory (RAM)	2 GB
Computer Hard Disk Space	Minimum 2GB Available Disk Space

Component	Requirement
Operating System	<p>Microsoft Client Computer Operating Systems</p> <p>Windows 10</p> <p>Note: Mobile devices running Windows 10 are not supported.</p> <p>Windows 8.1</p> <p>Microsoft Server Operating Systems</p> <p>Windows Server 2019 (nonclustered)</p> <p>Windows Server 2016 (nonclustered)</p> <p>Windows Server 2012</p> <p>Tip: It is recommended that you apply all significant operating system updates prior to installing LPS.</p> <p>Note: LPS and LLM products, controls, clients, and connectors run as 32-bit applications on 64-bit Windows operating systems.</p>
Notes	The ActiveX client control can only be used by 32-bit applications.

.NET Control Requirements

Component	Requirement
Computer Processor Speed	2.0 GHz Dual Core
Computer Memory (RAM)	2 GB
Computer Hard Disk Space	Minimum 2GB Available Disk Space
Operating System	<p>Microsoft Client Computer Operating Systems</p> <p>Windows 10</p> <p>Note: Mobile devices running Windows 10 are not supported.</p> <p>Windows 8.1</p> <p>Microsoft Server Operating Systems</p> <p>Windows Server 2019 (nonclustered)</p> <p>Windows Server 2016 (nonclustered)</p> <p>Windows Server 2012 R2</p> <p>Windows Server 2012</p> <p>Note: LPS and LLM products, controls, clients, and connectors run as 32-bit applications on 64-bit Windows operating systems.</p>
Operating System Features	Microsoft .NET Framework 4.5.1

Notification Service Requirements

Component	Requirement
Computer Processor Speed	2.0 GHz Dual Core
Computer Memory (RAM)	2 GB
Computer Hard Disk Space	Minimum 2GB Available Disk Space
Operating System	<p>Microsoft Client Computer Operating Systems</p> <p>Windows 10</p> <p>Note: Mobile devices running Windows 10 are not supported.</p> <p>Windows 8.1</p> <p>Microsoft Server Operating Systems</p> <p>Windows Server 2019 (nonclustered)</p> <p>Windows Server 2016 (nonclustered)</p> <p>Windows Server 2012 R2</p> <p>Windows Server 2012</p> <p>Note: LPS and LLM products, controls, clients, and connectors run as 32-bit applications on 64-bit Windows operating systems.</p>

Loftware Label Manager

System Requirements

The following are the system requirements for Loftware Label Manager® 12.1.1.

Component	Requirement
Computer Processor Speed	2.0 GHz Dual Core or higher
Computer Memory	2 GB RAM or higher
Computer Hard Disk Space	Minimum 2GB Available Disk Space
Operating System	<p>Microsoft Client Computer Operating Systems</p> <p>Windows 10</p> <p>Note: Mobile devices running Windows 10 are not supported.</p> <p>Windows 8.1</p> <p>Microsoft Server Operating Systems</p> <p>Windows Server 2019 (nonclustered)</p> <p>Windows Server 2016 (nonclustered)</p> <p>Windows Server 2012</p> <p>Important! Ensure that fonts you want to use with LPS or LLM are installed for all users so that they are accessible to the LPS service. To accomplish this in Windows Server 2019 or Windows 10, you must log on using an account with administrative privileges and select the Install for all users command to install the font.</p> <p>Tip: It is recommended that you apply all significant operating system updates prior to installing LLM.</p> <p>Note: LPS and LLM products, controls, clients, and connectors run as 32-bit applications on 64-bit Windows operating systems.</p>

Performance Considerations

The scalable architecture of Loftware Print Server (LPS) allows it to keep many printers busy at the same time. Because of the process involved in printing across local and remote enterprises, many factors affect LPS performance. This section provides guidelines for what you can expect using your particular system configuration.

LPS has been extensively tested with many different scenarios, none of which may exactly match your environment. Therefore, the information in this section is of a general nature only. The actual results in your situation will vary.

Hardware Factors

Number of programs your server is actively running

LPS is performing many tasks when it translates your printer independent requests into the native printer languages necessary to print them. The speed at which your label requests are serviced is proportional to the processor clock cycles allocated (by Windows) to the LPS. The more processor time it gets, the faster it is. In other words, if you are running other server type applications like a database or email server, delays can be experienced when the other applications are busy.

Number of processors

LPS is written to take advantage of multiple core processors on a computer running Windows Server. Because it is a multi-threaded application, the operating system balances the threads among the available processors. The net result is that the more processors you have, the more throughput performance you should be able to achieve up to the point where the printers' performance becomes the limiting factor.

Available Memory

Memory is an important factor in printing speed. Do not attempt to run the LPS system on a server with less than 2 GB. The best way to gauge memory is to use the performance monitor in the Windows Task Manager. Be advised that when the LPS first starts, it is at a baseline memory footprint. The more devices and the larger the print queues get, the more memory will be used. For more information, see "[Recommended System Specifications](#)" on page 19.

Processor Speed

Printing throughput is proportional to processor speed. A faster processor is a better processor. Do not attempt to run the LPS on processors less than 2.0 GHz Dual Core.

Network Speed

If you are dropping requests to a scanned network drive and/or printing to printers on your network, network speed and traffic are going to factor in. Remember, the faster the network, the greater the speed. Making printer connections across a WAN may prove to be slower than LAN connections depending upon traffic, data, and other factors. This can be avoided by dedicating an LPS server to each

LAN, although your file drops may still be coming over the WAN. Real world experience has shown us that WAN speed is entirely acceptable for most applications.

System Failover Protection

Organizations that require their printing operations to be online 7x24x365 should consider the economic impact of short and longer-term printing outages. If outages are unacceptable to your organization, Loftware encourages you to consider making additional investments in software licensing to deploy a system failover strategy.

A well-planned failover strategy along with a disaster recovery (DR) plan can best be attained by configuring identical LPS servers, one for primary use and one or more for active failover. Labels and related files should be stored on a remote file share accessible to all LPS servers. If configuring additional servers, an equal number of printing devices must be added.

If you have a load balancer connected to identically-configured instances of Loftware Print Server, then Loftware's Professional Services Group (PSG) can configure how LPS handles pending print jobs when failover occurs. This approach allows your load balancer to monitor the LPS service via an Application Health Port so that your load balancer can determine which LPS instance to send jobs to. PSG can configure LPS to respond in either of the following ways when the primary LPS instance goes offline.

- Any pending print jobs that were being processed by the primary instance are automatically failed. You can resubmit those print jobs to a secondary LPS instance.
- Any pending print jobs that were being processed by the primary instance remain pending. When the primary LPS instance comes back online, these print jobs are resumed.

There are various technical approaches to achieving system redundancy in a printing environment. Because of this, we recommend that you contact Loftware directly to arrange a time to speak with a Loftware Professional Services Analyst. The analyst can assist you and make appropriate recommendations.

Devices and Device Connections

Number of physical devices you are driving

LPS has the potential to serve an unlimited number of configured devices, depending on the license. LPS's scalable architecture allows you to keep all the devices working at the same time, but a performance penalty proportional to the number of devices you are driving is paid.

Print groups enables the grouping of print devices when managing a large number of print devices on a single LPS server. In addition to improving the management of large printer deployments, large print jobs that may have been memory-constrained will see improved performance by taking advantage of the new multi-threaded printer group architecture that better uses server processing and memory.

Native drivers versus Windows drivers

Using the native Loftware printer drivers for supported printers is always faster than using Windows printers. The reason for this is that we use the printers' high speed, native language as opposed to

sending a bitmap for Windows printers.

Brand names of the printers

Loftware maintains a position of hardware neutrality when it comes to thermal transfer printers. We do not sell or recommend printers. We do say that some printers are much faster than others are when it comes to imaging a request. Do not base your decision on the documented print speed (inches per second) of your printers alone. This specification is for printing multiple copies of the exact same label without having to image new data. When purchasing printers, consider imaging (processing) speed, as well as inches per second.

Labeling Factors

Number of Fixed Fields on the Label

LPS pre-downloads fixed fields (lines, boxes, fixed images, and fixed text) from your label to the printer. Subsequent requests for the same label only download the variable data that has changed. Please note that some thermal transfer printers and all Windows printers do not support this capability. The number of fixed fields on your label affects the first download of the label but not subsequent prints. The number of variable fields and whether or not you use logos or graphics has a much larger impact.

Number of Variable Fields on the Label

Variable data fields on the label are sent to the printer every time one of them changes. If you are printing multiple copies of the same label, expect very fast throughput. If your variable data changes between labels, two factors influence print speed. First, the new data fields must be sent to the printer. Secondly, the printer must take the time to re-image the label with the new data before it prints.

Using Fixed Logos or Graphics

An example of a fixed graphic might be a company logo on the label that is static for all labels. Most thermal transfer printers support the pre-downloading of logos so there is a download penalty for the first download, but once the graphic is there, it is not re-downloaded. Graphics are data intensive and take longer to download than normal barcode, text, and line/box fields.

Using Variable Graphics or TrueType Fonts

If your label contains variable text fields that are formatted with TrueType fonts or graphics that change with each label, throughput may be significantly reduced. Although the LPS system can handle labels like this, the time it takes to download new labels makes this prohibitively slow. Loftware strongly recommends that you use the printers' native fonts, some of which are smooth, like TrueTypes, but are native to the printer.

Complex Formulas and Serial Numbers

If you have fields on your label that are incrementing, or have a data source defined as formula, you may pay a throughput penalty. If the printer is capable of performing the incrementing, the job is passed to it and no penalty is incurred. If, however, the printer is not capable of incrementing, then the LPS must increment the data and re-send the variable fields between labels thus delaying throughput.

System Analyst Questions

If you have questions regarding setting up an enterprise printing system, call the Loftware Professional Services Group at +1 (603) 766-3630. The Analyst reviews your requirements and addresses any concerns that you have. Analyzing your needs up front ensures that your printing system is designed properly the first time. Before you call, please answer the following questions.

Note: Emailing copies of your label(s) is very helpful.

Question	Answer
How many printers do you intend to drive?	
What kind of printers do you have?	
How many Printer Groups will you use?	
Do you use any printers with Windows Drivers?	
Do your labels have any fixed graphics on them such as a company logo?	
Do your labels have variable graphics on them such as a picture of a part?	
Approximately how many different label formats do you have?	
Approximately how many fixed and variable text and barcodes are on each label format?	
Do any of your labels have incrementing data fields, such as Serial Numbers?	
Are all of your printers in the same building?	
How often do you print multiple copies of identical labels to one printer in one request?	
How often are you requesting numerous different labels to one printer in one request?	
What computer configuration do you plan to run the LPS on? (GHz, memory, processor)	
What operating system is the server running?	
Is the computer dedicated to label printing?	

Related Information

For more information on system planning, refer to the *Performance Considerations* section of this guide.

This installation guide covers the following installation scenarios:

- Installing on a clean computer
- Upgrading to a newer version
- Installing a Service Pack
- Maintenance Mode or Reinstallation
- Attempting to downgrade to an earlier version
- Attempting to install a Service Pack for a different version than what's installed
- Installing with Terminal Server mode on
- Installing on a Cluster

Note: Visit the Loftware Web site for information on all Loftware products and their required licensing.

Main Setup Programs

Loftware Label Manager Installations

The main setup program is used for local installation of the Loftware Label Manager suite of applications. The modules that are available for use after you run the setup program depend on the licensing model you have purchased. When the main setup program is run, the following components are installed:

- Loftware Label Manager, On Demand, and Range Print programs
- Microsoft 32 Bit ODBC Drivers for dBase, FoxPro, SQL Server, Access, ASCII Text, and Excel
- Sample programs, help files, and compliance templates

Loftware Print Server Installations

The main setup program is used for local installation of the Loftware Print Server suite of applications. The following applications are installed with the Loftware Print Server:

- Loftware Label Manager
- Client setup program
- Loftware Print Server
- On-Demand Print Client
- Status Client

- Notification Agent
- ActiveX Client Control
- Internet ActiveX Control
- Web Listener
- Web On Demand Print Client

Note: A separate installer for the Software .NET Control is available on the Software CD and in the download package.

Software Print Server Client Setup

Note: Software Print Server clients are only available if you purchase and license LPS.

The Client Setup program installs client programs for the Software Print Server. Only the client that you choose is installed. The Client Setup program can be found in the following locations.

- On the Software CD
- In the download package
- In the Software Labeling\ LPS Client Install folder (after Software Print Server has been installed)

You can share this folder to make the LPS Client Setup program available on your network. When the Client Setup is launched, it gives you the choice to install one or more of the following client applications:

- On-Demand Print Client
- Status Client
- Help Files
- Notification Agent
- ActiveX Client Control
- Internet ActiveX Control
- Web On-Demand Print Client
- Web Listener

Note: The Software .NET Control is not included in the LPS Client Setup program. A separate installer for the .NET Control is available on the Software CD and in the download package.

Software Print Server Web Client Setup

Note: Software Print Server web clients are only available if you purchase and license the LPS.

The LPS Web Client can be hosted on a web site for the purposes of making the LPS web clients available to your users over the Internet. Web users download the file and run setup. Any combination of the following may be installed:

- Internet ActiveX Control
- Web On-Demand Print Client
- Web Listener

Pre-Installation System Checks

The following list of system checks helps you prevent problems that might hinder installation and testing. For more questions on how to implement the LPS in a specific environment, call a Software System Analyst to help you go over key points in your implementation strategy and/or help you architect the best solution for your needs.

Note: For high volume printing, Software recommends that you use the NTFS file system rather than FAT32.

Network Assessment

Assess the network speed and network protocols you plan to use to support the Software Print Server solution. Ensure you have proper network interface cards to support required protocols and throughput. Most standard LAN/WAN configurations work with LPS systems.

Related Information

For more information on network assessments, refer to *Performance Considerations* in this guide.

Hardware Selection

Desktops/Servers/Workstations

It is important to make sure you have a computer or server powerful enough to handle your printing needs.

Print Servers

If you are using hub based Print Servers such as Extended Systems, HP, Intel, or Castelle to connect your printers to the network, ensure that they support the network protocols you are running and that you set their TCP/IP address. The preferred method is to use printers that already have built in Network Interface Cards (NIC's).

Printers

Select a printer that has the power and ability to support your overall needs as well as the network connections you require. Software recommends printers with parallel ports or internal NIC cards.

Printer Cabling

In addition to the selection of a printer, it is extremely important to have the right cables and adapters that allow you to connect and operate the printers on your network. Identify the specific cabling requirements and read your printer manufacturer's installation guide for specifics on printer cabling for your printers.

Software

If you have previously installed the Loftware Clients, they must be uninstalled before installing LPS.

Dedicated TCP/IP Addresses for Peripherals and Computer Hardware

It is important that Servers/Desktops and Workstations running the LPS have a dedicated TCP/IP address. Loftware recommends that you DO NOT use DHCP as a means to configure a dynamic address. This applies for all Print Servers running in the network that support print spooling operations. All TCP/IP devices must have addresses assigned by a network administrator. Communications must be verified to all Ethernet adapters and print servers.

Operating Systems

Ensure that all services start properly and there are no hardware conflicts or service control manager errors. Also, make sure the network has properly connected and your server has an established server account in the domain.

Print Server Setup (where applicable)

Using the Administrator Account, install the TCP/IP and Windows Drivers for the print servers on the desktop, workstation, or domain so that the Loftware application can capture printer ports during printer setup. See the manufacturer's installation guide. This only applies to devices which do not have an internal Network Interface Card (NIC).

Mapped Drive Letters vs. UNC

LPS runs in memory as a service. Most mapped drive letters will not be accessible because of security settings. When configuring additional scan directories, instead of using M:\drop, for example, use \\ws1\drop <file://\ \ws1 \drop>.

Connector, Sockets, FTP vs. Polling

Loftware recommends pushing report files to the LPS versus polling. You can use a Loftware Connector, FTP, or socket to push report files to the Loftware Print Server computer.

Important: Loftware supports Loftware products that connect to network file and resource sharing systems such as NFS or Samba. Loftware DOES NOT support the file-sharing systems themselves.

User Accounts

Use of Privileged Account

Installation, Configuration, and Service Packs of the Loftware Print Server should be performed using the same account that will Stop and Start the LPS as a service. The account must be part of the Local Administrators group to be able to have Print Manager and Read/Write access to the registry, Windows and system directories, as well as the ability to Stop and Start services. Because files and printers are maintained across a domain, the account is often a member of the Domain Administrator group. If a reboot is required for an install or service pack, make sure to log back onto the server with the same account to allow post-boot finalization of the install.

User Account Control and the Loftware_Group

User Account Control (UAC), a feature of Windows and Windows Server operating systems, can limit the access that applications have to your system. This is one method used to prevent unauthorized software from compromising your operating system. The effect of UAC is that when you start an application, it runs with standard user permissions even if you are an administrator. You must explicitly "elevate" the application for it to receive Administrator permissions.

When you install the Loftware Print Server, Loftware Label Manager, or one of the Loftware Clients, a local user group is created called **Loftware_Group**. Members of this group can start a Loftware application without having to explicitly assign Administrator permissions. Administrators who are NOT members of the **Loftware_Group** must still explicitly elevate (right-click the application icon, and select **Run As Administrator**) the Loftware application.

Note: If UAC is not enabled or you are using a previous Windows operating system, the **Loftware_Group** is created. However, it is not necessary to add administrators to the group.

Adding Users to the Loftware Group

Your system administrator should add the user accounts that need the ability to configure the Loftware Product to the **Loftware_Group**. Configuration tasks include:

- Defining and Deleting Devices
- Creating and Deleting Labels

The Administrator account used to install the Loftware product is automatically added to this group.

Users who just need to print labels using the On-Demand Print Client or view status using the LPS Status Client do not need to be added to the **Loftware_Group** on the Server computer.

You can add users to the **Loftware_Group** using the Management Console - From **Administrative Tools**, select **Computer Management**.

For instructions on adding users to groups in Windows Server

In the Server Manager, select **Help**, and then select **Help Topics**. Search for "Add a member to a local group" for instructions on adding users to groups.

Folder Permissions

The following are the default permissions assigned to the `Loftware_Group`.

Loftware Labeling (or Loftware Clients)

Users	Permissions
Loftware_Group	Read, Execute, Write, and Delete
Administrators	Full
Users	Read and Execute

Program Data and Loftware Registry Entries

Users	Permissions
Loftware_Group	Read, Execute, Write, and Delete
Administrators	Full
Users	Full

Before You Begin

- Review the [Pre-Install System Checks](#) in this guide.
- If you are installing to a cluster, refer to the [Cluster Install](#) section of this guide.
- If you were using Loftware Label Manager applications via Windows Terminal Server or Citrix, refer to the [Upgrading LLM on a Terminal Server Environment](#) section of this guide.
- Be sure that you logon to your system locally with Administrative privileges. Review the [User Accounts](#) topic in this guide.
- Remove any hardware license key in the LPT (parallel) port or USB Port.

Installation Modes

The Loftware Print Server setup program and the Loftware Label Manager setup program have the following modes:

- First Install
- Repair/Reinstall
- Uninstall
- Upgrade

Setup automatically senses the mode required. It is important that you understand the function of each of these modes.

In addition to the installation modes described in this section, LPS users can switch to Emergency Mode in the event of an unexpected loss of access to LPS during off hours.

Note: Emergency Mode is only available if you purchase and license LPS.

First Install

If this is a first time installation, setup prompts you for the installation path for Software. The default installation path is C:\Program Files\Software Labeling (C:\Program Files (x86)\Software Labeling on 64-bit Windows operating systems). It is strongly recommend that you choose the default.

At this point, the Software Programs are installed on your computer for the first time.

Repair/Reinstall

If you run setup.exe after a successful install, you are not prompted for the destination directory. You are instead given the choice to Repair (Reinstall) or Remove (Uninstall). Choosing **Repair** causes setup to overwrite the Software files that were previously installed.

Note: Files you create after installation such as Labels, layouts, serial files, and images are not deleted during a repair installation.

Remove (Uninstall)

Two methods can be used to remove or uninstall the Software Programs.

- After a successful install, you can run the Software setup.exe and select **Remove (Uninstall)**.
- The Software products can be uninstalled by using Add/Remove Programs in the Windows Control Panel. Select **Software Programs** and select **Uninstall**.

What is Removed?

- Software Application files.
- Windows System files and registry entries related to the Software applications.

What is NOT Removed?

- The Software_Group user account group.
- Files and registry settings created after the install process. For example, labels, serial numbers, and layouts.
- The Software Labeling directory.
- Windows\System files are not removed if they are shared with other programs.

Note: To install to a directory other than the original, you must uninstall the Software applications first. After uninstalling, setup runs in First Time mode and prompts you for the new directory. You may not install Software Products in more than one directory.

Upgrade

If you have purchased an upgrade that is a newer version than the one you have installed, it upgrades your older files to the newer version. You are not given the chance to install to a different folder.

Important: If you are installing to a cluster server for the first time, uninstall your current LPS family products first.

If upgrading LPS, you must close any LPS family programs and stop **any** Loftware Service that is currently running. This includes services for any of the following products you have previously installed:

- Loftware Connector Console (For Unix installs, stop lwcc and ucfa services.)
- Loftware Connector for SAP Applications
- Loftware Enterprise Update
- Loftware Print Server

Launch the Loftware Setup Program

Download

Extract the installation ZIP file to a location on your computer. Open the download folder, and run the Loftware Print Server or Loftware Label Manager EXE file depending on which product you are installing.

CD-ROM

Place the CD in your CD-ROM drive, and wait for the setup program to run.

If setup does not start, run setup.exe from the root directory of the CD.

The setup program's prompts are different depending on if you are installing the Loftware Label Manager or the Loftware Print Server and if this is an upgrade or the first time you are installing.

Loftware Print Server Installations

After starting the installation program the following steps appear.

Select a language

This is the language that the installation program will use.

Exit all Programs

The installer reminds you to exit all programs before continuing the process. Make sure nothing else is running on the server.

License Agreement

Read, Print, and accept (Click **Yes**) the End-User License Agreement. The EULA is also available on the CD ROM or Download package.

Setup Information

The following text appears on the **Setup - Information** page.

The following components will be installed to this PC depending on the operating system. Some components run in demo mode depending on the license that you have purchased.

The following components will be installed:

1. Design, On Demand, and Range Print programs.
2. The Loftware Print Server
3. ActiveX Client Control
4. ActiveX Web Control
5. Web Listener
6. Email Notification Agent
7. Remote Printing Status Program
8. Client Installation program for performing client installs across your network.
9. Internet Installation for hosting remote clients
10. .NET Control Installation

* Please note that the Loftware Print Server and its client programs will not be initialized should you choose 'No' to the "Initialize Loftware Print Server" question.

Installing the components in this way consumes very little additional disk space and offers several significant advantages including:

- A. Simplifies installation
- B. Simplifies uninstallation
- C. Reduces the likelihood of version mismatches across components
- D. Decreases the amount of time needed to get up and running
- E. Reduces the chances of having a problem, and if you do, increases the chances of Loftware Technical Support solving the problem in a timely manner.

Canceled Installation

If you cancel the InstallShield Wizard a message appears noting that "Your system has not been modified." This may not be the case. A user group called Loftware_Group may be created.

Language Selection

Choose the language to be used for the Software applications being installed.

Destination Location

The location where the applications will be installed.

Note: 64-bit Windows operating systems will default to Program Files (x86)\Software Labeling. 32-bit systems default to Program Files\Software Labeling. In this guide and the Software Print Server and Software Label Manager User's Guides the default installation folder will be referred to as <Program Files Folder>\Software Labeling.

Setup Status

This page appears while the applications are being installed.

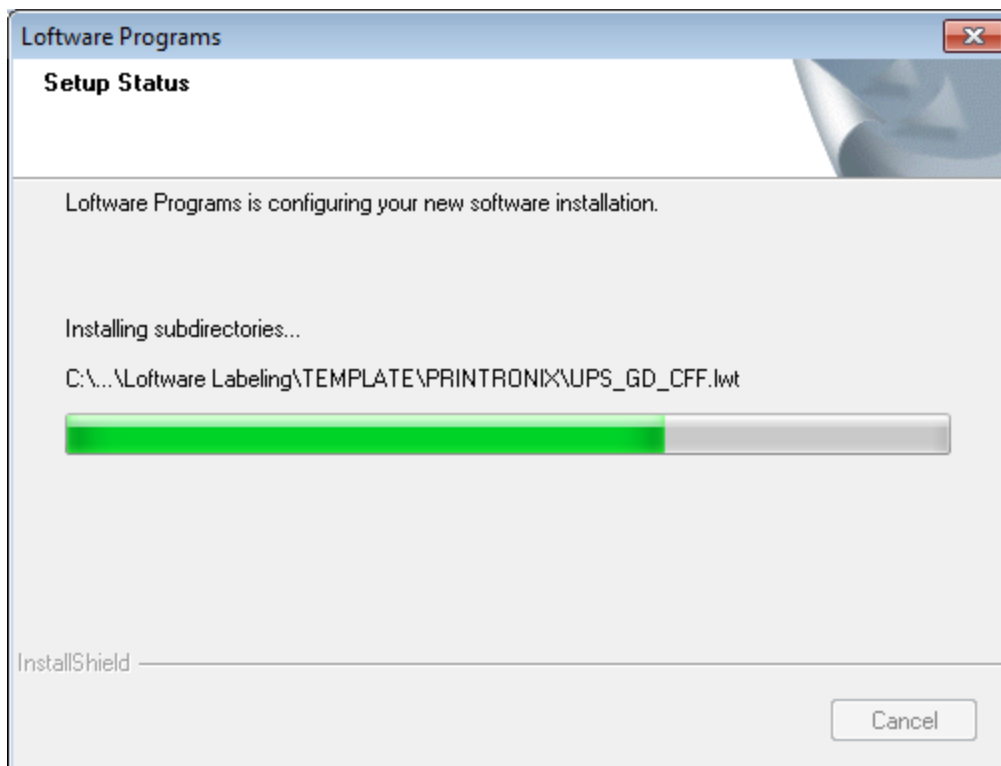


Figure 3.1: Setup Status Window

Key Removal

You will be asked to removed your USB key during installation. If you use a USB key, remove it before clicking **OK**.

Initialize the Loftware Print Server

If you are installing the Loftware Print Server, select **Yes** to initialize it. You may need to restart your operating system.

If you intend to use only Loftware Label Manager, you may select **No** instead.

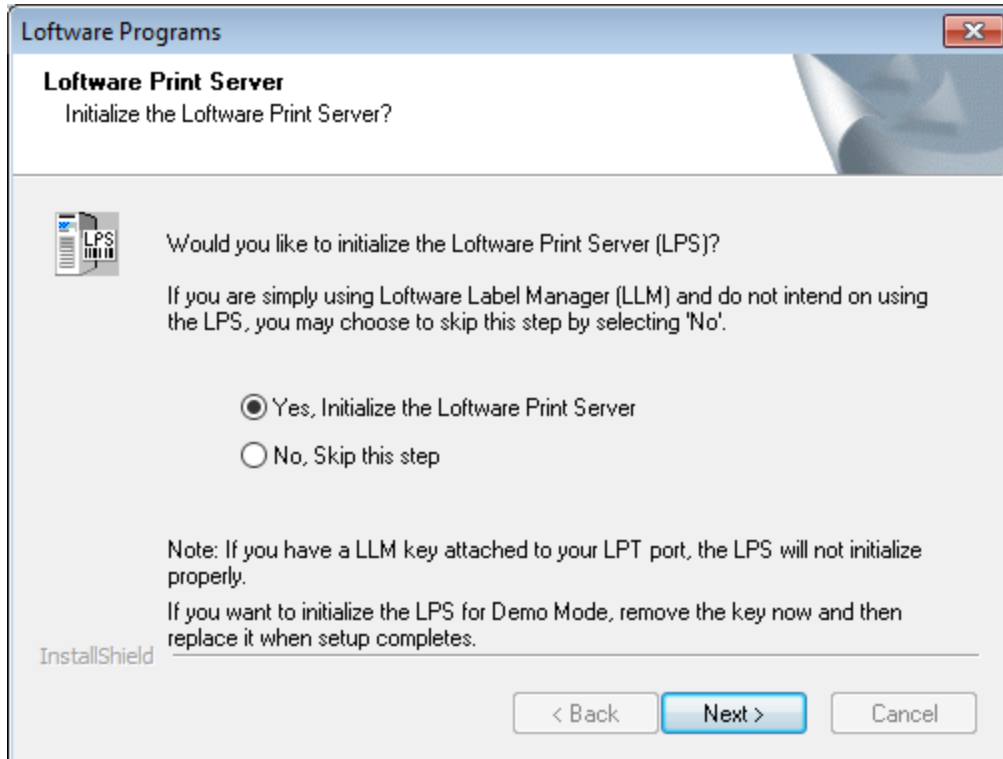


Figure 3.2: Initialize the Loftware Print Server Window

Services Messages

During Loftware Print Server initialization, very important information regarding services will be displayed. The information on the Services screen explains the rules for setting up services. These rules are important and are reprinted below:

Important Information

You have elected to install the Loftware Print Server (LPS) service. The Loftware Notification Agent, and Web Listener services will be installed as well. Be sure to adhere to the following guidelines

1. The Windows operating systems require a password for the account that the Loftware Print Server (LPS) will run under. This account must belong to the Local Administrators group. If you are not logged onto the account that the LPS will be running under, press the 'Cancel' button, login under the appropriate account, and rerun the setup program. If you do not have a suitable login account, have your network administrator create one for you. Remember, the account must have Admin privileges.

Note: The password you supply will be encrypted and stored in a secure area.

2. When setup completes you may start the LPS by entering the Service Control Manager from the Control Panel, navigate to the line that says "Loftware Print Server", and press the 'Start' button. Notice that the startup mode is set to Manual. Set the mode to Automatic if you want the service to start at bootup.

NOTE: If you are running in a clustered environment, you must use the Cluster Administrator to bring the 'Loftware Print Server' resource on-line. Do not use the Service Control manager in this case. Do not set the service to autostart.

Note: Installation and user documents are available on the Loftware installation CD and on www.loftware.com. Do not attempt to use the LPS or the LNA until you have read these documents.

Enter Administrator Account

Note: You must purchase and license the Loftware Print Server separately from the Loftware Label Manager.

1. If this is the first time that LPS is installed and initialized on this system, choose **Yes** to the "Initialize Loftware Print Server?" question.
2. Click **Next** from the LPS initialization page. You will then be prompted for your password.
3. Type in the password for the account for which you are logged in.

Note: The account that you have logged in under must be the account under which the LPS and the Loftware Notification Agent run. After providing the password, setup finalizes the installation and informs you when it is done.

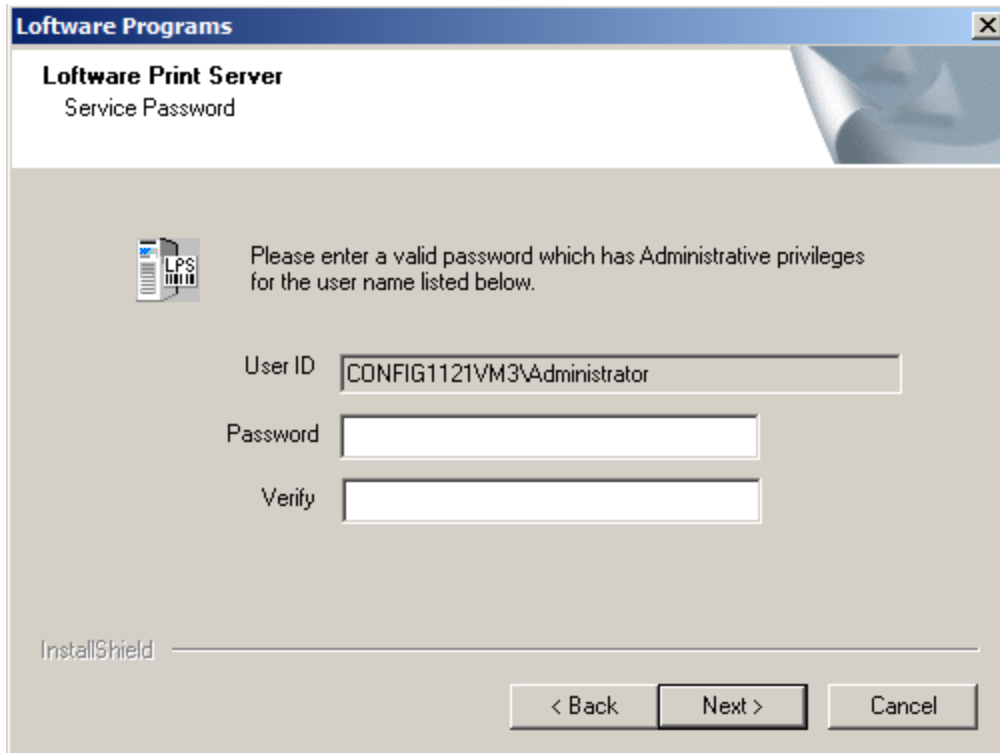


Figure 3.3: Password prompt for LPS and LNA service initialization

Note: If LPS has previously been installed and initialized, the installation program skips this dialog and automatically initializes LPS on the system.

Install the Hardware License Key

At this point, it is time to install your Hardware License Key. If this is the first time you have installed the Key, the [Installing Hardware License Key](#) section contains information on installing and troubleshooting this process. Software automatically detects the key, and you are ready to start using the application.

Important: If locked files are detected during installation, you may be prompted to reboot. If prompted, you must reboot. Unpredictable program behavior that is very difficult to troubleshoot occurs if you choose not to reboot.

Installing the Hardware License Key

The following section contains Hardware License Key installation and troubleshooting information.

The hardware license key is always plugged into either the parallel port or the USB port on the computer on which the Loftware Label Manager or Loftware Print Server runs. Parallel ports are typically located on the back of the computer and are a female connection (DB25) with two rows of holes totaling 25. USB Ports are small rectangular slots also located on the front or back of the computer. Loftware automatically detects the key, and you are ready to start using the applications.

Note: The Loftware Print Server Client Programs get their license from the server and therefore do not require a key on the Client computer.

For the USB port:

- You must first complete the setup program. Then, make sure you plug the key into the USB port. Do not plug the key in before running setup.

For the parallel port:

- When using COM/Serial port printers, note that hardware keys do not belong in the cabling path to the printer.
- Parallel devices such as LaserJets may be plugged into the other end of the key. The key acts as a pass-through device in this scenario.
- If a parallel printer is attached to the key and the key intermittently fails, make sure the power to the printer is on.
- If you already have a Parallel key from another software package, simply attach this one on top of the other.
- If the keys fail when they are linked, try changing the order in which the keys are stacked.

Once setup is successfully completed and the key is correctly attached, check your license string as shown in the *Checking License Information* section of this guide.

Troubleshooting the parallel Hardware Key Driver

If after following the previous setup instructions, the license panel displays "Demo," you may have a problem in the way that the parallel license key is plugged in.

1. Log in as a user with administrative privileges.
2. Make sure you have followed the instructions in the previous section on installing the hardware license key.
3. Do you have a Rainbow Super Sentinel or Super Pro Hardware Key?
 - Yes, continue to the next step.
 - No, call Loftware's Technical Support Department.
4. Open the <Program Files Folder>\Loftware Labeling\Diagnost folder.
5. Open the folder for your operating system, and run the setup program. The Sentinel Driver Setup program opens.

6. Select Functions | Configure Sentinel Driver.
 - a. If an error message occurs stating that the driver is not installed, select Functions | Install Sentinel Driver
 - b. Reboot the computer.
 - c. Run the Loftware Label Manager application. Does the lower-right corner of the Status Bar still display "Demo"? If so, exit Loftware Label Manager and retry this Step. The Sentinel Driver parallel/USB ports window opens.
7. Check that there is at least one port listed. If no ports are listed, then a hardware conflict must be resolved for that computer. It could be an address conflict, an internal ribbon cable, or a controller card problem.
8. Check the Port Type if there is a port listed. If it says anything but IBM AT, edit the Port Type and choose **IBM AT** from the available drop down list.
9. If you had to edit the Port Type, click **OK**, and then restart the computer. If you are still experiencing problems, call Loftware's Technical Support.

License Information

Checking License Information

1. From the **Start** menu, open Software Label Manager by clicking **Software Labeling > Design 32**.
2. If you have a Hardware Key, verify that it is plugged in.
3. Your license information is displayed in the status bar at the bottom of the Software Label Manager Design window. To display additional information about your license, click **Help > About Software Label Manager**.

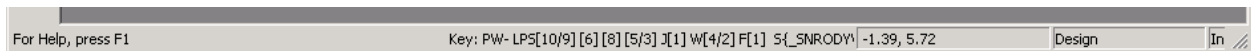


Figure 3.4: License Key in Status Bar

Software Print Server License Types

As of release 11.0, the following types of Software Print Server licenses are available to address customer needs:

- Non-Enterprise licensing model (Starter, Standard, or Premier Edition)
 - Software key
 - Hardware key: A USB key drive that contains a fixed license key. Software recommends using hardware keys only when software keys are not an option.
- Enterprise licensing model
 - Software key

Non-Enterprise License Key

If you have purchased a non-enterprise (standard) license of a Software Print Server product, LPS is displayed in the license string, along with the following information. The following table explains settings that may be found in a license string.

PW- LPS[10/9] [6] [8] [5/3] J[1] W[4/2] F[1] P{MSNRCBOYVG}	
PW or RL	The license key type. PW=Software key, RL=Hardware key.
LPS	Indicates a Software Print Server license key.
[10/9]	The total number of printer seats. / The number of the total seats that are RFID printer seats .
[6]	The number of Client connections allowed. This includes remote status client, ODP client, and client integration.
[8]	The number of Terminal Server connections allowed.

PW- LPS[10/9] [6] [8] [5/3] J[1] W[4/2] F[1] P{MSNRCBOYVG}	
[5/3]	The number of Oracle Connector client seats allowed. / The number of Software Connector for SAP client seats allowed.
J[1]	The number of Software Universal Connector client seats allowed.*
W[4/2]	The number of Software Web Services™ seats. / The number of Software WebAccess™ seats.* Note: These are the LWA components.
F[1]	The number of integrations with IBM FileNet.
P or S	Indicates the LPS edition. P = Premier, S = Starter or Standard Edition
M	Indicates the use of multi-threading is enabled.
S	Indicates the use of the Status Client is enabled.*
N	Indicates the use of Notification Agent is enabled.*
R	Indicates the use of Remote Notification is enabled.*
C	Indicates the use of clustering is enabled.*
B	Indicates the backup key for a cluster or a non-production usage type.
O	Indicates that Software Connector for Oracle is enabled.**
Y	Indicates that Software Connector for SAP Applications is enabled.**
D	Indicates RFID printing is enabled.**
V	Indicates VMware support is enabled. This does not affect Microsoft Hyper-V support.
G	Indicates Printing Groups is enabled.
* This feature is included only with LPS Premier Edition.	
** This optional feature can be purchased with LPS Premier Edition.	

Enterprise License Key

If you have purchased an Enterprise license for Software Print Server, LPS is displayed in the license string, along with the following information. The following table explains settings that may be found in a license string.

SW- LPS [10/5] [4/2] J[3] W[1/50] EN{CBOYDG}1546385183	
SW or PW	The license key type. SW=Software key created using self-service licensing, PW=Software key created by Software Customer Account Management.
LPS	Indicates a Software Print Server license key

SW- LPS [10/5] [4/2] J[3] W[1/50] EN{CBOYDG}1546385183	
[10/5]	The total number of printer seats. / The number of the total seats that are RFID printer seats.
[4/2]	The number of Oracle Connector seats. / The number of SAP Connector seats.
J[3]	The number of Loftware Universal Connector seats.
W[1/50]	The number of Loftware Web Services seats. / The number of Loftware WebAccess seats. Note: These are visible if Loftware WebAccess is enabled.
EN	Indicates an Enterprise license, which includes the following features, although these bits are not displayed in the key: - M: Multi-Threaded - S: Remote Status - N: Notification Agent - R: Remote Notification
C	Indicates the use of clustering is enabled.
B	Indicates a non-production usage type.
O	Indicates the Loftware Connector for Oracle is enabled.
Y	Indicates the Loftware Connector for SAP Applications is enabled.
D	Indicates RFID printing is enabled.
V	Indicates VMware support is enabled. This does not affect Microsoft Hyper-V support.
G	Indicates Printing Groups is enabled.

Loftware Label Manager Standalone License

If you have the standalone version of Loftware Label Manager (Design 32), the format for its license key is one of the following.

- Software key: **PW[32bit][1]**
- Hardware key: **RL[32bit][1]**

RFID License Requirements

In order to use Loftware's RFID capabilities, you must have the appropriate license. You may view your license from the Help | About window in Loftware Label Manager.

Note: To view the serial number of this license, select Help | About.

For Software Label Manager Products

The Software Label Manager products have the serial number of the product displayed in the status panel.

For Demo Mode

If you are evaluating the Software Software, "Demo" is displayed in the license pane. RFID functions, enterprise features, and client modules can be run in demo mode. The limitation of evaluation software is that data characters are changed on the printed label. For example, "Blue Widget" may print as "Slue Figes."

For more information on licensing, refer to the Software Web site, or contact the Software Customer Service Department.

Using Help | About to Check Your License

An alternate method of viewing license information is by invoking the **About** dialog from the **Help** menu. The informational dialog box shows the serial number, license, and other information such as whether or not a service pack has been installed, total number of device seats, the number of RFID printer seats, and LPS Clients.

Registering Software Programs

When you open Software Label Manager, Range Print, or On-Demand Print, the Software Product Registration dialog reminds you to go to the Software Web site to register your Software Product. Once you have registered, this dialog will no longer be displayed.

Related Information

License string settings are explained in the *License Information and Registration* section.

Settings in the license string that are required to use the Software RFID functionality are explained in the *Configuring RFID Devices* section of this guide.

Post-Installation Checks and Next Steps

Installation Log

Any errors encountered during the install process are logged to a file named software.log. You may be asked to send this log to our technical support staff if you call for help with an installation issue.

For both Software Print Server and Software Label Manager, this log is located in the following folder. Note that ProgramData is a hidden folder.

```
C:\ProgramData\Software Inc\Labeling\Logs
```

Exclude special files from antivirus scans

When using Software Print Server, it is critical that certain paths and files be excluded from your virus scan process. Otherwise, a virus scan can read and lock a required file while it is being processed. This locking can cause printing delays and potentially cause the LPS Service to time out or go into a unrecoverable processing state.

When LPS is running, the following tasks require that certain files not be locked.

- Reading files dropped into scan folders
- Moving files from folder to folder (such as WDDrop to OLEBD to Printed)
- Renaming processed files
- Housekeeping, such as deleting older printed files and files with errors

You should exclude the following files and folders from virus scanning. Subfolders of these folders should also be excluded from virus scanning.

- <Program Files folder>\Software Labeling\printr32.ini
- <Program Files folder>\Software Labeling\printr32.cfg
- <Program Files folder>\Software Labeling\Images
- <Program Files folder>\Software Labeling\Layout
- <Program Files folder>\Software Labeling\Serial (if used)
- <Program Files folder>\Software Labeling\WDDrop, as well as any other LPS scan paths that you have defined

Configure printers and labels

Note: If you want to use the Software Label Manager from a computer other than where the LPS is installed, it is necessary to install it on a separate computer. Software recommends that additional copies of Software Label Manager be used for design purposes.

Configure your printers from Software Label Manager on the server. It is helpful to keep the following points in mind as you do this.

- Hardware DIP switch settings - See the owner's manual for your printer.
- Settings for direct thermal or thermal transfer, stock type, and baud rate where applicable
- Print head temperature settings
- Label stock calibration tests
- Label home position set and tested
- Computer port (if connected to a port) communication tests to printer - See Manufacturer Installation Guide for examples. Software recommends that all printers have a TCP/IP address.

Configure LPS Service

By default, the LPS Service is installed with the Administrator account as the primary Manager of the service. This account can be changed if desired. Changing this account can be done through the Service Control Manager. The service is configured to start manually by default but can be set to auto-start at system boot.

Review LPS account privileges

If you are running from the Administrator account, no action is required. If, however, you are running from a custom defined account (not Administrator):

- Account must have administrative rights to the local server.
- Account must have administrative rights to the directory receiving requests.
- Account must have the right to logon as a service.

Review LPS Configuration

Make sure that your scan folders, file name extensions, and LPS settings are correct for your implementation.

Related Information

Refer to the **Configuring the LPS** section in the *Software Print Server User's Guide* for detailed configuration instructions.

Configure network file shares

Ensure you have established all proper file share permissions for all external users who are writing and moving files that are picked up by the file interface of the LPS. A hidden share called **loftware\$** is created during the installation process. See your system administrator for more information on file share permissions. The **loftware\$** share may not be created during installation if your security settings prevent it. If this is the case, you can manually create the share by right clicking the Software Labeling directory in Explorer and selecting **Sharing**.

Create test labels/tags and test files for the LPS

See the *Software Label Manager User's Guide* for information about creating labels and tags.

1. Configure your printer using Software Label Manager.
2. Create a simple label/tag with two variable fields.
3. Ensure label specific options are set correctly for your printer.
4. Test print a label from Software Label Manager to be sure that the printer and the LPS are configured properly.

After the label is configured properly

1. Create a simple PAS, CSV, XML, or JSON file.
2. Be sure to start the LPS service.
3. Specify the printer name or number in the file.
4. Ensure your label format is on the system that is running the LPS.
5. Send your PAS, CSV, XML, or JSON file to the scan directory you specified. The LPS should pick it up and print the request.

Label Versioning

Label Versioning is the tracking and numbering of the changes made to individual labels.

Considerations

- Label Versioning in LPS and LLM is designed to be a single-user system.
 - Files are not locked during editing.
 - There is no automatic merging capability.
- Images cannot be separately version controlled in LPS or LLM, though they can be embedded within labels.
- Label Versioning is a system-level setting.
- Practically, each version of a label is a complete copy of that label stored in a hidden folder. Because of this, the amount of disk space required for labels will increase. This space requirement is greater if you embed images within labels.

See the *Loftware Label Manager User Guide* for more information on using Label Versioning and embedding images.

Using with Existing Labels

With Label Versioning on, when you save previously created labels, the version number increments from the last version saved. For example, if you saved five revisions of a label prior to turning on Label Versioning, when you next save the label, the version number will be six. You can view information associated with the previously created version from the Label Setup and Properties dialog.

Promotion

Promotion is the act of moving a label from one version-controlled system to another version-controlled system. One example is moving a new label into a Production environment (LPS) from a Development environment (Design).

In order to promote a label, you must be logged into the system you are promoting from as a user with access to the folder to which you are promoting. Typically this means that the user promoting should be a member of the `Loftware_Group` user group on the system to which the label is being promoted.

A command line utility, [LWVersionUtility](#) is available. This utility may help you automate the promotion process.

Instances

Instances are the different hardware/software environments that you use to create, manage, and print labels. With Label Versioning on, you Promote labels to move them from one instance to the next. Typical instances or environments include:

- **Development** - where labels are created and customized.
- **Test** - where new and upgraded labels are tested with sample data. A test environment may also be used to test the Promotion process.
- **Quality** - where labels and process are tested with data, software, hardware and configurations similar to that of the Production instance.
- **Production** - where final labels are made available for printing.

Note: You can configure and use up to 20 instances.

Instance Checking

You can restrict labels from printing on instances other than one the label is configured for.

If you create labels with Label Versioning on and then change the InstanceName, if instance checking is on, you will no longer be able to print the labels saved with the previous Instance Name from the current environment. You must open and save the label after the Instance Name change or Promote a new version from a different instance.

For Example

When Label Versioning is turned on, the current instance (InstanceName) is called Default. If you change the name to Development, any labels created while the InstanceName was Default will not be printable until they are reopened and saved or a new version is promoted.

Enable Label Versioning

Label Versioning is turned on and configured using the LWVersion.ini file.

1. Access the configuration file from the **Start** menu under Software Labeling.
By default: C:\ProgramData\Software Inc\Labeling\Config
2. Open LWVersion.ini.
3. Change `AllowLabelVersioning` to 1
4. If you want the configured instance of a label to be checked against the instance the label is being printed on, set `InstanceNameChecking` to 1.
5. Name the current instance by entering an `InstanceName`.
6. Define the Instances in your configuration by entering instance names and paths under `[Instances]`.

7. Uncomment (remove the semicolon) the [Instances] heading and any configured instances.
8. Save the file.

For Example

The following file would configure a system to allow Label Version and enforce Instance Name Checking. The system would be called Development, and labels from the system would be promotable to a Testing and a Production environment.

Example LWVersion.ini

```
; Set AllowLabelVersioning to 1 to enable Label Versioning
[Version]
AllowLabelVersioning=1

; Set InstanceNameChecking to 1 to validate the label instance against the
local instance before printing.
; You might use this to prevent Development labels from printing on
Production.
; InstanceNameChecking setting will be honored only when
AllowLabelVersioning is set to 1
InstanceNameChecking=1

; InstanceName is used to identify the local instance.
; For example, the LLM/LPS in a test environment would be identified by
InstanceName=Test
; Change the following InstanceName from Default to the appropriate name for
this instance.

[Instance]
InstanceName=Development

; Instances provide the InstanceName and label path to which labels from thi
; instance can be promoted.
; These names will appear on a sub menu when you select File | Promote.
; Instances is NOT typically set in on a Production (final destination)
instance.
; Uncomment the following example, change the name and path, and add any
; additional instances to which this
; instance can promote.

[Instances]
Testing=\\LPS_Server_Test\software$\LABELS
Production=\\LPS_Server\software$\LABELS
```

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This section describes the Loftware utilities and functions that can help you configure, troubleshoot, and manage your Loftware Print Server or Loftware Label Manager system.

- "Loftware Version Utility" on page 53
- "WDPing Diagnostic Utility" on page 54
- "Loftware Reporter Utility" on page 60
- "Backup and Restore Utility" on page 67
- "Logging" on page 72
- "Application Event Log" on page 78
- "Emergency Mode" on page 80

Loftware Version Utility

The Loftware Version Utility (LWVersionUtility) is a command line tool used to promote Loftware labels from the current instance to another instance. For example, from a Development environment to a Production environment.

LWVersionUtility uses the Instance configuration information set in LWVersion.ini. For more information, see "Enable Label Versioning" on page 50.

Options

Original

Specifies the path to the file to be promoted. UNC paths may be used.

Syntax

```
-Original="<Label Location>"
```

Instance

Specifies the instance to which to promote the label.

Syntax

```
-Instance="<InstanceName>"
```

RevisionComments

Specifies comments to include with this version of the label.

Syntax

```
-RevisionComments"<Comment text>"
```

Promote a Label From the Command Line

See the *Software Label Manager User Guide* for information on promoting labels from within Design.

1. Open a Command Prompt and navigate to the Software Labeling folder.

```
C:\Program Files (x86)\Software Labeling>
```

2. Use the lwversionutility command to promote a label. The following example will promote a label named label1.lwl from a local development instance to production with a comment.

```
C:\Program Files (x86)\Software Labeling>lwversionutility -
original="C:\Program Files (x86)\Software Labeling\Labels\label1.lwl" -
instance="Production" -revisioncomments="Ready for production printing"
```

The following appears upon successful promotion

```
INFO: Label promotion process started.
INFO: Reading source file..
INFO: Started reading destination file..
INFO: Updating the destination file label1.lwl with Revision 1
SUCCESS: Label promoted successfully.
```

WDPing Diagnostic Utility

The WDPing utility allows you to check the status of your printing systems from across the network without disturbing your labeling system in any way.

This utility is installed in the <Program Files folder>\Software Labeling subdirectory by default. When invoked from a command prompt, it displays information on screen based on the parameters supplied. Issuing the WDPing command with no parameters displays the usage syntax parameters.

To use WDPing

1. Open a Command Prompt.
2. Type "cd <Program Files folder>\software labeling". Press **Enter**.
3. Type "wdping -i [LPS IP Address]"

Note: You can type -? to display all the useable parameters in the Software Diagnostic Utilities. Command line options do not need to be in any specific order.

Example

"wdping 172.16.0.9 -u" is the same as "wdping -u 172.16.0.9"

Note: Many of the following settings are used by Loftware technicians for troubleshooting purposes. End users of the Loftware Print Server commonly use "Broadcast" and "Status."

WDPing parameters

Note: If, for security reasons, you do not want your server to respond to a ping from one of these utilities or a broadcast from an LPS client program, call Loftware Technical Support for assistance with this advanced option.

Broadcast (-b)

Broadcasts a "find LPS servers" message across the network and returns the ComputerName and IP Address of any Loftware servers that are currently running.

Command Syntax

```
WDPing -b
```

Output

```
Server SHIPPING located at 172.100.0.1
Server RECEIVING located at 172.100.0.2
```

Status (-s)

Sends a status request to a specific LPS server identified by an IP Address. This IP address is obtained from performing a "-b" broadcast as mentioned previously. If the server is running, the following is returned:

- Round trip time for the LPS response
- The computer name where the LPS resides
- The number of currently connected On-Demand Print Clients
- The High Water Mark (HWM) indicating the maximum number of clients connected at any one time since the LPS service was started.

Command Syntax

```
WDPing -s 172.100.0.1
```

Output

```
Response received. Roundtrip time 19 Milliseconds.
SHIPPING has 5 connected clients. HWM is 11
```

Client Licenses (-i)

Retrieves the Client Licenses in use by the Loftware Print Server. You must include the IP address of the server.

Command Syntax

```
WDPing -i 172.100.0.1
```

Output

```
LPS Client License report
Client License Type: Standard LPS Clients
Max Clients: 2
In Use : 0

Client Use Count
=====
=====

Client License Type: Java Connector Clients
Max Clients: 2
In Use : 0

Client Use Count
=====
=====

Client License Type: Oracle Connector Clients
Max Clients: 2
In Use : 0

Client Use Count
=====
=====

Client License Type: Software Connector for SAP Clients
Max Clients: 2
In Use : 0

Client                               Use Count
=====
=====

Client License Type: Web Service Licenses
Max Clients: 2
In Use : 0

Client Use Count
=====
=====

Client License Type: LWA Session User Licenses
Max Clients: 2
In Use : 0

Client Use Count
=====
=====
```

Client Information (-c)

Sends a request for Client information to a specific LPS service identified by an IP address.

Command Syntax

```
WDPing -c 172.100.0.1
```

Output

ID	ComputerName	User	Address	Port	Last Activity
00000001	SHIP_PC_1	SHIPPER1	172.100.0.100	39172	19990924 11:00:18

The ID is assigned to the Client by the LPS when the client connection is initiated. The Computer Name is the name of the computer where the client is running. User is the user currently logged onto the Client computer. Address is the IP Address of the Client, Port is the TCP port connection for the server and the client, and Last Activity is generally the time that the client last printed a label.

CPU Usage (-u)

Sends a request for CPU Usage information to a specific computer running the LPS service. If the service is running, the following information is returned:

Command Syntax

```
WDPing -u 172.100.0.1
```

Output

```

Administrator: Command Prompt
Service start: 10/13/2011 12:18:47
Running Time : 1 Days, 05 Hours, 06 Minutes, 24 Seconds
User Time    : 000:00:00
Kernel Time  : 000:00:01
CPU Usage    : 000:00:02
Avg CPU Usage: 0.00%

Thread
=====
BPTHread
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
DirMgrThread
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
DIR1
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
SockSvrThread
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
WorkerThread 0
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
WorkerThread 1
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
WorkerThread 2
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
WorkerThread 3
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
WorkerThread 4
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
DGRAMThread
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
PurgeThread
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
StatusManagerThread
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
StatusInterfaceThread
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
CWDMemLogThread
      (User) 000:00:00
      (Kernel) 000:00:00
      (Total) 000:00:00
      % of CPU 0.00
      % of Proc 0.00
    
```

Note: Most of the returned settings are for technician use only.

Default Response time (-w)

Used in conjunction with other WDPing command line parameters, this sets the time in seconds that the WDPing utility waits for a response from the LPS service. The default value is 2 seconds. Under normal circumstances, a response is received well within the default time. The only time you may need to increase the default value is if network traffic is heavy.

Command Syntax

```
WDPing -s 172.100.0.1 -w10
```

Thread Status (-t)

Note: This setting is for technician use only.

This sends a request for thread status to a specific LPS server identified by the IP Address supplied on the command line. If server is running, the following information is returned:

Command Syntax

```
WDPing -t 172.100.0.1
```

Output

```
BPThread Running
DirMgrThread Running
DIR1 Running ( 0 Files Processed)
SockSvrThread Running
WorkerThread 0 Active IDLE [1] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] {1}
WorkerThread 1 Active IDLE [1] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] {0}
WorkerThread 2 Active IDLE [1] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] {3}
WorkerThread 3 Active IDLE [1] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] {2}
WorkerThread 4 Active IDLE [1] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] [0] {3}
DGramThread Running
LogThread Inactive
PurgeThread Running (HK-OFF No Purges to Report)
(Purge Count: 0)
StatusManagerThread Running
StatusInterfaceThread Running
CWDMemLogThread Running
```

Output Capture (-o)

Used in conjunction with other WDPing command line parameters, this specifies a file name for capturing the data that is returned by the various WDPing requests. If no file name is specified, data is captured in “<Program Files folder>\Loftware Labeling\wdping.txt”.

Command Syntax

```
WDPing -s 172.100.0.1 -oLPS.LOG
```

Memory Use (-m)

```
Memory reset feature is enabled.
Interval : 24.0 Hours
Threshold : 0.0 KB
Factor : 2.00
Reset Count : 0
PID ProcessName Mem Usage VM Size Total
=====
432 WatchDogNT.Exe 14.4 MB 4.5 MB 18.9 MB
2636 LLMWBP32.EXE 23.6 MB 16.4 MB 40.0 MB
```

Loftware Reporter Utility

The Loftware Reporter Utility (LWReporter) is a command line tool used to gather and report information about your Loftware Print Server or Loftware Label Manager system. LWReporter creates separate XML files that describe each file or component of your system.

Reports Folder

The XML files generated by LWReporter are output to the <Program Files Folder>\Loftware Labeling\LPSReports folder by default. The output location can be changed using the -output option.

XSD Files

The LWReporter includes XML Schema Documents (XSD) that define the elements and information contained in the various XML files generated. You can use the XSD files to create your own XSLT files. XSLTs can be used to convert the LWReporter XML output into customized reports in almost any format including text, PDF, CSV, HTML, or JSON. The XSD files are located within the <Program Files Folder>\Loftware Labeling\LPSReports folder.

For more information on XSLT, see the [XSLT Standard](http://www.w3c.org) at w3c.org and learn how to use [XSLT Transformations](http://www.w3schools.com) at w3schools.com.

To use LWReporter

LWReporter is a command line utility.

1. Open a Command Prompt window.
2. Run the following command to navigate to the **Loftware Labeling** folder:

```
cd\<Program Files folder>\Loftware Labeling
```

Example

```
cd\Program Files (x86)\Loftware Labeling
```

3. Enter `lwreporter` followed by inputs or options as described in the following sections.

Note: You can type `-?` to display all the useable parameters of the Loftware Reporter Utility. Command line options do not need to be in any specific order.

Reporter Inputs

LWReporter can create XML reports on the following Loftware Print Server or Loftware Label Manager components. The Reporter Utility may fail processing certain files. If the file cannot be opened in Design, then it cannot be processed using LWReporter. It reports the names of files that cannot be processed. Non-Loftware file types are ignored by LWReporter.

Note: The default locations specified in this section may be different if you have installed to a different location or changed the location via Options | File Locations in Loftware Label Manager Design.

Configurations

Locates and reports the settings in the Loftware Print Server and Label Manager INI files and the Windows registry. An XML file is created that corresponds with each INI file, and a single file is created with all the registry entries inserted by the Loftware Print Server.

Syntax

```
lwreporter -configurations
```

Field Lists

Locates and reports the field list (LST) files available in the <Program Files Folder>\Loftware Labeling folder.

Note: This location cannot be changed using Options | File Locations.

Syntax

```
lwreporter -fieldlists
```

Labels

Locates and reports the label (LWL) files you have created at the root of the <Program Files Folder>\Loftware Labeling\LABELS folder.

Syntax

```
lwreporter -labels
```

Layouts

Locates and reports the label layout (LWY) files located in the <Program Files Folder>\Loftware Labeling\Layouts folder.

Syntax

```
lwreporter -layouts
```

Queries

Locates and reports the query (LWQ) files you have saved from the Range Print Query Assistant to the <Program Files Folder>\Loftware Labeling\query folder.

Syntax

```
lwreporter -queries
```

Serials

Locates and reports the serial (LWS) files located in the <Program Files Folder>\Loftware Labeling\Serial folder.

Syntax

```
lwreporter -serials
```

Templates

Locates and reports the template (LWT) files located in the <Program Files Folder>\Loftware Labeling\Templates\General folder.

Syntax

```
lwreporter -templates
```

Printers

Locates and reports the configured printers including printer options and connection information.

Syntax

```
lwreporter -printers
```

Import Printers

Validate the device information in the **printr32.xml** file to be imported to LPS and LLM. The default location for this file is **Loftware Labeling\PrinterImports**. For more information, see *Importing Multiple Devices* in the *Loftware Label Manager User Guide*.

Syntax

```
lwreporter -importprinters
```

Reporter Options

The following options can be used with the LWReporter command:

Commit

Import the device information in the **printr32.xml** file to LPS and LLM. The default location for this file is **Loftware Labeling\PrinterImports**. For more information, see *Importing Multiple Devices* in the *Loftware Label Manager User Guide*.

Syntax

```
lwreporter -importprinters -commit
```

Filter

Sets a wildcard-supported string to match against input files.

Syntax

```
-filter=<filter text>
```

Example

```
lwreporter -labels -filter=label*.lwl
```

Output

```
Processing... C:\Program Files (x86)\Loftware Labeling\labels\Label1.lwl
Processing... C:\Program Files (x86)\Loftware Labeling\labels\Label2.lwl
Processing... C:\Program Files (x86)\Loftware Labeling\labels\Label3.lwl
Processing... C:\Program Files (x86)\Loftware Labeling\labels\Label5.lwl
```

Input

Sets a specific location to report on. By default LWReporter uses the locations defined in Options | File Locations.

Syntax

```
-input=<location>
```

Example

```
lwreporter -labels -input=labels\region1
```

Result

```
Processing... C:\Program Files (x86)\Loftware
Labeling\labels\region1\Label1.lwl
Processing... C:\Program Files (x86)\Loftware
Labeling\labels\region1\Label2.lwl
Processing... C:\Program Files (x86)\Loftware
Labeling\labels\region1\Label3.lwl
Processing... C:\Program Files (x86)\Loftware
Labeling\labels\region1\Label5.lwl
```

Output

Sets the location where the XML files are created. This can be a full or relative path.

Note: When the Configurations or Printers inputs are used, only the Output option is available.

Syntax

```
-output=<location>
```

Example

```
lwreporter -labels -output=LPSReports\labels
```

Result

```
An XML file is created in the <Program Files Folder>\Software Labeling\LPSReports\labels folder for each of the LWL files in the <Program Files Folder>\Software Labeling\LABELS folder.
```

Recursive

Repeats the report on all sub folders within the default or specified Input.

Syntax

```
-recursive -output=<location>
```

Note: You must use the -output option with the recursive option. You can specify the default location, but it must be specified, or LWReporter will be unable to process the files.

Example

```
lwreporter -labels -recursive -output=LPSReports\All Labels
```

Result

```
An XML file is created in the <Program Files Folder>\Software Labeling\LPSReports\All Labels folder for each of the LWL files in the <Program Files Folder>\Software Labeling\LABELS folder and sub folders.
```

Verify

Confirms the existence and validity of the input file or files without generating corresponding XML files.

Syntax

```
-verify
```

Example

```
lwreporter -labels -verify
```

Using this input and option you can identify corrupt labels that cannot be opened.

Result

```
Processing... C:\Program Files (x86)\Software Labeling\labels\Label1.lwl
Processing... C:\Program Files (x86)\Software Labeling\labels\Label2.lwl
Processing... C:\Program Files (x86)\Software Labeling\labels\Label3.lwl
Processing... C:\Program Files (x86)\Software Labeling\labels\Label5.lwl

Reporting Errors:
Unable to process file: C:\Program Files (x86)\Software
Labeling\labels\Label6.lwl

Total Number of 'Labels' processed: 6
    Failed: 1
    Successful: 5
```

Examples

Reporting on the entire Template Folder

```
lwreporter -templates -input=C:\Program Files (x86)\Software
Labeling\Template -recursive -output=\LPSReports\template
```

This command scans the entire <Program Files Folder>\Software Labeling\Template folder, creates an XML file for each template found, and outputs the files to a sub folder under LPSReports.

Note: The input option is used to move to the root of the Template folder which is different than the default location. The recursive option used to report on all sub folders must be used with the output option.

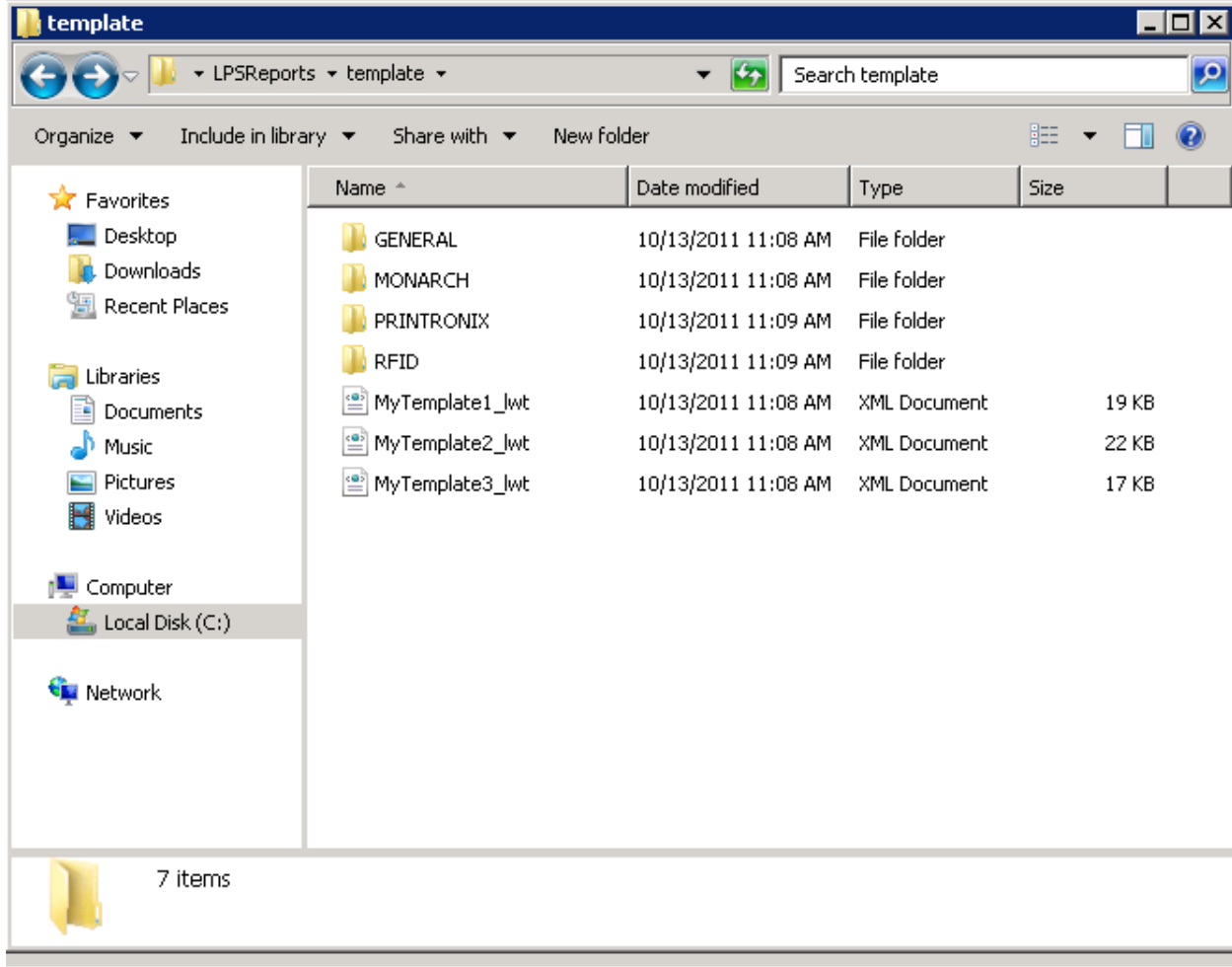


Figure 4.1: View of LPSReports\template folder after running lwreporter with Templates input

Reporting on Labels Containing Specific Text in a Specified Folder

```
lwreporter -labels -filter="*east" -input="C:\Regional Labels" -recursive -
output="LPSReports\East Region Labels"
```

Result

```

Starting generation of Loftware Reports
This may take a few minutes...

Processing... C:\Regional Labels\LabelEast1.lwl
Processing... C:\Regional Labels\LabelEast2.lwl
Processing... C:\Regional Labels\LabelEast3.lwl

Reporting Errors:

Total Number of 'Labels' processed: 3
    Failed: 0
    Successful: 3

```

This command scans the C:\Regional Labels folder and sub folders for any labels that contain the word "east" within the label name. It then creates an XML report for each of the labels found and outputs the files to the C:\<Program Files Folder>\Loftware Labeling\LPSReports\East Region Labels folder.

Backup and Restore Utility

LPS_SYNC.EXE is designed to synchronize your LPS production configuration files and those of a backup, making the most recent backup files available when the need arises. It can be run from a command line to back up your LPS configuration files and then restore these files as required. You can back up files on Server A and restore them on Server B, keeping Server B in "sync" with Server A. How often you back up your system is proportional to how often you change its configuration settings. It can be run as a scheduled task, as described later.

Be aware that this utility and the procedures discussed in this section are a low tech / low cost means of keeping two server configurations synchronized.

Important Notes about the Backup and Restore utility

Important! Loftware strongly recommends that you back up all production LPS systems with a third party back up solution.

The Backup and Restore utility (LPS_SYNC.EXE) is only available with an LPS license.

- Restored settings will not take effect until the LPS is restarted. It is best to leave the LPS shutdown on the backup server until it is needed.
- The Backup and Restore utility will NOT back up your label data. Files that are backed up are listed below. You may want to consider having the backup and restore servers accessing label, serial, and image files on a central network drive.
- The Backup and Restore utility does not support UNC paths. Use a mapped drive if you are backing up or restoring from a network or a shared resource.

- If you are restoring from one server that is remapped to the registry to a second server that is not remapped, the second server will automatically be remapped. This will cause loss of any settings set in the ini files.
- If you are restoring to a server that uses mapped drive designations or paths different from the backup server, you will have to manually correct this.
- We strongly recommend that you use Backup and Restore on servers with the same operating systems.
- Do not use Backup and Restore with Clustering.
- Do not use Backup and Restore with Terminal Servers running LPS.
- We strongly recommend that the LPS backup server is installed in the same language as the production server.

Mixed Versions

Backup and Restore will issue a warning when an attempt is made to back up on one version and then restore on a different version.

- Backing up and restoring from one major version to another (for example, 7.1 and 8.3) is NOT supported.
- Backing up and restoring within the same major version (for example, 8.1 and 8.3) is allowed after the warning is displayed and you choose to restore to a different version. However, while this is possible, it is discouraged. We strongly recommend backing up and restoring of matching versions only.

Configuration

- The default location for the resulting archive file is `Software Labeling\backups`. You may override the default by specifying a different folder. Please see the table in the Using Backup section.
- The default location for restored files when the `/r` switch is used is the Software Installation directory (`\Software Labeling`). The default location for restored files when the `/u` switch is used is `Software Labeling\backups\safe restore`. You may override the default by specifying a different folder. Please see the table in the Using Restore section.
- You may specify a filename to back up to or restore from. Otherwise, Software naming conventions will apply. Please see the tables in the next sections.
- The application `LPS_Sync.exe` runs from the command line using parameters described in the tables below.
- The application saves backups using the LPZ extension.

The following files are backed up:

- All LPS INI files, including but not limited to: `DTagCfg.ini`, `llmcluster.ini`, `llmgrid.ini`, `llmthred.ini`, `llmwbp32.ini` (for any defined Printer Groups), `llmwclnt.ini`, `llmw32.ini`, `llmwod32.ini`, `llmwrp32.ini`, `lps_sync.ini`, `lwtabinfo.ini`, `lwversion.ini`, `printr32.ini`

- User database entries: user32.lsv
- Printer Group files: instance32.id2, instance32.ld2
- Device configuration files: printr32.cfg, printr32.lni, printr32.lfg
- Loftware, Inc.reg and WatchDogNT.reg (note that a restore switch parameter can be used with LPS_Sync so that registry files are not automatically restored. Instead, a .bat file will be created which, when run, will ask you if you wish to restore the registry files. See the /u and the /g parameters in the Using Restore section of this topic for more information.)

Using Backup

Before using the backup feature of LPS_Sync, make sure that the LLM Device Configuration grid is not open. To use the backup feature of this utility, from the command line, run LPS_Sync.exe followed by a command line parameter, described in the following table:

Backup Command Line Parameter	Functionality
/b	Backs up files listed in the previous section to an .LPZ file. The default location for the resulting archive file is Loftware Labeling\backups. You may override the default by specifying a different folder. See examples in the next table.
/f"path\filename"	Optional. Allows the user to configure a path and file name for the resulting archive.
/s	Optional. Silent mode – No on screen messages are logged.
/l	Optional. This creates a log; default is Loftware Labeling\backups\logs\LPS_Sync.log
/y	Optional. Override questions with 'yes' as the default response
/h (or /?)	Displays options.

Following are examples of using command line backup parameters with LPS_Sync.exe

Backup Scenario	Command	Result
Back up to default path using default naming convention.	LPS_Sync /b	File is created as Lps_Sync_200608011055.lpz in Loftware Labeling\backups, where 200608011055 is the date and time.
Back up to default path using unique naming convention.	LPS_Sync /b /f"ABCInc062606.lpz"	File is created as ABCInc062606.lpz in Loftware Labeling\backups\.
Back up to unique location using unique naming convention.	LPS_Sync /b /f"c:\temp\ABCInc062606.lpz"	File is created as ABCInc062606.lpz in c:\temp\ folder.

Backup Scenario	Command	Result
Back up to unique location using default naming convention.	LPS_Sync /b /f"c:\temp\"	File is created as LPS_Sync_200608011055.lpz in c:\temp\ folder.
Back up to default path using default naming convention – silent mode	LPS_Sync /b /s	The result of this command is similar to the first scenario previously mentioned. The difference is that no on screen messages will be displayed.

Using Restore

Before restoring from a backup, shut down all LPS applications. To use the restore feature of LPS_Sync, from the command line, run LPS_Sync.exe followed by a command line parameter, described in the following table:

Restore Command Line Parameter	Functionality
/r	Restores a previously backed up lpz file. The default location when /r is used is the Loftware install folder. You may override the default by specifying a different folder where the files are sent to. See the example in the next table.
/f"path\filename"	Allows the user to configure a path and/or file name to restore from.
/l	Optional. This creates a log; default is Loftware Labeling\backups\logs\LPS_Sync.log
/u"path\"	This will unzip the files to the designated directory without restoring system files. Instead, registry files are placed in the unzip directory. A file called "registry_restore.bat" will be created in the directory where the files are extracted to. When run, the bat file will ask you if you wish to restore your registry files. If you respond with Yes, LPS_SYNC.EXE is run with a /g against the same archive that the safe restore was run on.
/g	This will safely restore only the registry from an archive. This uses the most recently created archive in the default archive directory, unless you specify a different archive using the /f option.
/s	Silent mode – No on screen messages are logged.
/y	Override questions with 'yes' as the default response
/h (can also use /?)	Displays options

Following are examples of using restore command line parameters with LPS_Sync.exe.

Restore Scenario	Command	Result
Restore from default path	LPS_Sync /r	If there is more than one LPZ file in the default path, the most recent backup is restored.
Restore a uniquely named backup file (.lpz) from default path	LPS_Sync /r /f"ABCInc062606.lpz"	The contents of file ABCInc062606.lpz from default path are restored
Restore a default backup file from the default location to a unique location	LPS_Sync /r"c:\temp\"	The contents of the most recent lpz in the default location are restored to "c:\temp\".
Restore a uniquely defined backup file from a unique location to a unique location.	LPS_Sync /f "c:\temp\ABCInc062606.lpz" /r "c:\newloc\"	The contents of c:\temp\ABCInc062606.lpz are restored to the c:\newloc\ folder.
Restore from default path and file name – silent mode	LPS_Sync /r /s	The result of this command is similar to the first scenario above. The difference is that no on screen messages will be displayed.
Safe restore from default path; registry files not restored.	LPS_Sync /u	Most recent backup is restored to Loftware Labeling\backups \safe restore; a file called registry_restore.bat is created in the same folder. You will have to run this file to restore your registry files.

If the LPZ file to restore is not specified and there is more than one LPZ file (in the default or in the specified path), the most recent backup file will be restored.

Running Backup / Restore on a Schedule

You can run LPS_SYNC on a scheduled basis. For example, you can schedule a recurring backup on Server A and then restore the backup file to Server B also on a schedule to keep the two systems in "sync." There are different ways of doing this, two of which are demonstrated below:

Use the Scheduled Tasks option within Windows and lps_sync.exe

1. Schedule a recurring Backup on Server A.
An example command requiring no user interaction: LPS_SYNC.EXE /b /l /y
2. Schedule a recurring Restore on Server B that "points" to the backup file on Server A.
An example command: LPS_SYNC.EXE /r /f"X:\\" /l /y (where X: is a mapped drive to the backups folder on Server A)

Use the Windows AT command from the command line

1. Schedule a recurring Backup on Server A.

For Example

```
32-bit: AT 23:00 /every:M,W,F C:\Program Files\Software Labeling\lps_sync.exe /b /l /y
```

```
64-bit: AT 23:00 /every:M,W,F C:\Program Files(x86)\Software Labeling\lps_sync.exe /b /l /y
```

Note: The above example would perform an lps_sync Backup command every Monday, Wednesday and Friday at 11:00 PM, creates a log and requires no user input.

- Schedule a recurring Restore on Server B that points to the backup file on Server A.

For Example

```
32-bit: AT \\<backup computername> 02:00 /every:T,Th,S C:\Program Files\Software Labeling\lps_sync.exe /r /f"X:\" /l /y
```

```
64-bit: AT \\<backup computername> 02:00 /every:T,Th,S C:\Program File(x86)\Software Labeling\lps_sync.exe /r /f"X:\" /l /y
```

Note: The above command performs an lps_sync Restore command every Tuesday, Thursday and Saturday at 02:00 AM, creates a log and requires no user input.

The previous examples show that the LPS configurations of two servers can be synchronized on a scheduled basis based on your requirements. One usage would be to back up the production server and restore to the test server, in essence, synching the configurations as often as desired.

Related Information

Consult the *Cluster Installation* section of this guide and our Web site information on more sophisticated methods of fault tolerant setups including load leveling, automatic synchronization, and automatic failover.

Logging

The logging features of the LPS can be used for debugging purposes. It is important to note that, when run as a service, the LPS does not have access to on-screen dialog boxes for displaying error messages. Once your system is in production, this is not an issue. However, during the development of your system, it is important that error and warning messages can be read. Logging assists you in doing this. The following are the types of logging available:

- Event Logging
- LPS Watchdog Logging
- Performance Data Logging

Note: System performance can be affected by the amount of information that you log and the frequency that you log the information. Generally, as the quantity and frequency of logging increase, the Software Print Server performance decreases.

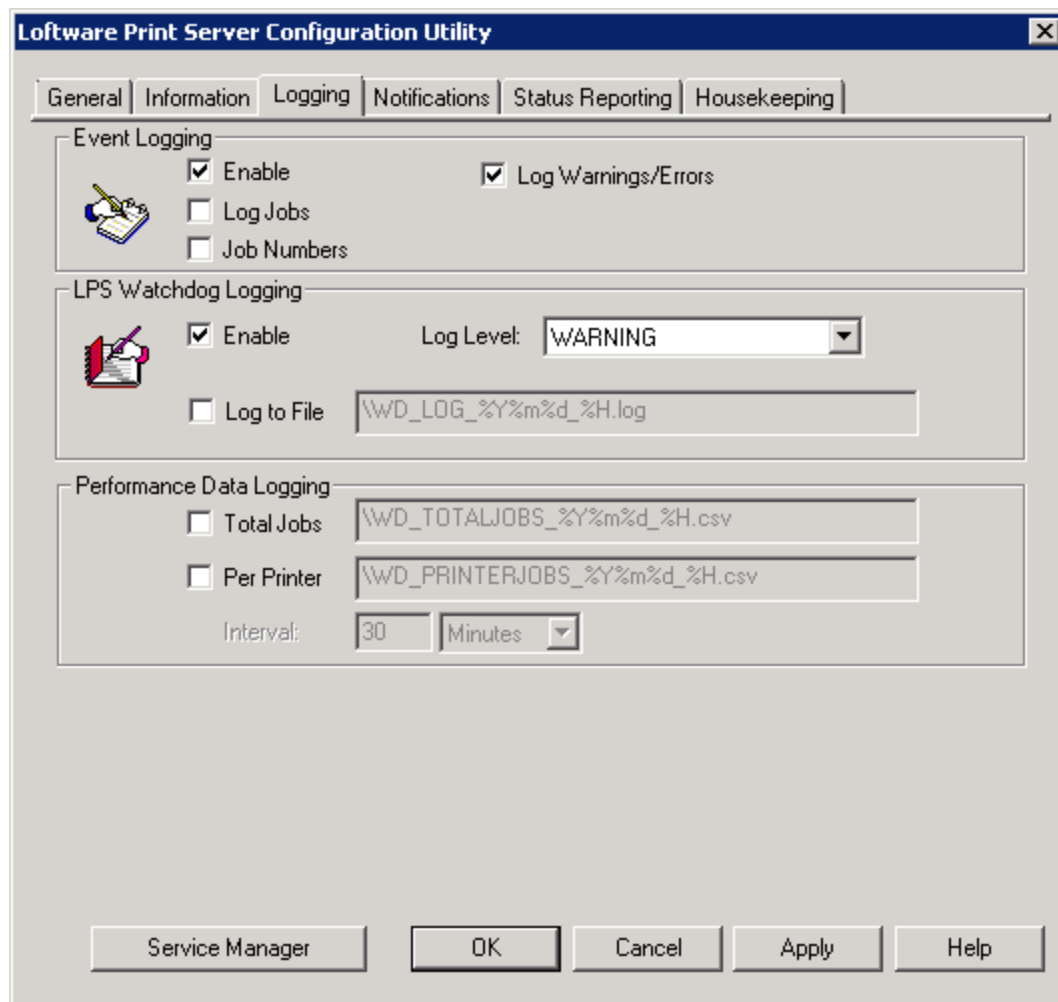


Figure 4.2: Event Logging Tab

Viewing Log Files

Log files are stored in the Software Labeling Logs folder which varies by operating system. You can access your log files from the **Start** menu under Software Labeling.

Event Logging Section

Event logging is useful for your own monitoring and debugging efforts. This is helpful when running the LPS as a service because a service does not display messages on the desktop.

The log can be accessed through the Windows Event Viewer. Items are logged to the event log whether you are running in service or interactive mode.

Option	Description
Enable	Enables the logging of informational events to the event log. The exact type of information written to the log is determined by the log command settings described below. Remember, error and warning messages are always written to the log regardless of whether or not this setting is on. This setting also allows access to information about who last changed the configuration of the LPS and when this change was made.
Log Jobs	The log Commands, CSV, and PAS settings write an entry to the event log each time one of these files is successfully processed. Once your labeling system is operational, it is recommended that these settings be turned off. A quick way to do this is to simply clear the Enable setting. The other settings are remembered for the next time you decide to enable logging.
Job Numbers	The printing sub-system returns a unique job number back to the LPS for every submitted job. Turn this option on if you wish these numbers to be recorded in the log. Note: Make sure that the maximum size limit of the Event Viewer is set appropriately, so that the log does not continue to grow until all disk space is consumed. You can set the maximum size limit in the Event Viewer itself.
Log Warnings/Errors	All warning and error messages are written to the event log.

LPS Watchdog Logging Section

Interactive Logging is only applicable when the LPS has been started in Interactive mode from the **Start** menu. The selections made here are displayed real time in the status window of the LPS. If this setting is disabled, a minimal number of top-level messages are still displayed. We recommended that **On Screen Logging** be enabled with the appropriate settings described below. Only enable the settings that you are interested in. This reduces the amount information you must sort through.

Option	Description
Enable	Enables the logging of informational events to the Software Print Server Interactive window
Log to file	Logs the information displayed in the Software Print Server Interactive window to a file. See the following Formatting and Locating Log Files section.
Log Level	Sets the type of log messages to include. <ul style="list-style-type: none"> ■ DEBUG ■ INFO ■ WARNING ■ ERROR

Log Levels

Log Level	Information Logged
DEBUG	Includes everything in INFO, WARNING, and ERROR plus the following: <ul style="list-style-type: none"> ■ Verbose Security ■ Display Files ■ Client Debug ■ Client Connections ■ Client Audit ■ Client SQL
INFO	Includes the following information. <ul style="list-style-type: none"> ■ Log Jobs ■ Checkpoint ■ Settings/Configurations ■ Job Numbers ■ Warnings and Errors
WARNING	Includes ERRORS.
ERROR	Includes just application errors.

Formatting and Locating Log Files

You can set the format for your On Screen and Performance Data log files using formatting codes described in the following tables.

For Example

The **Log to File** setting, `\\WD_LOG_%Y%m%d_%H.log`, creates a file called "WD_LOG_20100922_11.log" in the Logs | 2010 | 09 | 22 folder at 11:30 AM on September 22, 2010.

The following table contains data from the Microsoft MSDN Library.

Formatting Code	Formatting Description
%a	Abbreviated weekday name
%A	Full weekday name
%b	Abbreviated month name
%B	Full month name
%c	Date and time representation appropriate for locale
%d	Day of month as decimal number (01 – 31)

Formatting Code	Formatting Description
%H	Hour in 24-hour format (00 – 23)
%I	Hour in 12-hour format (01 – 12)
%j	Day of year as decimal number (001 – 366)
%m	Month as decimal number (01 – 12)
%M	Minute as decimal number (00 – 59)
%p	Current locale's A.M./P.M. indicator for 12-hour clock
%S	Second as decimal number (00 – 59)
%U	Week of year as decimal number, with Sunday as first day of week (00 – 53)
%w	Weekday as decimal number (0 – 6; Sunday is 0)
%W	Week of year as decimal number, with Monday as first day of week (00 – 53)
%x	Date representation for current locale
%X	Time representation for current locale
%y	Year without century, as decimal number (00 – 99)
%Y	Year with century, as decimal number
%z, %Z	Either the time-zone name or time zone abbreviation, depending on registry settings; no characters if time zone is unknown
%%	Percent sign

Performance Data Logging

Performance Data Logging allows you to track jobs in versus jobs out and calculate the rates that jobs are being sent through the Loftware Print Server.

Performance Logs are Comma Separated Value (CSV) files that contain information on print jobs for the entire Loftware Print Server system or per printer.

Performance Data	Description
DTM	The date and time marking the end of the logging interval.
TYPE	The data source.
NAME	The printer name.
ELAPSEDMSECS	The number of milliseconds in the logging interval.
INPUTCOUNT	The number of jobs sent to the printer during the logging interval.
INPUTRATEPERSEC	The rate jobs were received per second during the previous logging interval.
INPUTRATEPERMIN	The rate jobs were received per minute during the previous logging interval.

Performance Data	Description
INPUTRATEPERHOUR	The rate jobs were received per hour during the previous logging interval.
OUTPUTCOUNT	The number of jobs printed from the printer.
OUTPUTRATEPERSEC	The rate jobs were output from the printer per second during the previous logging interval.
OUTPUTRATEPERMIN	The rate jobs were output from the printer per minute during the previous logging interval.
OUTPUTRATEPERHOUR	The rate jobs were output from the printer per hour during the previous logging interval.

Total Jobs

Select **Total Jobs** to create a CSV file containing performance data for all your print jobs.

For Example

The following is example data from a total job performance data file set to a 30 minute interval.

```
DTM, TYPE, NAME, ELAPSEDMSECS, INPUTCOUNT, INPUTRATEPERSEC, INPUTRATEPERMIN, INPUTR
ATEPERHOUR,
OUTPUTCOUNT, OUTPUTRATEPERSEC, OUTPUTRATEPERMIN, OUTPUTRATEPERHOUR
"2010/09/23
14:30:00", "JOB", "TOTALJOBS", 1800000, 17, 0.01, 0.56, 34.00, 17, 0.01, 0.56, 34.00
"2010/09/23
15:00:00", "JOB", "TOTALJOBS", 1800000, 14, 0.00, 0.46, 28.00, 14, 0.00, 0.46, 28.00
```

Per Printer

Select **Per Printer** to create a CSV file containing performance data for each printer.

For Example

The following is example data from a per printer performance data file set to a 30 minute interval.

```
DTM, TYPE, NAME, ELAPSEDMSECS, INPUTCOUNT, INPUTRATEPERSEC, INPUTRATEPERMIN, INPUTR
ATEPERHOUR,
OUTPUTCOUNT, OUTPUTRATEPERSEC, OUTPUTRATEPERMIN, OUTPUTRATEPERHOUR
"2010/09/23
14:30:00", "JOB", "PRINTER001", 1800000, 10, 0.01, 0.33, 20.00, 10, 0.01, 0.33, 20.00
"2010/09/23
14:30:00", "JOB", "PRINTER002", 1800000, 7, 0.00, 0.23, 14.00, 7, 0.00, 0.23, 14.00
"2010/09/23
15:00:00", "JOB", "PRINTER001", 1800000, 8, 0.00, 0.26, 16.00, 8, 0.00, 0.26, 16.00
"2010/09/23
15:00:00", "JOB", "PRINTER002", 1800000, 6, 0.00, 0.20, 12.00, 6, 0.00, 0.20, 12.00
```

Interval

Select the frequency data should be sent to the log files. Each CSV file contains two entries for each printer or job total. The first entry records the input and output data for the previous time interval (30 minutes by default). The second entry records the input and output data from the first entry to when the file was created. So each CSV file contains data for a maximum of twice the logging interval. For example, if the logging interval is 30 minutes, there will be a maximum of 60 minutes of data recorded

in the file. There may be a shorter time period recorded if the Loftware Print Server is stopped.

Note: Shorter log intervals may affect system performance.

Note: When creating formulas to help in analyzing performance data, use the milliseconds recorded in the CSV file rather than the interval you set in the Loftware Print Server Configuration Utility. LPS adds an entry to the CSV file on or about the logging interval. The actual interval will vary slightly based on this.

Application Event Log

The following sections describe the various messages that the LPS posts to the Application Event Log. There are three categories of messages: Information, Warnings, and Errors. Knowing what these messages mean can help in troubleshooting potentially difficult problems.

Many of these messages are only visible if enabled in the **Logging** section of the LPS Configuration Utility.

Note: Open the log from Windows Event Viewer. Click **Application** to see LPS.

Reading the Application Event Log

Event Log Informational Messages

Number	Message	Description
105	The service was started.	Date and time of service start.
108	The service was stopped.	Date and time of service stop.
109	Found and processed command file:<name>	Command file name.
111	Passed pass file: <name> to Batch Print	PAS file name.
<p>If Log Jobs has been enabled in the Event Logging section under the Logging tab of the LPS Configuration Utility, the above entries are added after successfully locating and processing/passing the named files. Be aware that enabling Log Jobs could unnecessarily flood the system log with informational messages. Once your system is up and running, you might consider turning this setting off.</p>		
112	Batch Print has issued Job Number:<number>	The Loftware Batch Print sub-system assigns job numbers to each job (file) passed to it. Enable the "Job Numbers" option in the Event Logging tab of the LPS configuration utility for this data.
113	User <name> has modified configuration settings for LPS service.	This message is logged when a user modifies the settings in the LPS configuration utility.

Event Log Warning Messages

Number	Message	Description
121	Cannot rename/move file <name>, file does not exist.	This is an internal error caused most likely by passing an invalid batch filename in a command file, or by a user/process deleting a PAS file after dropping but before processing.
124	File <name> does not exist	This is an internal error commonly caused by dropping a command file before dropping the batch file (.bch). In this case, the command file is renamed to *.cme.
125	Warning, Software Print Server is configured to run in demo mode.	There is no hardware key present. If data on your label is scrambled, the Software sub-system is configured to run in demo mode (normal during evaluation periods).

Event Log Errors

Number	Message	Description
103	The control handler could not be installed.	An internal error during service startup, possible causes: low resources.
104	The initialization process failed.	Something failed during the service initialization process (startup) follows one of the more verbose messages.
114	Failed to create scan thread due to low memory resources.	The system could not allocate the requested resources to create a thread. Check resources, correct, reboot, and retry.
115	Failed to create scan thread.	Internal error. During initialization process, system has issued this error. Reboot (power off) and retry.
116	Failed to initialize OLE Libraries.	There is an error initializing the OLE libraries (dlls). This is usually caused by a [separate] install that incorrectly overwrites one of the OLE DLLs.
117	Failed to connect to Batch Print.	The Software Batch Print sub-system failed to initialize. The most common reason is either incorrect Key (there is a Software key on the computer, but it is NOT a Software Print Server key) or invalid default DCOM permissions. (See the next section titled 'NT Security Settings'.)
122	Invalid directory/Cannot create for <name>, Dir <name>.	The service requires a directory called OLEBP to be created as a child to the scan directory. On service startup, if the directory does not exist an attempt is made to create the directory. This can fail because of invalid access rights to the path, or the scan path is incorrect to begin with (deleted after configuration). The service needs access to Software sub-system files. The llmwdn32 Configuration file has been deleted or corrupted.

Number	Message	Description
126	Call to Remote Batch Print generated an exception!	Internal error. Contact Software should this error occur.

Emergency Mode

Emergency Mode allows you to run the Loftware Label Manager for a short period of time (10 printing days) after a key or password license failure during production. It is a temporary solution if you require immediate restoration of Loftware label printing operations during non-business hours for the eastern coast of the United States.

Note: Emergency Mode is only available if you purchase and license LPS.

When the Loftware Label Manager detects a key failure, a message is logged into the Windows Application Event log and the Loftware Label Manager shuts down. A hyperlink in the Windows Application Event log will direct the user to a page on the Loftware Web site with instructions on how to initiate and run the Loftware Label Manager in Emergency Mode. If you see these instructions in the Event Log, then Emergency Mode is available to you. At this point, you must follow the instructions outlined below to get up and running again if it is during non-business hours for Loftware. If you do not, the Loftware Label Manager will enter demo mode when you restart and data will be scrambled on your labels.

WARNING: Do not use Emergency Mode on the primary node of a cluster; LPS may not fail over in Emergency Mode. If the license fails on the primary node, it is best to fail over to the backup node. If the licenses on both nodes fail, then the Emergency Mode should be used to resume production.

While in Emergency Mode, Loftware applications will function as valid licensed applications. The Emergency Mode license is identical to the most recent valid license. The difference is that the Emergency Mode license will expire, and it will include specific logging and informational messages.

Note: Emergency Mode is a one-time mode. Make sure you contact Loftware Customer Service before the 10-day countdown expires for a reset of your original license.

Emergency Mode Period

Emergency Mode eventually expires. The period counts down for each day that a print request is completed.

For example

A 10-printing-day license for a company that does not have weekend production would last for 2 full business weeks.

With LPS running as a service, you will need to view the Event log to verify the number of printing days remaining. From the Loftware Label Manager, a message will indicate the number of printing days remaining on startup. Help | About will also show the number of printing days remaining.

Emergency Mode Sequence

1. You experience either a key or a password failure. LPS has shut down and it has been verified from the Event log that a key or license failure has occurred.
2. You run the Gatekeeper.exe application, which can be found in the Loftware install folder - <Program Files Folder>\Loftware Labeling, by default. You apply an Emergency Mode license by selecting **Generate Emergency License**.

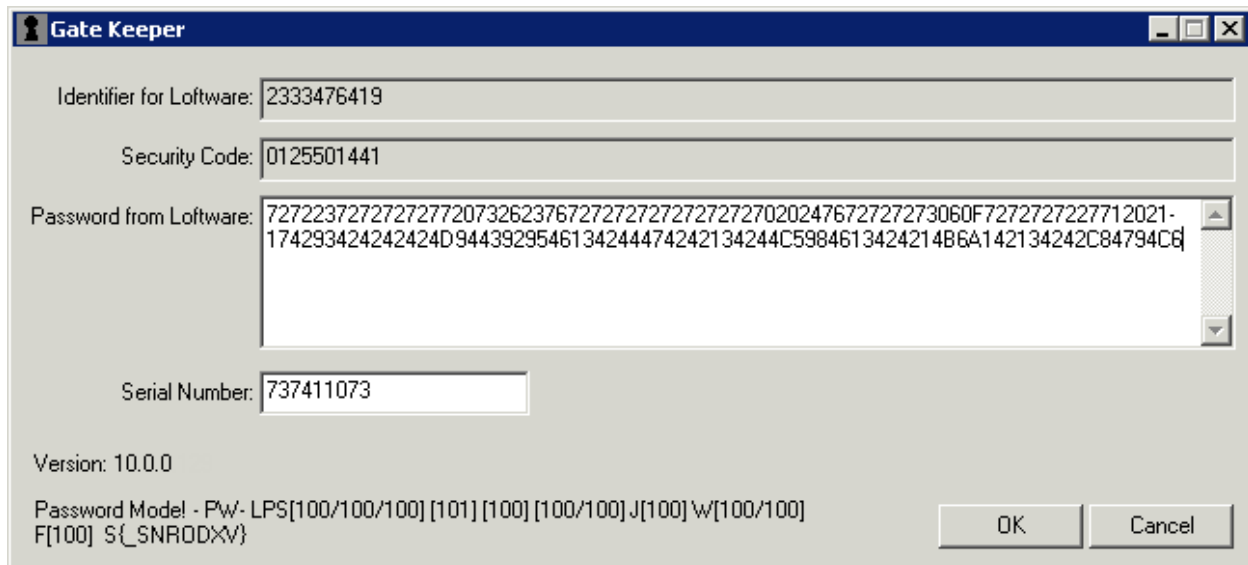


Figure 4.3: Gatekeeper generating emergency license

3. Run LPS in Emergency Mode until Loftware opens for business. If the Emergency Mode password fails, you will need to fail over to your backup server if you have one set up.
4. Contact Loftware Customer Service to request a permanent replacement password or to initiate the key replacement process.
5. Loftware Customer Service will issue a new password or replacement key.
6. You run Gatekeeper and apply the new password, or the you install the new key.

When Emergency Mode Expires

If the LPS is running, it will shut down when the first job is submitted after the LPS detects the expiration. Until a valid license is applied, Loftware applications will run in demo mode. A new Emergency Mode license cannot be issued.

Getting out of Emergency Mode

Software Customer Service assistance is required for a system in Emergency Mode to resume running on a valid hardware key or password license. If hardware key failure is the problem, you must contact Software Customer Service on the next business day to start the key replacement process. If password failure is the problem, you must contact Software Customer Service to request a permanent replacement password.

Resuming Printing in Full Mode

When you apply a new password or key to your LPS system in Emergency Mode or after Emergency Mode has expired, LPS will resume normal operations.

Hints and Troubleshooting

The following may help you to troubleshoot issues with the Software Print Server. Please go through this list before contacting Software's technical support department.

Note: Errors can be evaluated by reading the LPS entries in the Event Viewer. See the next section for information regarding these entries.

LPS Service

- If you have trouble with the LPS running as a service, stop the service and try again in Interactive mode. This mode will provide error messages that you would not see running in Service mode.
- If the LPS service is running and you have made any changes to the way the hardware key is configured, you must stop and then restart the service in order for the changes to be recognized.
- If you receive an "Error: 2140" message explaining that the service could not be started, it could mean that the user or domain user account does not have Admin privileges on the local system.

Fonts

If a font is larger, smaller, or includes characters that look different when printed using LPS, then the font may not have been installed for all users. If the font is not available to the LPS service, Windows automatically substitutes another font. To correct this problem, log on using an account with administrative privileges and reinstall the font by selecting the **Install for all users** command.

Logging

- After you are finished with the implementation/debugging phase of your project, make sure that you turn off **Event Logging** in the logging section of the **LPS Configuration utility**. Otherwise, your event log may be filled with messages that are unnecessary in production, and your hard drive could become filled with trace files.

- Make sure that purge settings are set in the **Housekeeping** tab of the LPS Configuration utility. The purge settings can always be optimized as you get used to your system and its performance.

Scan Directories and File Drop

- Make sure that the LPS is not scanning the root directory of any drive. In addition, when the scan directory is set, it must already exist.
- Verify that there are no spaces before or after your label name on the "*Format" line.
- If you are testing PAS, CSV, XML, or JSON files that you create in a text editor, be sure that you put the complete file name in quotation marks when you save from the text editor. For example, "testfile.pas", to avoid creating a file with the wrong extension that will not print when dropped. For example, testfile.pas.txt. Do not hide common file extensions in Windows. Select Tools | Folder Options | View Hide extensions for known file types from any window to make this issue easier to identify.
- If you are scanning a network drive or printing to network printers, the service must be configured to start up with a specific account that has access to all the network resources that need to be used. The account must have administrative privileges.
- If you are using PAS files, and you do not specifically want to print spaces at the leading or trailing end of any field, configure the LPS to trim Both in the control panel configuration utility.
- Do not set your scan directory to be the same as the \batch directory. The activity of creating and deleting the .tmp batch files causes LPS to needlessly check the directory.

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Software Print Server Client Setup

Note: Software Print Server clients are only available if you purchase and license LPS.

The Client Setup program installs client programs for the Software Print Server. Only the client that you choose is installed. The Client Setup program can be found in the following locations.

- On the Software CD
- In the download package
- In the Software Labeling\ LPS Client Install folder (after Software Print Server has been installed)

You can share this folder to make the LPS Client Setup program available on your network. When the Client Setup is launched, it gives you the choice to install one or more of the following client applications:

- On-Demand Print Client
- Status Client
- Help Files
- Notification Agent
- ActiveX Client Control
- Internet ActiveX Control
- Web On-Demand Print Client
- Web Listener

Note: The Software .NET Control is not included in the LPS Client Setup program. A separate installer for the .NET Control is available on the Software CD and in the download package.

Installing the Software Print Server Client Applications

Note: The client install program can be found on the CD-ROM, download package, or in the directory that contains the Software Labeling\LPS Client Install folder.

The LPS Client applications cannot be installed on the same computer as the Software Print Server.

No license key is required on client computers. Each client utilizes a client-count license that is tracked by the server license.

To Install a Software Print Server Client

1. Navigate to the network drive and directory where LPS is installed.
2. Start setup.exe in the LPS Client Install directory (under the Software folder).

3. Choose the Client Applications to install when prompted to do so.

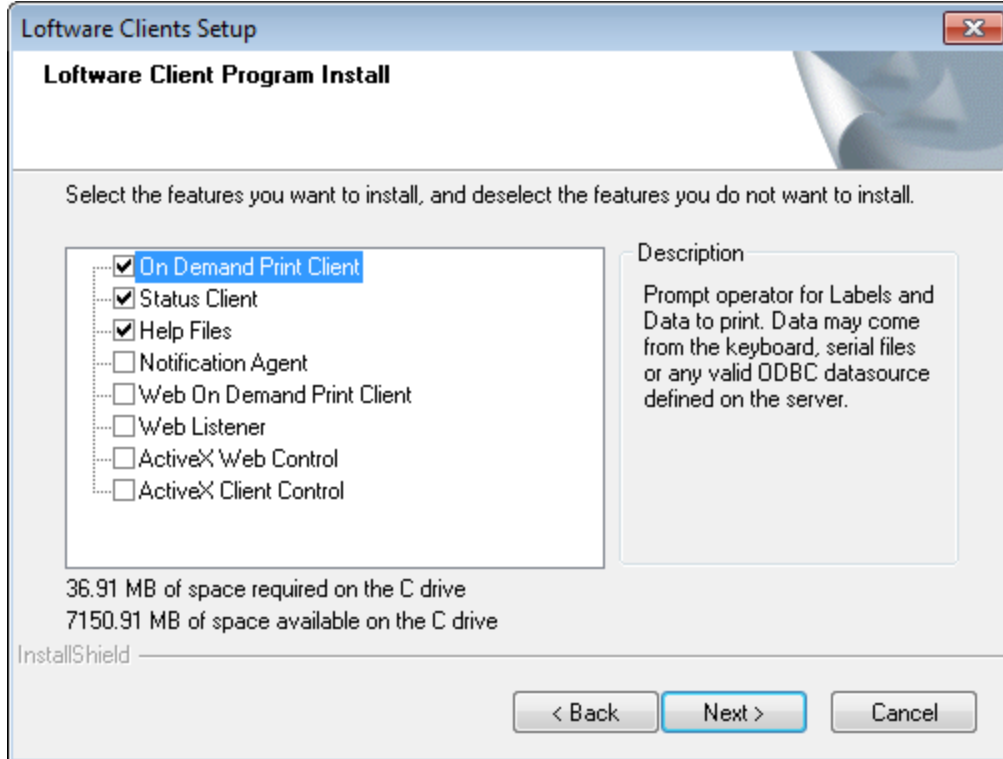


Figure 5.1: Loftware Client Program Installation

4. Click **Next**, and follow the instructions on the Loftware Clients Setup program.

After the clients are installed, you can access them from the **Start** menu under Loftware Labeling.

Note: A separate installer for the Loftware .NET Control is available on the Loftware CD and in the download package.

Installation and Use of the Loftware .NET Control

Pre-Installation Requirements

- The Loftware Print Server Premier Edition, with available client seats.
- Microsoft Visual Studio .NET 2015 is required to open and build any of the Loftware .NET Control sample solutions listed in this section.

Note: Microsoft .NET Framework 4.5.1 is required for development using the Loftware .NET Control. If you do not already have that version of the .NET Framework installed, it will be installed automatically during the installation of the Loftware .NET Control.

Installing the Software .NET Control

The first part of the installation checks the computer for the Microsoft Windows® Installer. If the correct version is not found on the computer, the Software .NET Control installer updates the Windows Installer version. You may have to reboot your computer.

The second part of the installation checks the system for the existence of the Microsoft® .NET Framework. If the correct version does not exist, the .NET Framework is installed on the server. A series of screen prompts are displayed. The installation of the .NET Framework may take up to 10 minutes depending on your computer's hardware and operating system. You may have to reboot your computer after the .NET Framework installation.

The third part of the installation installs the Software .NET Control application and samples to the following folder:

Software Labeling\Software .NET Control

Installing the Software .NET Control

To install the Software .NET Control and samples on a client computer, perform the following steps.

1. In the CD or download package, navigate to the Software .NET Control folder, and run the **Setup** program.
2. On the **Welcome** page, click **Next**.
3. On the **Setup Type** page, select **Complete** or **Custom** install, and click **Next**.
4. On the **Ready to Install** page, click **Install**.
5. On the **Install Shield Wizard Completed** page, click **Finish**.

Configuring LPS for use with the .NET Control

1. Configure all connected printers using Software Label Manager.
2. Design the necessary label formats using Software Label Manager, and make the labels available to the Software Print Server.

Tip: The **Options | File Locations** menu in Software Label Manager allows you to configure network locations for your label files. For example, the shared Software Labeling\Labels folder on the server acting as the Software Print Server.

3. Verify that the LPS is working by building a simple label and manually creating a .pas file for it. Copy your .pas file to the folder that LPS is scanning, and then your label should print.

Related Information

For information about configuring printers (devices), refer to the *Software Label Manager User's Guide*.

For troubleshooting information, refer to "Hints and Troubleshooting" on page 82.

Sample Programs and Read Me Files

Before attempting to use the Loftware .NET Control, please review the sample programs and their associated Read Me files. By default, the sample programs can be found in the following folder:

```
\\Software Labeling\Software .NET Control\Samples
```

C# Samples

- **TestClientSimple** - This project is an implementation of Loftware's .NET Control written in C#. Its purpose is to show you how to use the majority of the methods that Loftware's .NET Control offers.
- **TestClientAdvanced** - The TestClientCSharp project is an implementation of the .NET Control written in C#. It is based on Loftware's On Demand Print Client and the Web Client.

Configuration for C# Samples

You may need to make some or all of the following changes for the sample applications to function properly.

- Change the labels folder to C:\Program Files (x86)\Loftware Labeling
- Disable IP Version 6 (IPv6). For more information, see Microsoft under "[External Links](#)" on [page 140](#).
- If the samples are running on the same computer as the LPS, you must disable IPv6 on the LAN.

You can unbind IPv6 from a specific network adapter in Local Area Connection Properties. To do this, follow these steps:

1. Click **Start**, and then click **Control Panel**.
2. Click **Network and Sharing Center**.
3. In the View your active networks area, click **Local Area Connection**, and then click **Properties**.
4. On the **Networking** tab, clear the **Internet Protocol Version 6 (TCP/IPv6)** check box, and then click **OK**.

VB .NET Samples

- **Loftware .NET Control VB Test Client** - The VBTestClient project is an implementation of Loftware's .NET Control written in VB.NET. Its purpose is to show you how to use the majority of the methods that Loftware's .NET Control offers.

Review the sample program's Read Me files to help you understand build steps and special notes the Loftware .NET Control.

Installation of ActiveX Client Control

1. Install the Loftware Print Server (LPS).

Note: The LPS can be installed on any computer with a supported operating system anywhere on your LAN or WAN.

2. Perform a client install of the ActiveX Control.
3. Configure all connected printers on the Server.
4. Design the necessary label formats on the server.

Note: You may also design labels on any client computer and either share the files on the server or copy the files to the server when done. The Options | File Locations menu in Loftware Label Manager allows you to set network locations for your design files. This allows you to design on a client computer while your labels are saved to the computer specified, usually the LPS computer.

5. Verify that the LPS is working by building a simple label and manually creating a .pas file for it. Copy your pas file to the directory that LPS is scanning and your label should print.

Related Information

For information about configuring printers (devices), refer to the *Loftware Label Manager User's Guide*.

For troubleshooting information, refer to "[Hints and Troubleshooting](#)" on page 82.

Installing the Notification Agent

The Notification Agent is a service that runs on a workstation or on the same computer as Loftware Print Server. E-mail notifications of printer errors and system status can be set up for multiple operators. Notifications are filtered by server, printer, and error type; therefore, only information of interest is sent.

To install the Notification Agent, perform the following steps.

1. Select **Notification Agent** from the Loftware Client Program Install.
2. Click **Continue** if you have logged in as the user who will start the Notification Agent.

3. Enter the **UserID** and **Password** that will be used with the Notification Agent, and click **OK**.

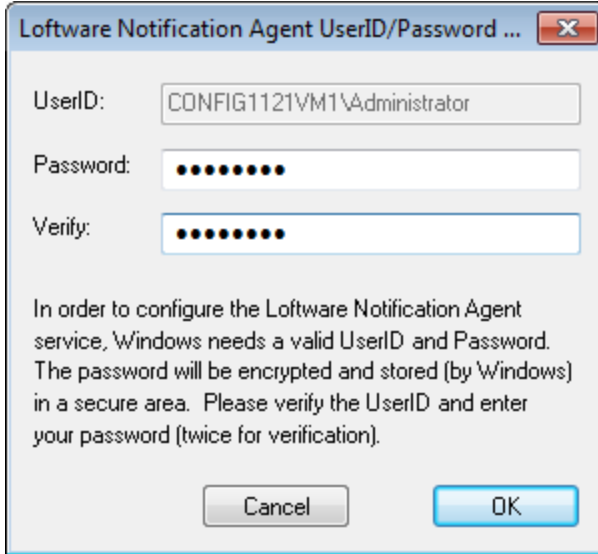


Figure 5.2: Loftware Notification Agent

4. Choose whether you want to add a shortcut on your desktop, click **Next**, and then click **Finish**.

Installation of the Internet ActiveX Control

Pre-Install Checklist

Have you installed the following?

- Loftware Print Server

Note: The Loftware Print Server can be installed on any computer with a supported operating system anywhere on your LAN or WAN.

- Web Server
- Servlet Engine
- LPS Web Servlet
- Client-defined Printers

Hint: Before proceeding, install and run the WebClient from a Client computer to ensure that the Loftware Print Server installation is successful .

Installing the Internet ActiveX Control

Install the Internet ActiveX Control to the Client computer one of the following ways:

- A Full install from the CD adds the web x dll.
- A Client install from the LPS Client Install Folder on the CD.

- An Internet ActiveX Control install, either from the CD, or hosted on the Web Server and downloaded by the Client computer.

Loftware Print Server Web Client Setup

Note: Loftware Print Server web clients are only available if you purchase and license the LPS.

The LPS Web Client can be hosted on a web site for the purposes of making the LPS web clients available to your users over the Internet. Web users download the file and run setup. Any combination of the following may be installed:

- Internet ActiveX Control
- Web On-Demand Print Client
- Web Listener

Installing the WebClient Components

If you have previous experience installing Web Servers and/or Web Servlets, the following steps may seem fairly straightforward and easy to accomplish. However, if you are new to this, please take some time to read this section and the preceding two sections carefully. Also take time to read the information on the Web sites that are mentioned in this section to give you a clear idea of the level of complexity of this task.

As you continue reading this section, complete each step, checking them off as you go:

- Step 1: Install LPS (Loftware Print Server)
- Step 2: Configure CLIENT DEFINED Printers
- Step 3: Install Web Server
- Step 4: Install Servlet Engine
- Step 5: Install LPS Web Servlet
- Step 6: Install WebClient
- Step 7: Test Connection to WebClient

Step 1 - Install the Loftware Print Server

If you have not already done so, please install the Loftware Print Server (LPS) as outlined in the *Loftware Print Server and Label Manager Installation and Configuration Guide*.

Step 2 - Configure CLIENT DEFINED Printers

CLIENT DEFINED printers are printers configured for future use by a client computer. They must be configured on the server, with pre-set Printer-Specific Options (PSOs) and Label-Specific Options (LSOs). Refer to the *Loftware Label Manager User's Guide* for more information on CLIENT DEFINED printers.

Step 3 - Install a Web Server

If you do not already have a Web Server, please install one and get it up and running. Loftware Technical Support cannot help you with the installation of your Web Server or with any problems related to your Web Server.

Step 4 - Install the Servlet Engine

If you have not already done so, please install a Servlet Engine at this time.

Note: Loftware cannot help you set up or troubleshoot your Servlet Engine.

Step 5 - Install the LPS Web Servlet into the Servlet Engine

It has been stated previously that you may use any Servlet Engine you would like. This section includes examples of installation of the LPS Web Servlet on the Servlet Engines Tomcat and JRun. It is very important that you understand your operating system before proceeding with the installation of the LPS Web Servlet. In addition, please read Tomcat or JRun documentation, especially the troubleshooting sections.

Windows Installation of LPS Web Servlet into Tomcat

1. Copy the `loftware.war` file to the directory where you installed Tomcat, for example, `C:\Tomcat\webapps` directory. The `loftware.war` file is found on the Loftware CD, under the **Servlets** folder.
2. Start Tomcat. This can be done using `startup.bat` located in Tomcat's `bin` directory.
3. After Tomcat comes up fully, shut it down. Tomcat should automatically extract the `loftware.war` file into the WAR file structure under the `Webapps` directory.
4. Modify the `web.xml` file as outlined in the next section. (This sets the address of the LPS Server.)
5. Restart Tomcat for the changes to take effect.
6. Verify the Web Application is properly installed by navigating to the following URL and verifying the LPS Web Servlet page is displayed.

`http:// <ipaddress:port (if needed -default 8080)/loftware/ LPSRPT.jsp`

This completes the Windows installation of Tomcat and the LPS Web Servlet application. Tomcat should now be configured to a Web Server such as IIS or Apache using the appropriate adapter or connector. Refer to your Web Server's and your Servlet Engine's (such as Tomcat) documentation.

To reinstall the Web Application, go to the `C:\Tomcat\webapps` directory, delete both the `loftware.war` file and the `Loftware` directory and re-install as outlined previously.

Unix Installation of LPS Web Servlet into Tomcat

1. Copy the `loftware.war` file to the directory where you installed Tomcat, for example:

`/usr/lib/-tomcat.`

2. Start Tomcat. After Tomcat comes up fully, shut it down. Tomcat should automatically extract the loftware.war file into the WAR file structure under the Webapps directory.
3. Modify the web.xml file as outlined in the next section.
4. Restart Tomcat for the changes to take effect.
5. Verify the Web Application is properly installed by navigating to the following address and verifying the LPS Web Servlet page is displayed.

```
http:// <ipaddress:port (if needed -default 8080)/loftware/ LPSRPT.jsp
```

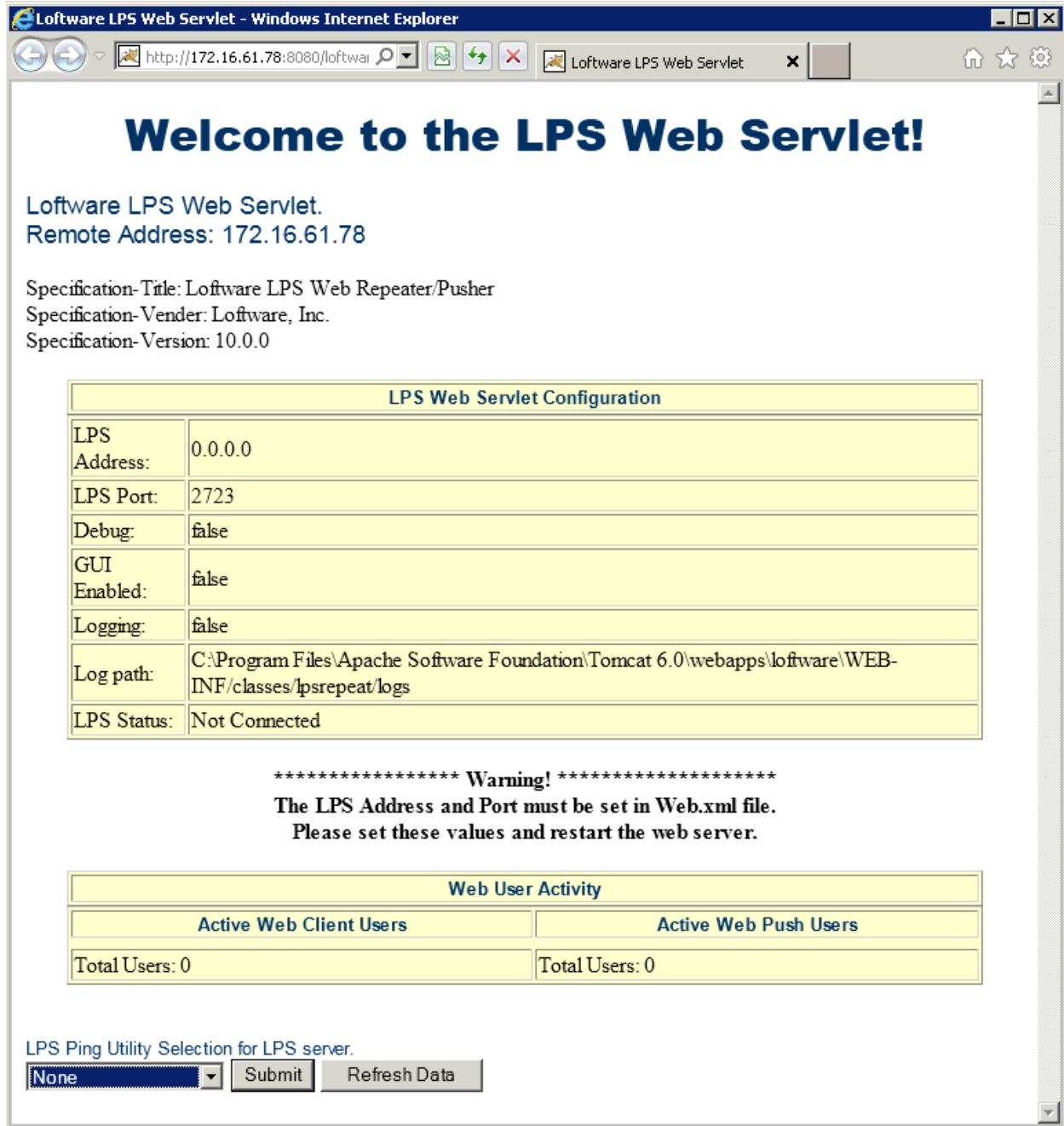


Figure 5.3: LPS Web Servlet Page

This completes the Unix installation of Tomcat and the LPS Web Servlet application. Tomcat should now be configured to a Web Server such as IIS or Apache using the appropriate adapter or connector. Refer to the documentation included with your Web Server and your Servlet Engine.

To re-install the Web Application, go to the C:\Tomcat\webapps directory, delete both the loftware.war file and the Loftware directory, and re-install as outlined previously.

Windows Installation of LPS Web Servlet into JRun

1. Open Jrun on your Server.
2. Click the JRun default server in the left pane of JRun's JMC.
3. Click **War deployment** in the main (right side) pane
4. Enter the following properties in the right pane:
 - a. Servlet War File or Directory: Path to loftware.war, such as C:\<Program Files Folder>\Loftware Labeling\loftware.war. The loftware.war file is also found on the Loftware CD.
 - b. JRun Server Name: Select Installation Server, that is, Jrun Default Server
 - c. Application Name: `loftware`
 - d. Application Host: `All Hosts`
 - e. Application URL: `/loftware`
 - f. Application Deploy Directory: `C:\JRun\servers\default\loftware`
5. Click **Deploy**. If unsuccessful, fix any errors and try again.
6. Modify the web.xml file as outlined in the Web.xml file modification section. This sets the address of the LPS Server.
7. Restart the JRun server.

Verify the Web Application was properly installed by loading up a browser and go to `http://ipaddress:port (if needed -default 8100)/loftware/ LPSRPT.jsp` and verifying the LPS Web Servlet page is displayed.

This completes the installation of LPS Web Servlet Web Application on JRun. JRun should now be configured to a Web Server such as IIS or Apache using the appropriate adapter or connector. Refer to documentation for your Web Server and your Servlet Engine (such as JRun).

Note: The WebClient only works if you have the LPS configured. See "Understanding the Loftware Architecture" section of this guide for information on installing and configuring the LPS.

Note: Be sure to save the changes and restart the JSP container (for example, Tomcat or JRun).

To re-install the LPS Web Servlet Application, select the JRun Default Server/Web Applications/LPS Web Servlet in the left pane of the JRun Management Console. In the main pane, click **Delete** to remove the LPS Web Servlet Application, then re-install the Web Application as outlined previously.

Note: After installing and upon re-starting the servlet engine, a directory structure is created. The web.xml file that is created upon the re-start must be modified. See following instructions:

Web.xml file modification

The web.xml file is found in the newly created directory structure, which is seen in the figure below. Your files may look slightly different, depending on your OS and which servlet engine you have

installed.

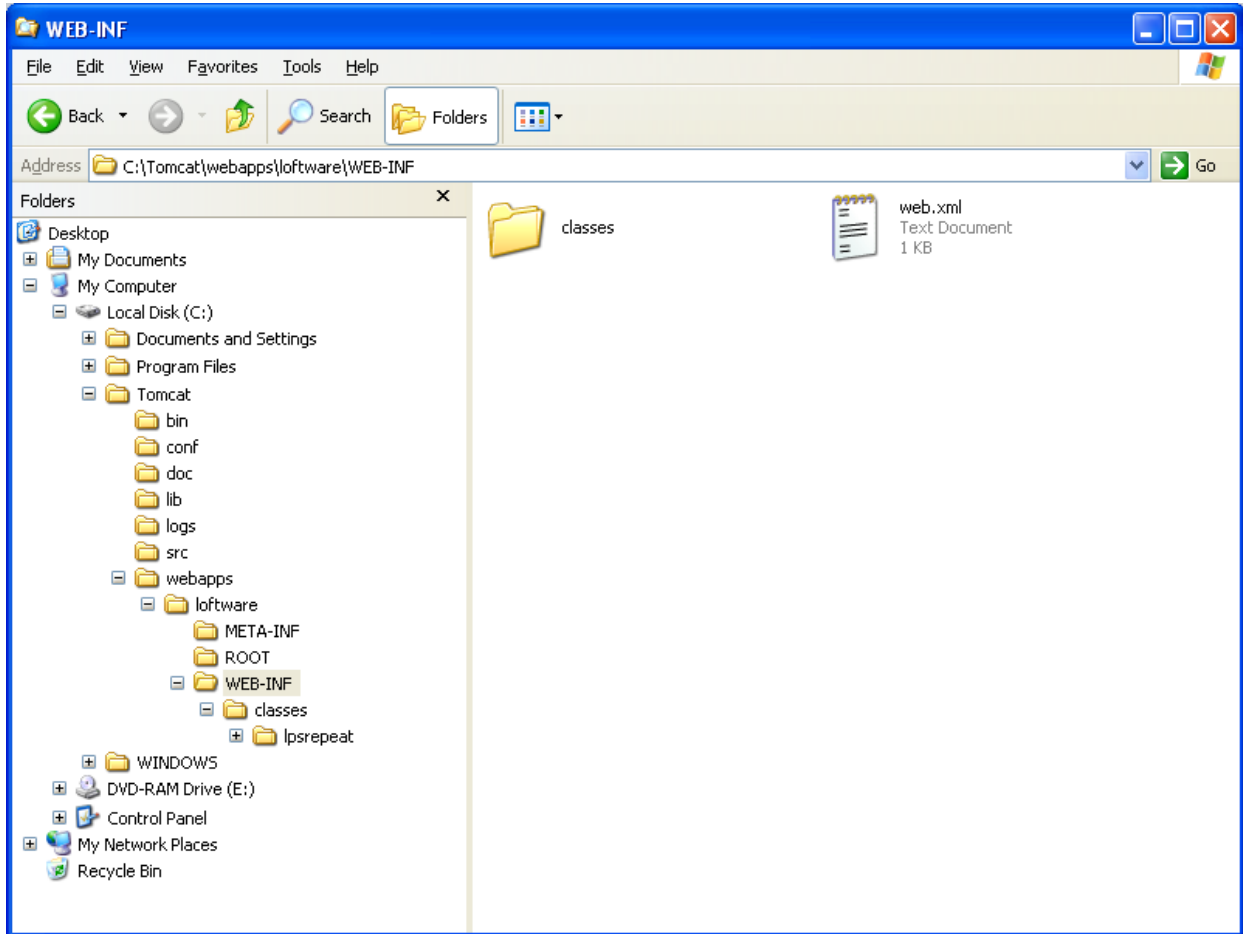


Figure 5.4: Typical directory structure of servlet engine after installing in Windows.

After installation of the Loftware Web Application, you must modify the servlet configuration file (web.xml) so that the application is able to locate the LPS Server.

In order for the changes to take effect, the servlet engine must be restarted.

The WAR file

The loftware.war file has a descriptor file named web.xml that is located in the WEB-INF directory. This file is an XML file that is used to configure the Loftware LPS Web Servlet Application. The web.xml file contains a section called LOFTWARE Servlet Configuration, in which only one area needs to be configured, that being the IP Address to the LPS.

Configuration Areas	Property
LPS IP Address	Example: 172.17.0.137

Example web.xml

```
<!-- LOFTWARE Servlet Configuration -->
```



```
<context-param>
  <param-name>LPSAddress</param-name>
  <param-value>180.10.0.231</param-value>
```

Note: Change only the values in between the > and < tags (180.10.0.231).

```
<description>
  Ip Address of the LPS Server.
</description>
</context-param>
```

Step 6: Install the WebClient

Install the LPS WebClient to the Client computer using one of the following ways:

- A Full install from the CD adds the WebClient executable.
- An install from the LPS Clients folder or LPS WebClient folder on the CD.
- A WebClient install hosted on the Software Print Server and downloaded by the Client computer.

Step 7: Test the Connection to the WebClient

1. Design the necessary label formats (using Software Label Manager), making sure that you customize your operator input screen.
2. Configure the printers for these labels as CLIENT DEFINED in Software Label Manager and put them on the server.

Important: All configured printers to be used with the WebClient must be configured as "CLIENT DEFINED," meaning that they are manipulated by the WebClient and not by the Software Print Server.

3. Launch the Client from a shortcut on the desktop or Start > Program Files > Software Labeling > Print Server > Internet Clients > Web Printing Client.

The first time you open the WebClient on the Client computer, the following window is displayed.

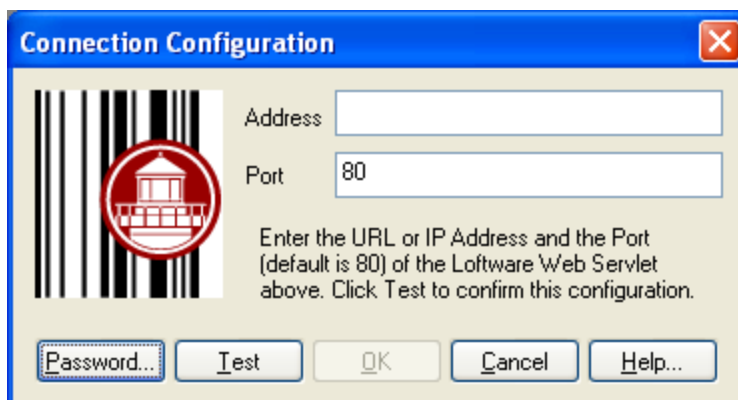


Figure 5.5: Configuring Web Server Connection

4. Enter the IP Address and Port or URL and Port for the Web Server to which you are connecting.
The IP address may be 159.64.0.149, while a URL may be www.example.com.
5. Click **Password** if the administrator has set up security on your Web Server, and enter the authentication information.

Note: If a password is required, and Test is pressed first rather than Password, a message box is displayed prompting you for your user name and password, and these must be entered.

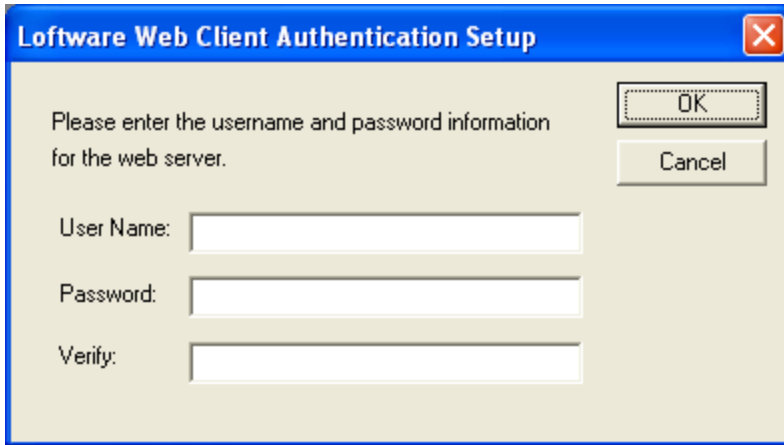


Figure 5.6: Web Client Authentication

6. Enter the Authentication Information, click **OK**, then click **Test**.
7. If the test is not successful, check the error message from the Web Server (example shown in figure below), click **OK**, correct the error, and try again.

Note: The test function is required to ensure that the correct Address and Port have been entered. The OK button is not enabled until this function has been performed successfully.

Remember: Loftware cannot help you with Internet connections and address problems.



Figure 5.7: Connection Error from Web Server

8. If the test is successful, a "Successfully Connected" message is displayed, press OK to close the box.

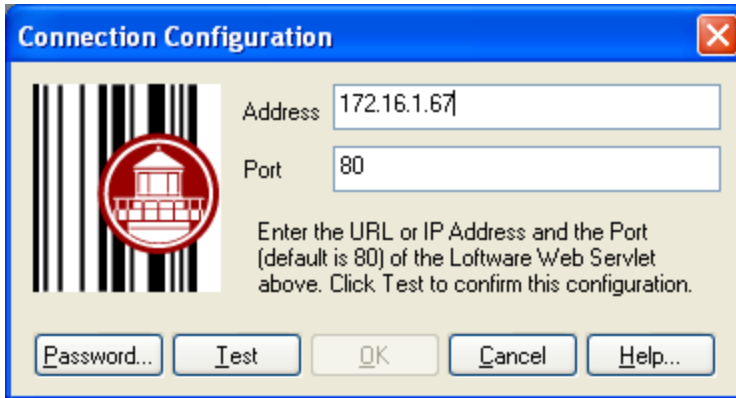


Figure 5.8: Connection Configuration

9. Click **OK** again to open the **File Open** dialog box on the server.

The first time it is opened, the Loftware WebClient File Open dialog box is displayed within the WebClient screen. This dialog box contains the list of labels and/or folders that are on the server. This list of labels and/or folders is the same as the root directory of the Labels Path on the LPS.

After the first time WebClient is run, the last label opened is displayed, as the label design and device configuration are stored in a cache file once they are opened.

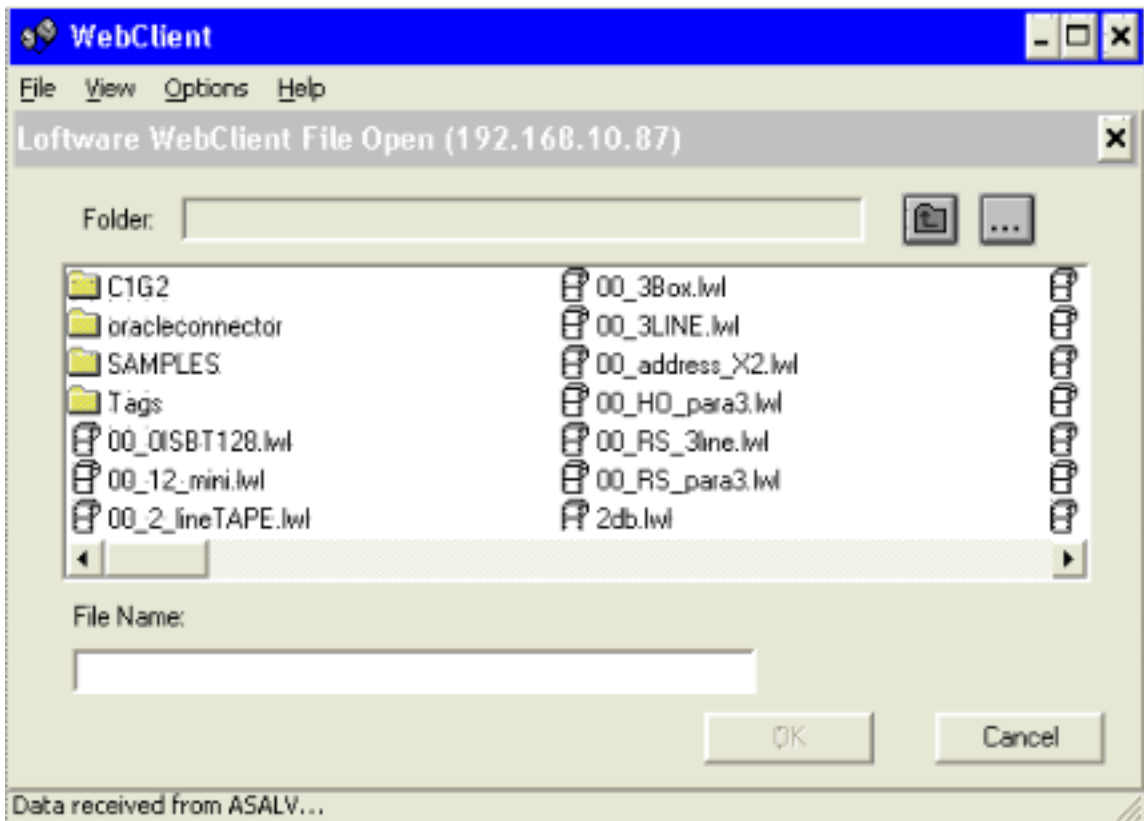


Figure 5.9: The WebClient window, displaying designed/configured labels

10. Choose the Label you want to print from the Labels directory. The first time you open this label, one of the following warning messages appears:



Figure 5.10: Request for CLIENT DEFINED Printer for Label

This message indicates that the printer cannot be locally configured, because it has not been added to the LPS as CLIENT DEFINED. You must configure this printer on the LPS before continuing.

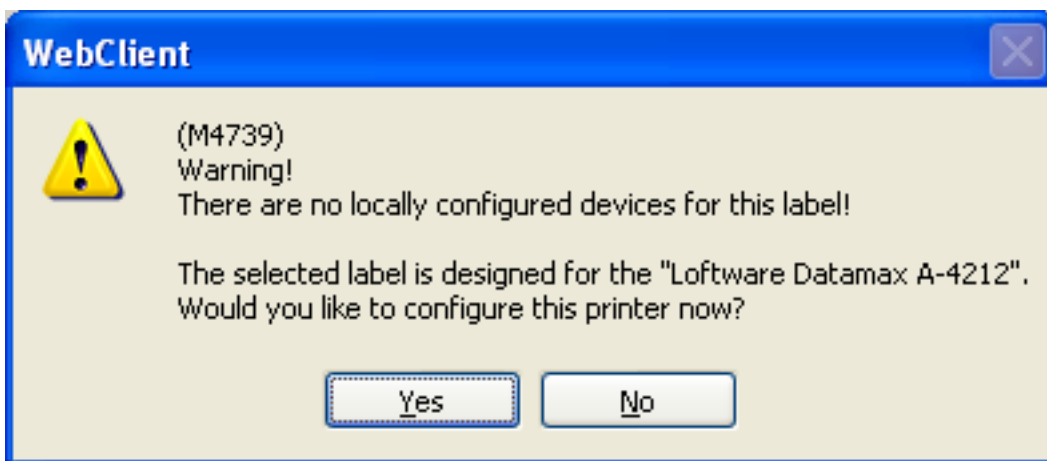


Figure 5.11: Request to configure the label locally

The second message indicates that the printer does exist on the LPS as CLIENT DEFINED, but now must be configured locally.

11. Click **Yes**. The **Configure Device** window is displayed. The drop-down list displays all the CLIENT DEFINED configured devices on the Server. None of the printers have been locally configured.

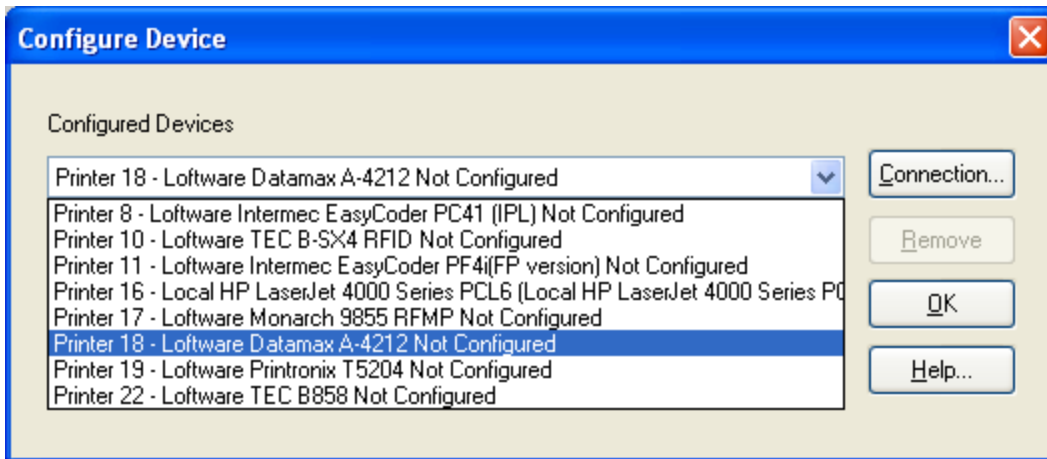


Figure 5.12: Configured Printers List

12. Select the printer the label is designed for; click **Connection**. The following window is displayed.



Figure 5.13: Configuring Local Printer Connections

13. Choose the type of connection, either **Port** or **TCP/IP**.
 - a. Click **Apply**, then **Test** to send a test print stream to the printer.
 - b. Click **OK**, and **OK** again to close the window and return to the label to begin printing.

Note: Test your connection the first time you print a label.

- To change or remove local printer configurations, press F6 or select File > Devices.

Note: For a USB Port to be displayed in the Port list, the printer must be connected to the computer and powered on.

Related Information

For information on device connections and configurations, refer to "Device Connections" in the *Loftware Label Manager User's Guide* and "The Loftware Print Server" section of this guide.

Installing Web Push / Web Listener Components

Note: Web Push and Web Listener are available only in the Loftware Premier Edition.

Step 1 - Install the Loftware Print Server

If you have not already done so, install the LPS.

Step 2 - Install the Web Server

If you have not already done so, follow the instructions in this guide regarding Web Server installation. Loftware cannot help you with the installation of your Web Server.

Step 3 - Install the Loftware Web Servlet

If you have not already done so, follow the instructions earlier in this section to install the Loftware Web Servlet.

Step 4 - Install the Web Listener Client

The Web Listener may be installed one of three ways:

- A Full install adds the Web Listener Client executable when you choose to initialize the Loftware Print Server during install.
- A separate Client install from the Clients Folder on the CD, found under LPS Internet Installations | InternetPrintingClients.exe.
- An individual Web Listener Client install, either from the CD, or one that is hosted on a Web Server and downloaded to the Client computer, called WebListen.exe.

After completing these steps, you will be ready to configure users and printers and start printing over the Internet.

If you have purchased an upgrade that is a newer version than the one you have installed, the setup program upgrades your older files to the newer version. You are not given the chance to install to a separate folder.

Cluster Installations

If you are installing to a cluster for the first time, you must uninstall your current LPS family products before installing in a clustered environment.

ODBC Users

During installation of a LPS or LLM upgrade, the schema.ini file located in the C:\<Program Files Folder>\Software Labeling\DBASES\ folder is overwritten. The schema.ini file is used by ODBC for connectivity to text files. Several text files can share one schema.ini file, but there can only be one such file per folder. Because LPS or LLM supplies sample text files for ODBC, the upgrade installation must update, and therefore overwrite, the schema.ini file located in the C:\<Program Files Folder>\Software Labeling\DBASES\ folder. We recommend that if you are using text files with ODBC, use a folder other than the C:\<Program Files Folder>\Software Labeling\DBASES\ folder.

Upgrading from LLM BAS to LLM

LLM Basic Edition (LLM-BAS) is a single-print-seat version of Software Label Manager. LLM-BAS cannot be upgraded to Software Label Manager in place. You must first uninstall LLM-BAS before attempting to install LLM.

Upgrading Printer Configurations

Carriage return (CR) and line feed (LF) characters in the names of printer aliases can cause problems. If you are upgrading LPS and LLM and have printer configurations with those characters in their names, those characters are removed during the upgrade.

Note: If you are upgrading from a version prior to LPS 10.0 or LLM 10.0 and are upgrading Windows printer configurations, contact Software for assistance.

For information about limitations when importing printer groups, see "Importing a Printer Group" in the *Software Label Manager User Guide (Help)*.

Sharing Windows Printer Configuration Across LPS Versions

In versions 9.5 or later, Windows printers can be configured from the Loftware Label Manager Device Configuration grid. Before version 9.5, Windows printers could not be configured within Loftware Label Manager. Clicking a Windows printer's **Options** button from the LLM Device Configuration grid would direct you to the Windows Control Panel's Printer dialog.

Note: If you are working in an environment with multiple LPS installations and versions, be aware that sharing LLM / LPS version 9.5 or later Windows printer configuration files with a pre-9.5 version will wipe out any Windows printer configuration settings made in Version 9.5. Windows printer settings made in 9.5 or later are not supported in pre-9.5 versions.

This problem can occur when the sequence of LLM / LPS usage is version 9.5 to version pre-9.5, back to version 9.5, or upgrade, downgrade, upgrade. When you configure a Windows printer in version 9.5 or later and then open the printer grid in LLM / LPS Version pre-9.5, the Windows printer configuration settings you had set in version 9.5 are lost. When you re-open the Windows PSO dialog in version 9.5, you will have to re-configure the printer.

To work around this problem, back up 9.5 `printr32.cfg` and `printr32.ini` printer configuration files so that they can be restored when needed, as demonstrated below:

1. In version 9.5 or later, configure your Windows printer options (from its PSO page) to the desired settings.

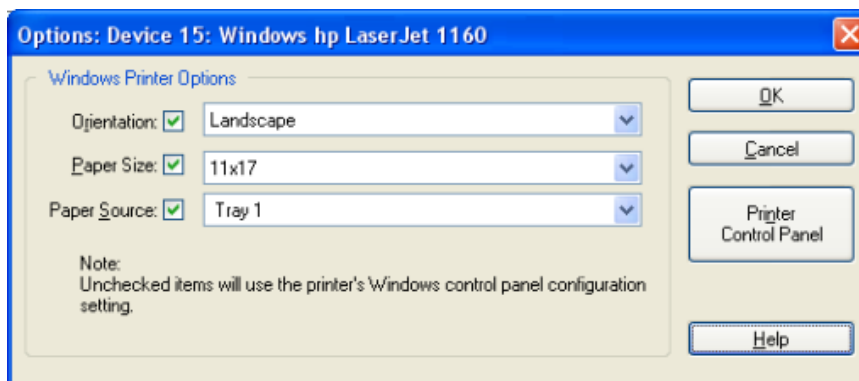


Figure 6.1: Printer Specific Options window

2. Click **OK**.
3. Go to the Loftware Labeling folder in Windows Explorer. Sort the list on Date Modified.

Note: The `printr32.cfg` and the `printr32.ini` files will have just been updated.

4. Back up these files – copy and paste them to another folder, for example, `\9.5 Win_Printer Config Files`.

The next time you switch back and forth between 9.5 and a pre-9.5 version, simply copy the backed up 9.5 `printr32.cfg` and the `printr32.ini` files to the 9.5 Loftware Labeling folder.

Note: Windows printer configuration settings that you select from a label's options page (LSO) in version 9.5 or later are not affected by version switch-overs. Any of the Windows LSOs configured in 9.5 or later will not have an effect in versions before 9.5.

Upgrading LLM on a Terminal Server Environment

On February 7, 2007, Loftware discontinued support for LLM concurrent client licensing on Terminal Server or Citrix. If you have this implementation, we encourage you to move to a supported licensing solution. This section describes the optimal migration option for customers with Terminal Server seat licensing – upgrading to the Loftware Print Server.

The benefits to upgrading a LLM on Terminal Server to an LPS implementation include:

- Server-centric licensing and file management - All product marking in an area, building, or enterprise can be controlled from a centralized server on the network.
- Phased-in solutions enable scaling when you need it (On Demand Print, Custom UI, Host-based or Internet)
- LPS servers may be clustered together for fail safe redundancy.
- The ability to scale from Small Business to Enterprise - LPS can adapt to your product-marking requirements, whether you are printing one hundred or one million barcode labels a day.
- On-Demand Print Client with LPS is compatible with Terminal Server and Citrix but does not require them.
- Expansion into use of RFID printers
- Centralized control of available and compliant labels
- Powerful printer management and monitoring controls
- Fail-over and redundancy options that were not available to plain LLM implementations

For growth beyond Design / Print, LPS can be set up on an existing Application Server.

For solutions in a Citrix / Terminal Server farm, LPS may be installed on one or more of the servers or on a remote server outside the farm.

Citrix / Terminal Server Farm

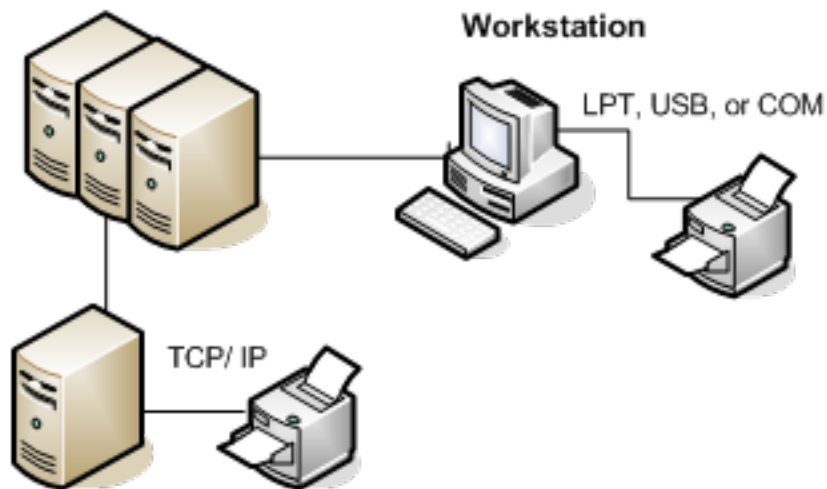


Figure 6.2: LPS may be installed on one or more Terminal / Citrix Servers in a farm

This configuration can be detailed as follows:

1. Software Print Server is installed on a Terminal / Citrix Server or a separate application server.
2. On-Demand Print Client (LLMWCInt.exe) is installed / published on each Terminal / Citrix Server.
3. A Workstation connects to 1 of 3 servers, and runs On Demand Print Client (llmwcInt.exe) which creates a report file on the LPS server. This uses one client seat per computer name.
4. On-Demand Print Client outputs a .pas file to the LPS Server. LPS receives data from the client, converts data to printer language, and sends it to the device. The same LPS can process print requests from a Software Connector, another Software Client, or a custom Socket or File drop solution at the same time.
5. While TCP/IP printing has significant advantages for an enterprise (as shown), printers may be connected via TCP/IP, parallel port (LPT), USB port, or serial port (COM) either directly from the LPS, on a computer networked to the LPS, or to a computer connected to the LPS via a Web Connection.

There are many configurations for connecting Software Print Server to your network. Software's Professional Services Group can help in customizing your solution and provide information on a configuration.

Related Information

For more information, please contact your Software Sales Representative or Software Customer Service at customerservice@loftware.com.

Importing and Converting Labels

Software Label Manager gives you the flexibility of importing:

- LLM label formats including label specific options (LSOs)
- Printer specific data streams for Intermec IPL, Monarch MPCL, Zebra ZPL

Converting Printer Specific Hardware Data Streams

Hardware data streams for specific printer types (Intermec IPL, Monarch MPCL and Zebra ZPL) can be accurately imported directly into the Software Label Manager designer and merged to any supported printer type by using the File | Import menu option.

Alternatively, you can perform a mass convert of these data files by creating an icon or running the Software Label Manager designer with a special command line argument using these switches:

Switch	Description
-e	Printer Type Data Extension
.FMT	(Intermec IPL data streams)
.HDF	(Monarch MPCL data streams)
.ZPL	(Zebra ZPL data streams)
-c	Originating Directory
.rad	Radley...Raduform

Example

```
"C:\Program Files (x86)\Software Labeling\LLMWDN32.EXE" -e.zpl -cc:\zebra\labels
```

When converting hardware specific data streams, you are asked to select the target printer and resolution.

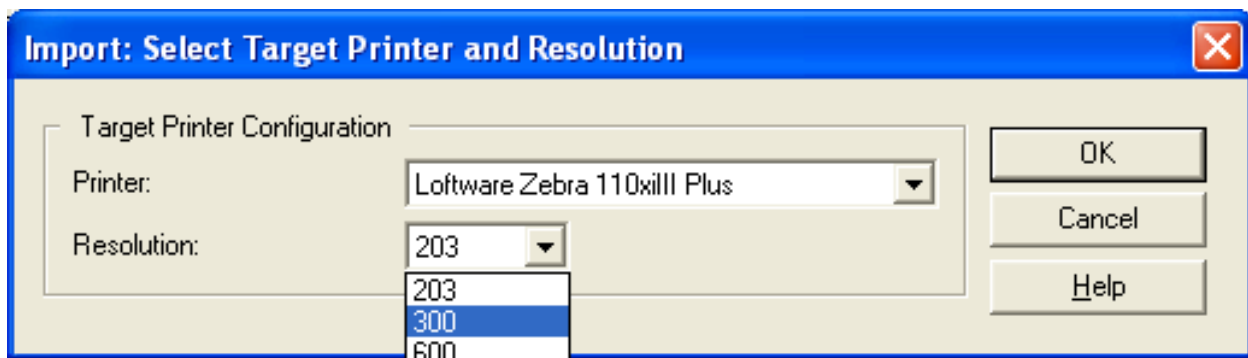


Figure 6.3: Selecting the Target Printer and Resolution

Note: Software Label Manager does not convert graphical images embedded into these hardware data streams.

Conversion Log

There is a file called CONVERT.LOG located in the labels subdirectory of Loftware Label Manager. It contains a history of all the labels that have been imported along with any associated error messages. This is a flat file edited with any text editor such as Notepad or Edit. This file may contain important information regarding certain aspects of your label that may not have come forward in the conversion process.

Testing Converted Labels

You must test and possibly modify all of your converted labels before you go into production with Loftware Label Manager.

Recovering from Import Errors

Generally, the importer uses a best-guess approach to decide how to default a field with an error. For example, if your label contains a Code 11 barcode, an error is logged and the field defaults to Code 39. You may then load the label into Loftware Label Manager and make any necessary adjustments. This method works for most import errors.

What is Clustering?

Note: This section covers clustering as it applies to maximizing the availability of the Loftware Print Server (LPS) in your enterprise. Some of the points made here do not necessarily apply to other cluster-aware applications. If you have not set up cluster aware applications in the past, find someone who can assist you.

Clustering is a feature of the Loftware Print Server Edition. In its most basic form, two servers are connected together with a central storage device between them as shown in the following figure. The cluster service makes the two servers appear as a single virtual server on the network. Client applications make their connections to this virtual server. If an application goes down due to a hardware or software failure, it is automatically restarted on the secondary server. This is referred to as a failover.

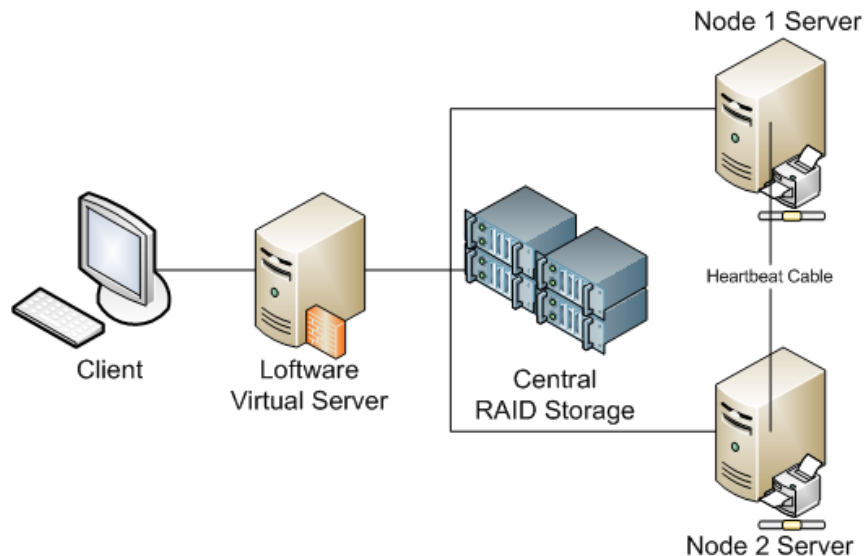


Figure 7.1: Basic Cluster Architecture (Active/Active)

At this time, Loftware is using the Microsoft Cluster Service (MSCS) exclusively. The Microsoft Cluster Service architecture is designed to work with standard Windows Server storage drivers interfacing with SCSI devices. The storage device, typically a RAID system, must be connected to both nodes in the cluster for failover to work properly. Shared storage devices must be formatted using NTFS.

Clustering requires special hardware, software, and expertise. The extra expense of hiring a knowledgeable person who is familiar with clustering computers may help, depending on your situation. Loftware cannot help you with the setup or support of your hardware.

Definition of Terms

You should understand the following clustered-environment concepts and terms as you consider and plan a clustered installation. The following books were used for these definitions.

- Microsoft's *Guide to Creating and Configuring a Server Cluster under Windows Server 2003* can be downloaded from the Microsoft Support web site.
- Microsoft's *Windows Server 2008 Clustering Whitepapers* can be downloaded from the Microsoft Support web site.

Note: Although Windows Server 2008 and Windows Server 2003 are no longer supported, the cluster information remains informative.

Active/Passive Cluster

In an active/passive clustering solution, a standby server monitors a continuous signal from the active server. The standby server remains in a backup, passive mode until it recognizes that the active server has failed. It then comes online and takes control of the cluster. When the primary server comes back online, manual intervention may be necessary by the administrator to revert the systems to their original state.

Active/Active

In an active/active configuration, all servers in the cluster can run applications and act as backup servers to one another. There is no concept of a primary or standby server. All servers can dynamically assume the other's role.

Cluster Service

A component of the cluster software that is implemented as a Windows Service. It manages all aspects of the cluster's operation including the cluster database. Each node on a cluster runs a copy of this service.

Central Storage

As depicted in "[About Cluster Installation](#)" on page 109, there must be a central storage device between the two servers. Preferably, this should be a SCSI RAID system with at least three drives. The central storage drive array is usually divided into multiple partitions, one of which is designated as the quorum resource.

Central storage is where the cluster database and all software shared files reside. Therefore, if one of the drives fails, the files are still online and available to the applications that need them, in this case, the Cluster Manager and LPS.

Client Connections

Clients connect to the LPS using the virtual server IP address, rather than a physical Windows IP address. At failover, client reconnection is necessary. The Software Status Client and the Notification agent reconnect automatically after the failover transition. The On Demand Print Client receives a disconnect message and has to be restarted. Any applications using the ActiveX Client Control need to trap the error event and inform the user of their options.

Failover

The process of taking one or more resources offline on one cluster member and bringing them online on another.

Note: Failover for cluster resources is not managed by Software Print Server's Application Health Port.

Failover Cluster Management

Failover Cluster Management is your view into the cluster in Windows Server, and it is used often. It allows the creation of groups and resources. It is also where the LPS in a cluster environment should be started and stopped. Be extremely careful about adjusting resources that you do not understand as unpredictable results may occur.

Group

A logical organization of resources. Resources are not failed from one cluster member to another, groups are. This allows the administrator to place dependent resources into one unit, which guarantees that the same cluster member always owns a resource and all its dependencies.

Heartbeat

A message sent between cluster members to notify each other of their existence. This is done via a special hardware cable. If heartbeat messages are not received from a cluster member, it is considered to have gone off line, and all resources that it owned are failed over to the other cluster member.

Quorum Resource

The quorum resource is a dedicated partition in the central storage drive array. The cluster services use a directory on the quorum partition to store information in the cluster database. Because it is stored centrally, this information is available to all nodes in the cluster. All partitions on central storage, including the one containing the quorum, may be used by programs that wish to store their data centrally. At bootup, only one of the servers in the cluster can own a specific partition in central storage.

Resource

A physical or logical entity managed by a cluster member. Resources are contained in groups. The LPS is such a resource.

Transition Time

The time necessary to relocate (failover) resources and groups to the secondary server. Depending on the number of resources that need to be moved, transition time can range from 10 to 60 seconds.

RAID

Redundant Array of Independent Disks. RAID is a storage mechanism that uses two or more disks to provide one logical disk that supports varying levels of performance improvements and fault tolerance. The Cluster Service only supports RAID on the shared SCSI bus. As described later, the shared Loftware files reside on the central RAID storage, as displayed in ["About Cluster Installation" on page 109](#).

Shared Nothing

An implementation of a cluster that does not allow resources to be accessed simultaneously by multiple cluster members.

Virtual Server

A collection of resources that supply the appearance of a Windows server to clients. This is depicted in ["About Cluster Installation" on page 109](#). Rather than associating the Loftware Print Server with a physical server running Windows Server, the Cluster Service virtual server technology allows you to place the LPS into a virtual server. At a minimum, a physical disk resource, a network name resource, and an IP address resource are required to bring a virtual server online. Depending on the function of your virtual server, other resources may be required. The Loftware Virtual Server requires several additional resources, some of which are automatically created for you during the installation procedure.

Client applications connect to the virtual server, which invisibly re-routes the connection to the node that is currently hosting it. Client applications should never connect directly to a node. The virtual server's name and IP address are independent of the physical node name and IP addresses on which they run. The names and IP addresses of the physical servers running Windows Server and the LPS virtual server must be different. Regardless of which physical server running Windows Server in the cluster controls the LPS, the virtual server name and IP address remains the same.

Loftware Print Server (LPS) Failover Support

The Cluster-aware version of the Loftware Print Server is only available in the LPS Premier Edition for which a backup license has been purchased. Failover Support provides the ability to make the LPS operate as a single virtual server when installed on a cluster.

Client connections see only the single LPS and are unaware of which physical Windows Server node is processing their request. As a virtual server, LPS is managed through the Failover Cluster Manager from either node of the cluster. The Clustering Service monitors the status of the primary and secondary nodes, the LPS application, and shared disk resources. Upon failure of the primary node, services move automatically to the secondary node. The secondary node becomes the primary node and vice-versa.

Because the LPS runs on a two-node Cluster Server running in active/passive mode, there is no need to fail the service back once the original problem that caused the failover is resolved

WARNING: Do not use Emergency Mode on the primary node of a cluster, or LPS may not fail over in Emergency Mode. If the license fails on the primary node, it is best to fail over to the secondary node. If the licenses on both nodes fail, then the Emergency Mode should be used to resume production.

Failover Criteria

Running an application in a cluster increases the availability of your application. Although rare, there are cases where the LPS could become unavailable and no failover occurs.

There is a transition time associated with failover. Depending on the nature of the failure and what the LPS is processing at the time, printing stops and new requests may not be buffered. Expect to lose LPS availability from ten to sixty seconds during the failover transition.

Retry Before Failover

Each resource is configured to retry a certain number of times before initiating the failover sequence. The default depends on the operating system. The cluster manager might be able to successfully restart the resource, avoid a failover and eliminate the transition time. However, it takes time to attempt restarts. If the restart attempts fail, this increases the transition time.

When the Loftware setup program creates the resources, it sets them to retry the default number of times. You can adjust the retry interval by viewing the properties of the resource in the Failover Cluster Manager. It is not recommended that a value less than two be used.

Conditions Causing Failover

Loftware has experienced and tested the following causes of failover; there may be other conditions.

- Any hardware failure on the quorum node that terminates the heartbeat causes a failover.
- Although rare, if the Loftware license key fails, a failover occurs. The application event log reflects the reason for the failover.
- If the LPS “goes down” and cannot be restarted, a failover occurs.
- If no printers are defined, a failover occurs. Because printer configurations are shared, the LPS fails on the secondary node as well.
- Any other case where the LPS shuts itself down due to lack of resources causes a failover.

Conditions that DO NOT cause failover

Conditions can occur that may make the application unavailable but not result in failover.

- Any hardware failure that does not result in the loss of the heartbeat could make the LPS unavailable. Printing may or may not stop depending on the nature of the failure.
- If the application stops responding to print requests but remains running in memory, a failover does not occur. Unless another application compromises one of the files that LPS relies on, this should never happen, but it is possible.

Note: If a drive on the central storage fails, a failover does not occur, but the LPS is still available to service print requests. This is the benefit of RAID storage. This may not be true if your central store is not using RAID.

Manually Initiating a Failover

For testing purposes, you can cause a failover to make sure the desired result is achieved. The following are two ways to cause a failover.

1. Power down the node that owns the quorum. This terminates the heartbeat signal and causes a failover.
2. Right-click the Loftware Print server resource and select **Initiate Failover**. The cluster service tries to restart the LPS on the same node a number of times before actually failing over. Therefore, you must initiate failover 3 or 4 times, depending on the retry interval settings.

Shared Files and Central Storage

When the Loftware Print Server is installed on a cluster, its files are divided between the target Server node and the central storage. Executables and their dll files are installed on the server, while label directories, image files, and layouts are stored in central storage. In other words, the files that are needed to run the LPS are installed to the server, and the files needed to print your labels are stored in central storage. This is why you must install once to each node. Printer setups and preferences are stored in the registry.

The Mirrored Registry

One of the resources created by the setup program is called the Loftware Mirror Manager. This resource mirrors two registry keys that are used by Loftware.

- HKEY_LOCAL_MACHINE\SOFTWARE\Loftware, Inc.
- HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\WatchDogNT

Note: The registry keys are copied to the other node only during a failover. Do not expect the keys to be in sync if a failover HAS NOT occurred. The registry editor should be closed when configuring your system. If it is open, your changes ARE NOT mirrored!

In the event of a failover, any printers that you have configured or preferences that you have set are copied to the registry on the other node.

All Loftware applications require that the mirror manager be running. Furthermore, even if the mirror manager is running, you cannot invoke any Loftware applications on the node that does not own the quorum. This guarantees that any changes that you make are picked up by the mirror manager and are made available to the other node in the event of a failover. A warning message is displayed if you try to invoke an application that is not covered by the mirror manager.

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Installing the LPS on a Windows Server Cluster

This section describes the initial setup and installation of the Software Print Server to any supported Windows Server cluster configuration.

Be sure your hardware is configured correctly, and you follow the instructions carefully. The setup program automatically detects that you are installing to a node on the cluster and guides you through the appropriate steps.

Pre-installation Tasks on Windows Server Cluster

This section provides a check list to use as you install the Software Print Server to a supported Windows Server operating system.

Verify the Hardware

The hardware must be set up properly in order for the installation and subsequent operation of the Software Print Server to be successful. When you look at your hardware, it should resemble the setup described in the ["About Cluster Installation" on page 109](#).

- Each node should have two network (NIC) cards.
- A heartbeat cable should connect the two nodes.
- A central RAID storage device should be connected between the nodes.
- You must have at least two Software Premier License keys.

Note: For additional information about hardware, see the books mentioned in ["Definition of Terms" on page 110](#).

Verify the Software

- The operating system must be one that supports clustering and must be one of those supported by this version of Software Print Server. For more information, see ["Software Print Server System Requirements" on page 17](#).
- Failover Clustering must be installed and operational.
- You must have a copy of Software Premier Edition.
- You must have a backup license for Software Premier Edition (A second license key).

Understand the installation and startup procedures

As you install the Software Print Server on your cluster, note the following requirements:

You must install on all nodes before attempting to start the LPS resource

For Example

In this example, assume that there are two nodes on your cluster, named Node_1 and Node_2. Node_1 is the current owner of the central drive resource.

If you were to install LPS on Node_2 and attempt to bring the Software Print Server resource online, it would immediately fail because the Failover Cluster Management would try to launch the LPS on Node_1 which is the central drive resource owner, in this case the quorum owner. This would cause a failover of the quorum resource to Node_2, which may not be desirable to you. If the reverse was true and you installed to Node_1, the initial attempt to bring it online would succeed, but the LPS would fail to start on Node_2 during a failover situation. Avoid this scenario by always installing to both nodes before attempting to bring the Software Print Server resource online.

You must configure at least one printer before bringing the LPS online

The LPS exits if you do not have any configured printers. The problem here is that this causes a failover to the other node that does not have configured printers either. The Failover Cluster Management fails the group back and forth until it finally gives up. Avoid this by configuring at least one printer before attempting to start the resource.

DO NOT use the operating system's Service Control Manager to start the Software Print Server service

Important: This is different than the instructions for a non-clustered environment.

Starting in this way nullifies any failover capabilities and could cause unpredictable behavior.

DO NOT set the LPS service to auto-start in the Service Control Manager

Failover Cluster Management does this. Think of the Failover Cluster Management as your new Service Control Manager.

Always use the Failover Cluster Management to bring the Software Mirror Manager and the Software Print Server resource online/offline

The Cluster Service remembers the state that these resources are in for later use if/when the computer is rebooted. Once you are up and running properly, you need not log on. The Cluster Service auto-starts the LPS and failover whenever conditions warrant it.

Windows Server 2012 Cluster Installation

This section describes the steps to install the Loftware Print Server in a Windows Server 2012 cluster environment. It assumes that you have already set up Failover Clustering.

The installation steps include:

1. "Logging into the System" on page 120.
2. "Determining the Resource Nodes and Drive Assignments" on page 120.
3. "Creating a Central Storage Folder for Loftware" on page 122.
4. "Creating a Loftware Cluster Group" on page 124.
5. "Adding Storage to the Loftware Group" on page 126.
6. "Creating the Loftware File Server Resource" on page 127.
7. "Modifying the Properties of the Group Resource" on page 128.
8. "Launching LPS Setup in Cluster Mode" on page 131.

Logging into the System

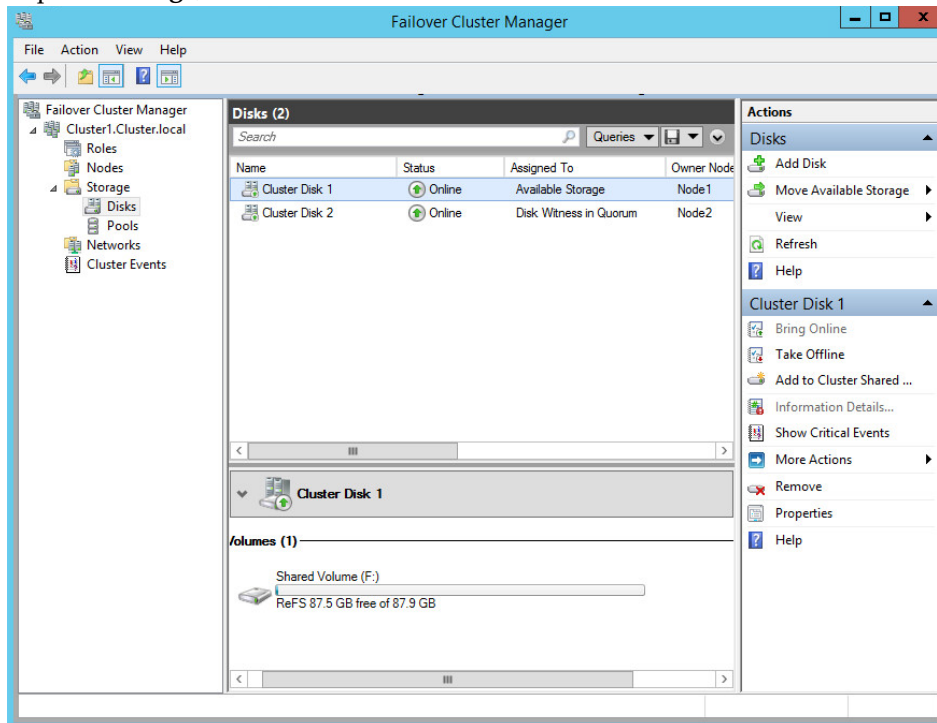
The supported operating systems require a password for the Account under which the Loftware Print Server will run. This account must belong to the Local Administrators group.

If you are not logged onto the account under which the LPS will be running, log in under the appropriate account before running the setup program. If you do not have a suitable login account, have your network administrator create one for you. The login account must have administrative privileges, including domain admin privileges, and all nodes should run under the same account.

Determining the Resource Nodes and Drive Assignments

The central storage drive array is divided into multiple partitions, one of which is designated as the quorum. Use the **Failover Cluster Manager** to identify the Disks and drive resources.

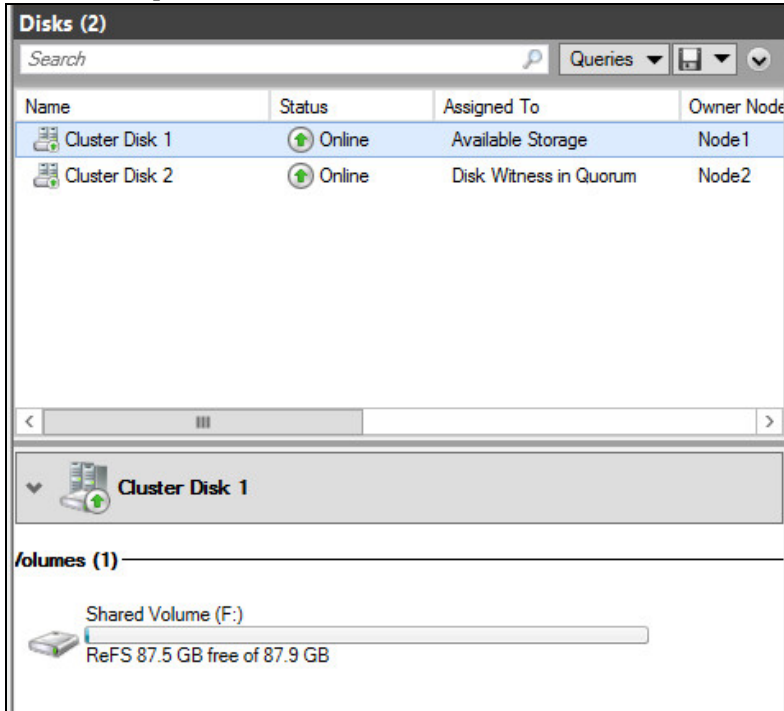
1. Open the **Failover Cluster Management**.
2. In the left panel, expand the **Cluster** section.
3. Expand **Storage**, and then click **Disks**.



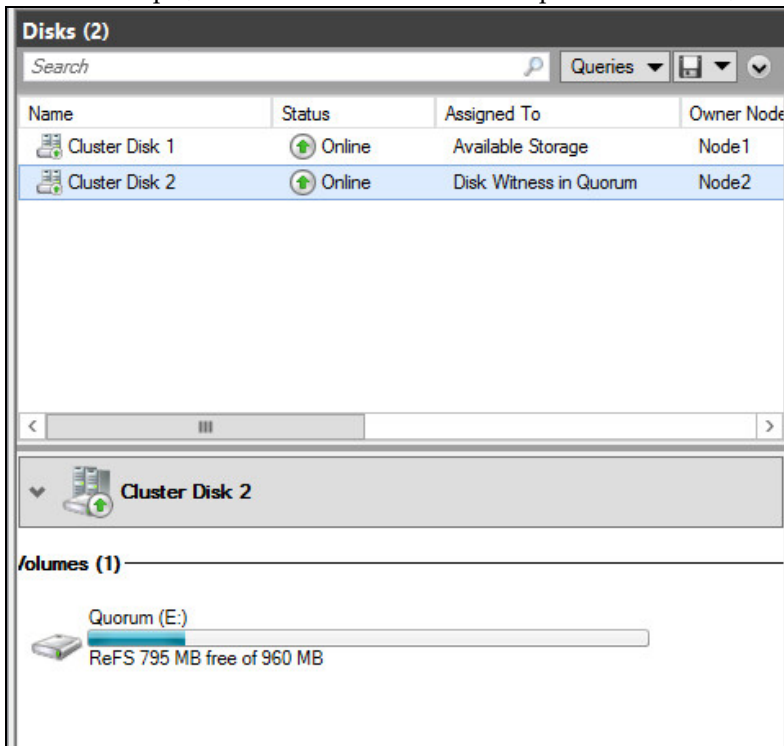
4. There must be one disk that is NOT a **Cluster Shared Volume**. If no disk is available, right click one that is a **Cluster Shared Volume**, and select, "Remove from Cluster Shared Volumes".
5. For each Cluster Disk, review the following information in the middle panel:
 - **Disk Witness in Quorum** identifies the quorum resource and which Nodes owns the resource.
 - **Available Storage** identifies shared cluster storage and which Nodes own the storage. In this example, the Node 1 owns the Available Storage resource and Node 2 owns the quorum resource.

Note: LPS must be installed on a disk that indicates Available Storage. It cannot be installed on a disk that indicates **Cluster Shared Volume** or on a quorum resource.

6. Select each **Cluster Disk** to display the associated resource drive in the bottom panel.
In this example, Cluster Disk 1 contains the shared volume (F:).



In this example, Cluster Disk 2 contains the quorum resource, drive (E:).

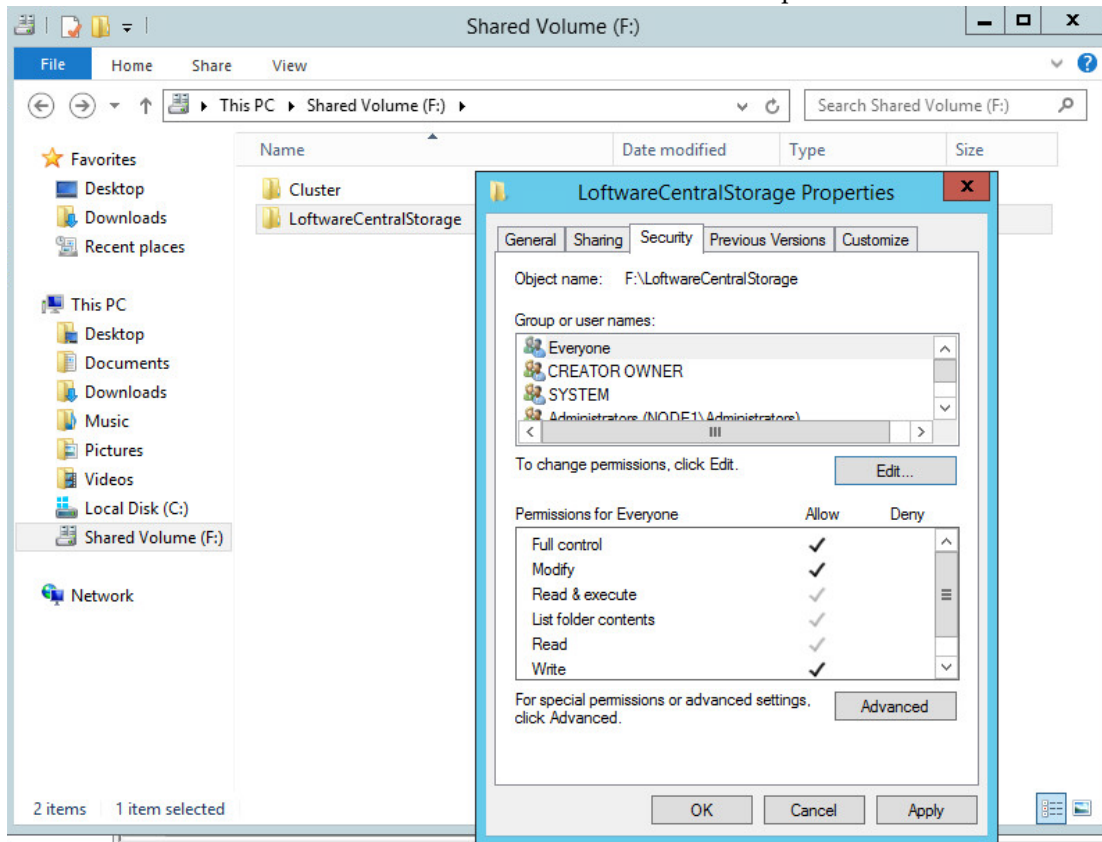


Creating a Central Storage Folder for Software

The Central Storage drive array is divided into multiple partitions. One partition is dedicated as the quorum resource. The Software Central Storage folder should be created on a partition that is listed as "Available Storage" and not a Cluster Shared Volume or dedicated to the quorum resource.

1. Log onto the computer where you want to define the Software cluster's central storage. For this example, we chose to log onto Node 1, which indicates Available Storage. The Node should not be assigned to another resource.
2. Open Windows Explorer and navigate to the central storage drive resource. In this example, we are logging into Node 1 on the Shared Volume (F:).
3. Click **New Folder** to create a directory on the central store. In this example, we chose the name **SoftwareCentral Storage**, but you can give the folder any name.
4. Right-click the folder and select **Properties**. From the **Security** tab, set permissions to this folder for all users (Everyone) to **Full Control**.

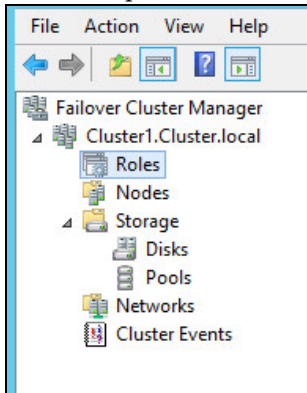
This example shows the **SoftwareCentralStorage** folder as seen from the Node 1, the drive resource owner. The drive is not visible to Node 2 unless a UNC path is used from Start | Run.



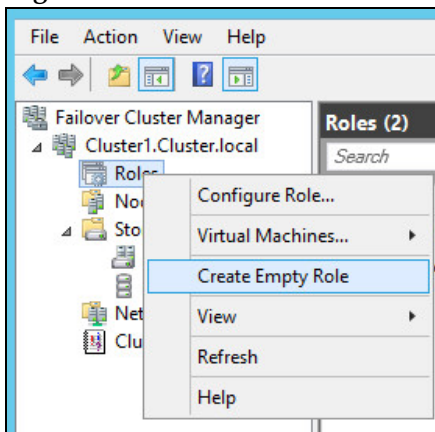
Creating a Software Cluster Group

A dedicated group is required for LPS and cluster groups to work. The group name needs to be "Software Group".

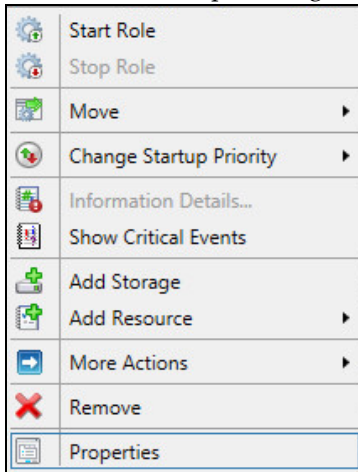
1. Open Failover Cluster Management.
2. In the left panel, locate the Cluster you are working on, and select **Roles**.



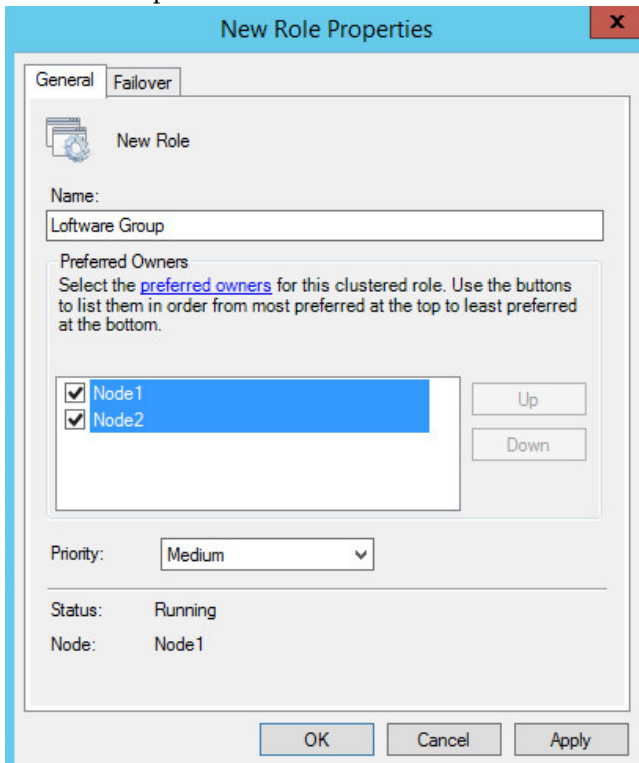
3. **Right-click on Roles** and select **Create Empty Role**, which creates a new role named New Role.



- From the middle panel, right-click on New Role and select **Properties**.



- Change the name New Role to Software Group, and select the **Preferred Owners**. In this example, the Preferred Owners would be Node 1 and Node 2.

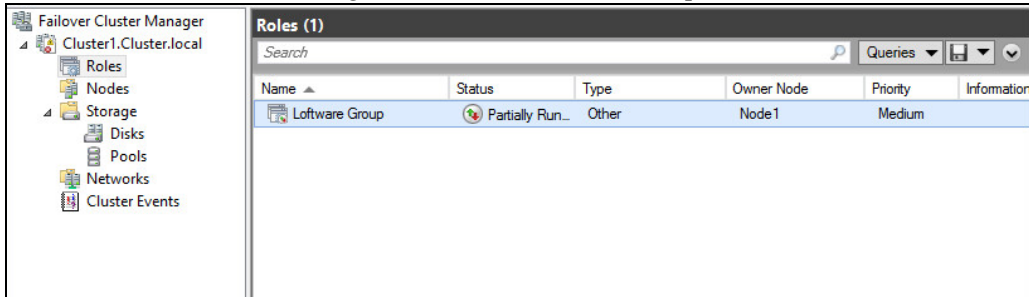


- Click **OK**.

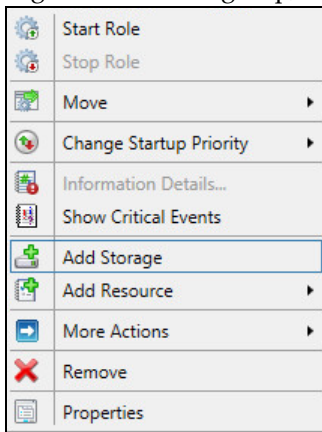
Adding Storage to the Software Group

To allocate storage for the Software Group, follow these steps:

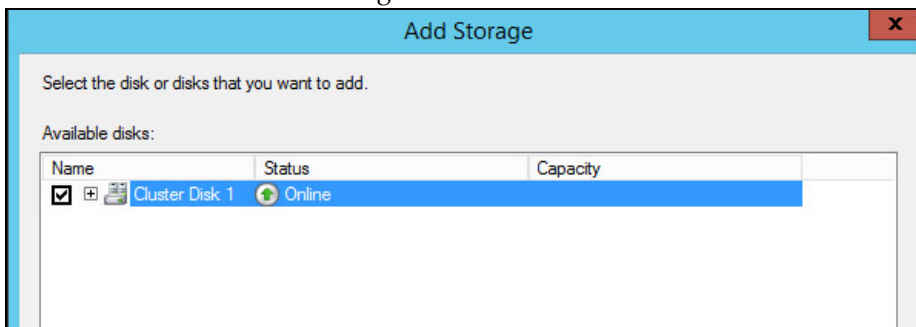
1. In the Failover Cluster Manager, select the Software Group.



2. Right-click on the group, and select **Add storage**.



3. Select an available disk for storage.



4. Click **OK**.

Creating the Software File Server Resource

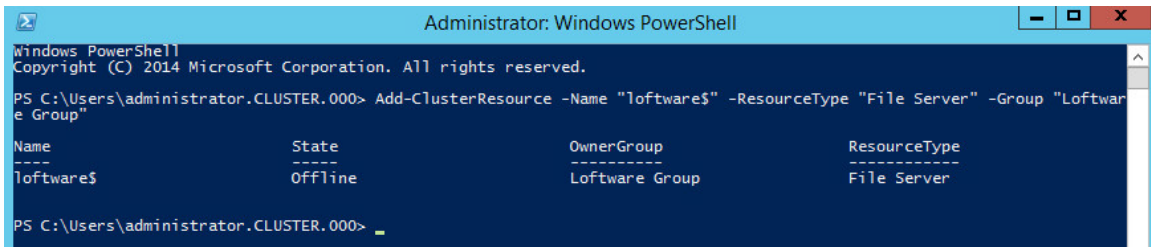
Before installing LPS to the primary node, you must create the **software\$** file server resource. Software allows you to create the **software\$** resource in any group provided that it contains a drive resource to central storage.

In this example, we create the **software\$** file server resource to be owned by the Software Group we created earlier.

To add the software\$ file server, follow these steps:

1. Open Windows PowerShell.
2. At the prompt, type the following command:
`Add-ClusterResource -Name "software$" -ResourceType "File Server" -Group "Software Group"`

Here is an example of the command and display results:



```

Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2014 Microsoft Corporation. All rights reserved.

PS C:\Users\administrator.CLUSTER.000> Add-ClusterResource -Name "software$" -ResourceType "File Server" -Group "Software Group"

Name                State      OwnerGroup      ResourceType
----                -
software$           Offline   Software Group  File Server

PS C:\Users\administrator.CLUSTER.000>

```

3. Open Failover Cluster Manager.

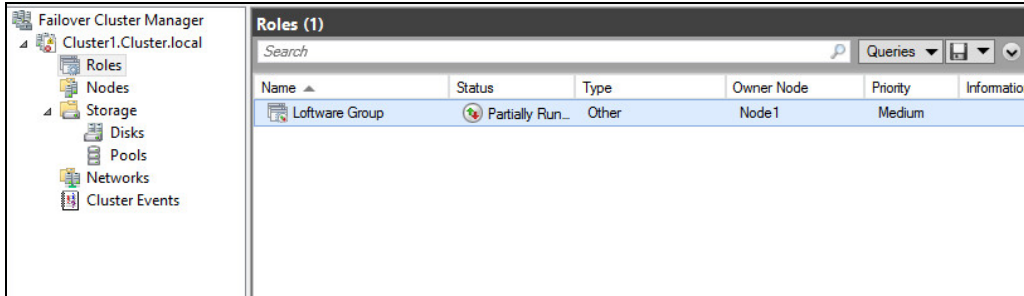
Note: The **software\$** file server resource should remain **offline** during installation of the Software Print Server.

Important! The file share resource must be named **software\$**. Do not change this name.

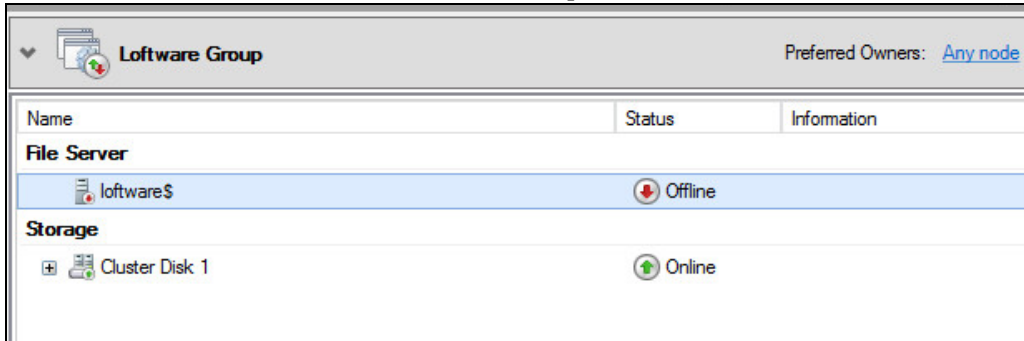
Modifying the Properties of the Group Resource

To modify the properties of the Group's resource, in this example, the Loftware Group, perform the following steps:

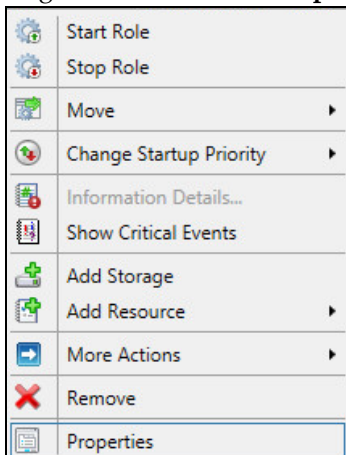
1. In the Failover Cluster Manager, select the **Loftware Group**.



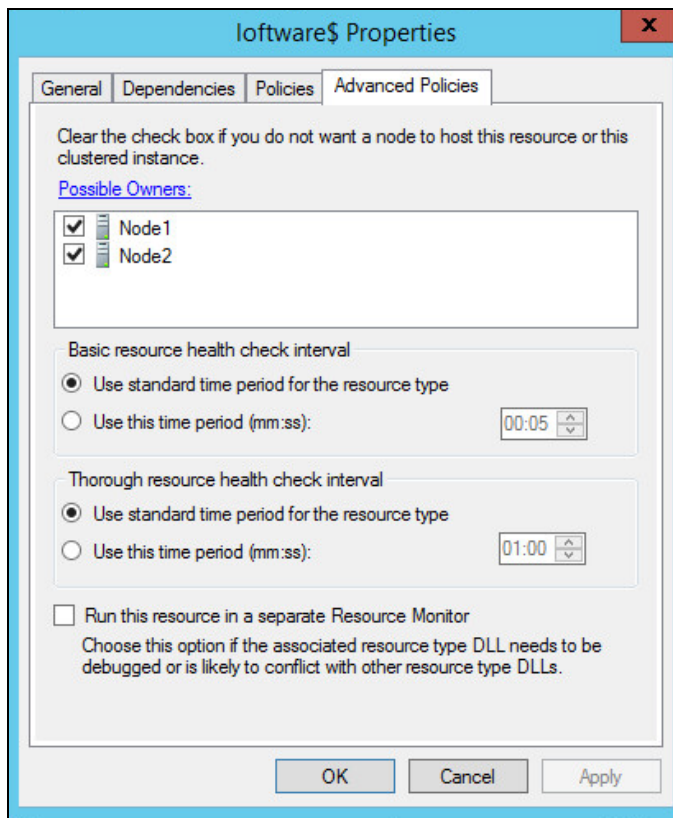
2. Select the **loftware\$** file server from the bottom panel.



3. Right-click and select **Properties**.

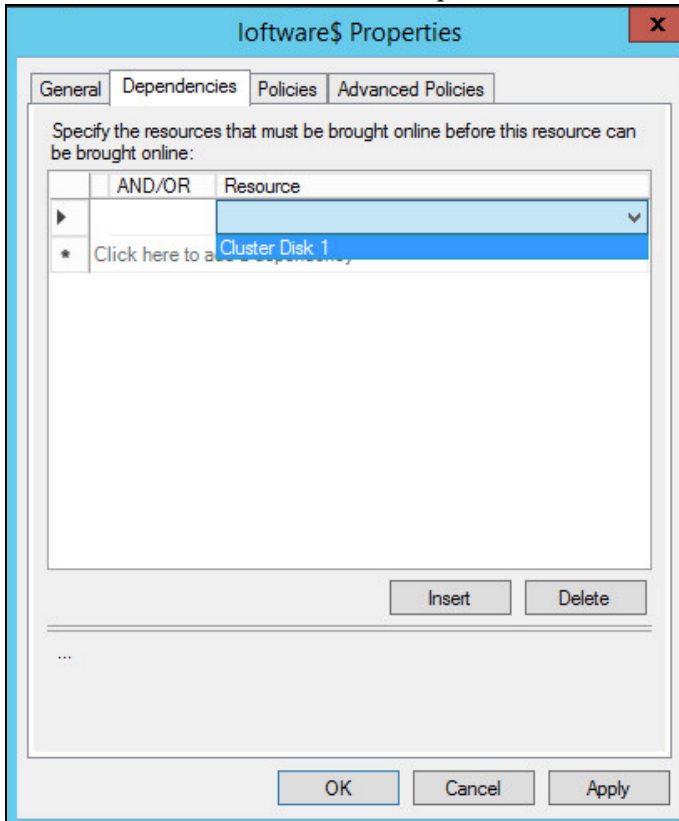


4. Select the **Advanced Policies** tab and make sure both Nodes are selected.



5. Click on the **Dependencies** tab, and then click the Insert button or the "Click here to add a dependency" column.

6. In the **Resource** column, use the drop down box to select a Storage resource (Cluster Disk).



7. Click **OK** to complete the process.

Proceed to ["Launching LPS Setup in Cluster Mode"](#) on page 131 to continue the installation.

Launching LPS Setup in Cluster Mode

This step describes installing LPS to the primary node that owns the shared-drive resource. Install Software to the primary node first.

Note: The setup steps outlined here only describe the parts specific to clustering.

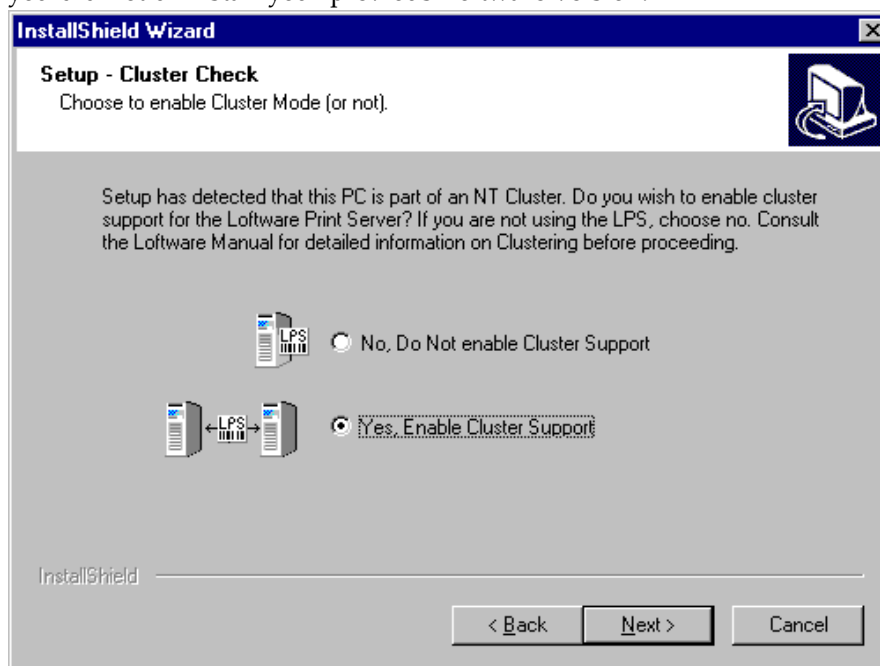
Make sure that there is no previous Software version installed on the computer. Use the **Add or Remove Programs** utility to check, and if necessary remove any previous versions of LPS.

From a CD

1. Place the CD in your computer's CD drive, and wait for the setup program to run.
2. If setup does not start, open setup.exe from the root directory of the CD.
3. The prompts are different depending on the setup mode and whether you are installing only Software Label Manager or you are installing both the Software Label Manager and the Software Print Server.

From a Download

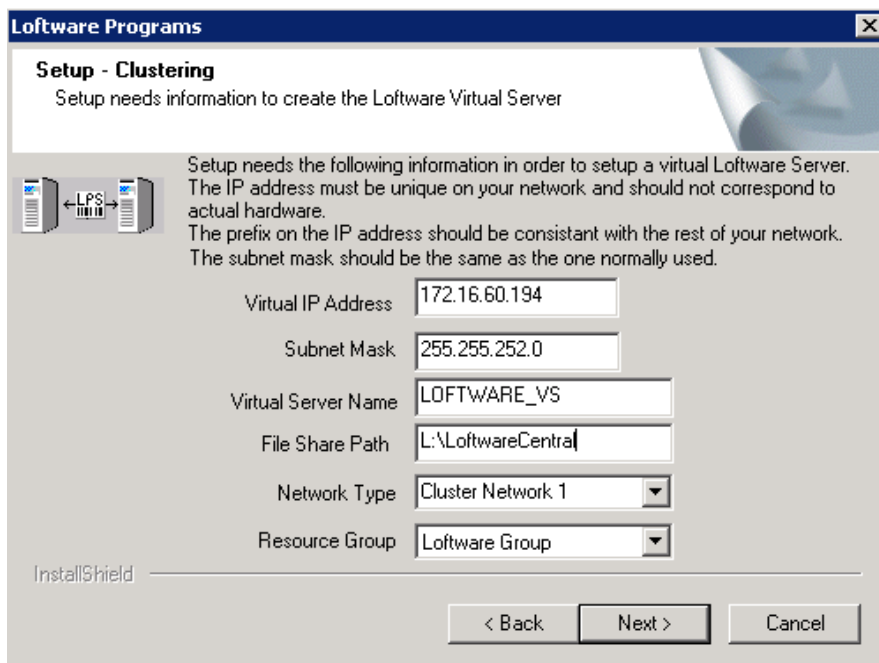
1. Extract the installation zip file to a location on your computer. Open the download folder, and run the Software Print Server or Software Label Manager EXE depending on which program you are installing.
2. Click **Next** from the welcome screen, the **Cluster Check** window is displayed if clustering services are available. If the following screen is not displayed, either your cluster is not set up correctly or you did not uninstall your previous Software version.



3. Select **Yes, Enable Cluster Support** before clicking **Next**. If you select **No**, the Loftware programs are installed in normal mode and clustering support IS NOT enabled.

Create the Loftware Cluster Resources

After you navigate through some informational windows, setup displays the **Loftware Virtual Server** window. The information you enter here is used to configure the Virtual Server resources.



Field	Description
Virtual IP Address	<p>This is the TCP/IP address of the Loftware Virtual Server. The prefix should be consistent with the rest of your network, but the last number should be unique. A network administrator has to assign this number to you. It must be unique and not correspond to any actual hardware on your subnet. The LPS client programs rely on this address to connect. IP address conflicts can cause unpredictable behavior. Your network administrator should take steps to make sure this address remains unique.</p> <p>Note: This is NOT the cluster virtual IP address.</p>
Subnet Mask	<p>This should be the same as that used on your local subnet. Have your network administrator assign this to you. The subnet mask and virtual IP address are used by setup to create the Loftware IP Address resource.</p>
Virtual Server Name	<p>This is the network name of the virtual server. The default is "LOFTWARE_VS", but you can customize the name. This name, along with the loftware\$ share forms the basis for the virtual UNC path to central storage. This path, by default, is \\LOFTWARE_VS\LOFTWARE\$. Setup uses this setting to create the Loftware Virtual Server resource.</p> <p>Note: This is NOT the cluster virtual server name.</p>

Field	Description
File Share Path	This is the location of the central storage used for label directories, image files, and layouts.
Network Type	There are two network names in a typical cluster. One refers to the network connection between the two servers (failover network); the other is the normal connection to the company network. Choose the normal connection to the company network in the drop-down list. Different cluster setups use different naming conventions for the network type. Some name the normal network connection something like "PUBLIC." You must know which one to choose. Unpredictable results occur if you make the incorrect choice. Setup uses the choice here to build the Loftware IP Address resource.
Resource Group	Select the group to which you wish the Loftware resources to be installed. As noted earlier, you may move our resources to a different group after installing. Just be sure that you move all of them. The shared drive resource is not created by setup; it must be there before you launch setup. Note: Unpredictable behavior occurs if any resource names are changed after setup completes.

If You Reboot

If setup instructs you to reboot, after you reboot a dialog box is displayed to permit you to perform post-boot finalization.

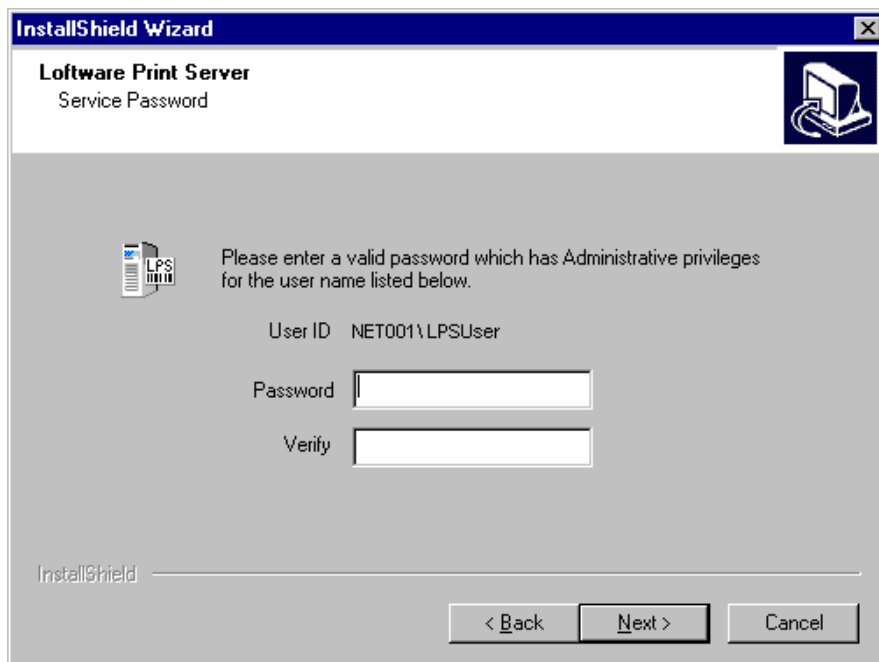
If the **Loftware Print Server - Post Boot Finalize** dialog box is displayed, perform the following steps.

1. Open **Failover Cluster Manager**.
2. Move the **Loftware Group** to the node where you are installing Loftware Print Server.
3. In the **Loftware Print Server - Post Boot Finalize** dialog box, click **Next**.

Configure the LPS

You must supply a password that belongs to the local administrator's group in the Service Password window. Check the User ID displayed in this window. This is the account under which the LPS runs.

- If the User ID is incorrect, click **Cancel**, and go back to Step 1 under "From a CD" or "From a Download."



Install the Software Print Server to the Secondary Node

Prior to installing LPS on the secondary node, you must move the Software Group to the primary node by using the Failover Cluster Manager. You must install LPS to both nodes before attempting to start the LPS resource.

In this example, you must next install LPS to the secondary node.

- Start at "[Launching LPS Setup in Cluster Mode](#)" on page 131 and install LPS to the secondary node.

Install the Hardware Keys

After LPS has been installed on both nodes, install the hardware keys, if you are using them.

With your purchase of the Software Premier Edition with backup support, you may have received hardware-license keys. Plug one key into the port of the computer that is the primary node and the other into the computer that is the secondary node. It does not matter which key plugs into which node. The LPS does NOT run at all on a cluster server without the LPS Premier key.

Bring the Mirror Manager Online

1. Go back to the primary node.
2. Right-click the **Software Mirror Manager** resource and bring it online.

Add a printer in Software Label Manager on the primary node

You must configure at least one printer before bringing the LPS online.

- On the primary node, open Software Label Manager and add a printer.

Bring the Software Print Server Online

After configuring a printer in Software Label Manager, right-click the **Software Print Server** resource and bring it online.

The Software Print Server should now be online and running on your cluster server.

Related Information

If you see a screen that you do not understand, refer to *Installation* in the *Software Label Manager User's Guide*.

For information on configuring printers, refer to *Device Configuration* in the *Software Label Manager User's Guide*.

For key installation information, refer to *Installation* in the *Software Label Manager User's Guide* for more information on key installation.

For information on the Mirror Manager, refer to *The Mirrored Registry* in this guide.

Proceed to the *Post-Installation Check List* after completing the cluster installation.

Post Installation Check List

After installing your system on both nodes, verify that your system works properly, by completing the following checklist.

- Make sure you have successfully installed on both nodes.
- Invoke Failover Cluster Management on either node.
- Expand the group containing the Software resources and note which node owns it.
- The software\$, Software IP Address, and Software Virtual Server should all be online. If they are not, review this document starting from the beginning and correct any mistakes that you may have made. Right click the resources, and try to bring them online. If they fail, you may have to call Software technical support.
- The Software Mirror Manager should be online.
- The Software Print Server should be online.
- Open Software Label Manager on the node that owns the quorum.
 - Design a simple test label with one or two variable fields.
- Test Print your label from Software Label Manager and when the label prints successfully, exit.
- Using a text editor, such as Notepad, create a PAS file that prints your label.
 1. Copy your file to the wddrop (default) directory on the central store. Your label should print.
 2. Initiate a failover by either shutting down the primary node or right-click the **Software Print server** resource and select **Initiate Failover**. The cluster service tries to restart the LPS on the same node 4 times before actually failing over. You must initiate failover 4 times.

- Drop your PAS file to the wddrop directory again after the failover is complete. It should print the same way as it did on the other node.

Related Information

For information on designing labels for testing, refer to the *Designing Labels* section of the *Software Label Manager User's Guide*.

For label printing troubleshooting information, refer to the *Device Connections* section of the *Software Label Manager User's Guide* and *The Software Print Server* section of this guide.

Configuration Considerations

ODBC Data Sources

If you are using an ODBC datasource, do not put your database on one of the cluster nodes. If it is not a host type of database, the file should be placed in the central store. The ODBC Driver and datasource for the database must be set up on each node.

Windows Drivers and Spoolers

If your printer requires that a driver be installed, you must install the driver on both nodes of the cluster. Be sure to use the same driver name and settings on both nodes. If you are using Software Native Drivers with TCP/IP addresses, your printers only need to be configured on one of the nodes, the quorum. All settings transfer to the other node at the first failover.

Configuring your System to Auto-start

Important: Do not use the service control manager to set the LPS to autostart. Doing so nullifies cluster support and may cause unpredictable behavior.

When your system is completely set up and you are ready to go live, bring all Software resources online, and log off the system. The LPS service serves all requests coming from your applications and other Software client modules without having anyone logged in. If one or both servers are rebooted, the cluster service automatically starts the LPS without the need for logging in. If this is not the desired behavior, simply take the LPS resource offline before logging out or shutting down. In other words, the cluster service returns all resources to their previous state on bootup.

Upgrading, Repairing, and Uninstalling

Things to remember before attempting to modify your installation:

- You must take the LPS service and the Mirror Manager offline before performing an upgrade, repair, or uninstall.
- Remember that the LPS service is offline during this process and print requests are denied.
- You must perform the same process on all nodes before attempting to restart the LPS.

- Uninstalling removes all Loftware programs and resources, except the **loftware\$** share. Any files that were installed or created in central storage remain. Use Windows Explorer to delete them if this is what you want.

Remote Administration of a Windows Server Cluster

Windows Server uses Remote Server Administration Tools (RSAT) to enable remote management of server roles and functions. RSAT requires a computer running Windows. See the Microsoft Support website for more information on remote management of your server.

Client Connections to the LPS Virtual Server

The two nodes of the cluster are transparent to clients that are connecting to the LPS. The clients connect to the virtual server. If there is more than one LPS virtual server or a combination of LPS servers on your subnet, the Loftware Clients displays the arbitration dialog box shown in the figure below:

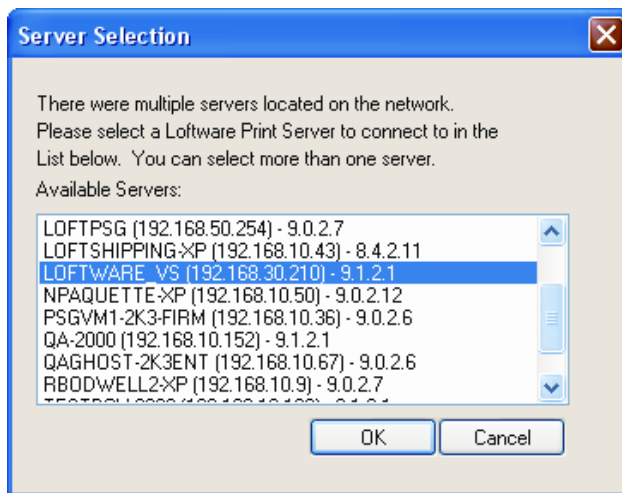


Figure 8.1: Server Selection List as seen from a client

The previous figure shows all of the LPS servers that are currently running on your local subnet with their versions and IP addresses. If you have only one installation of LPS, there is no need for arbitration and the client program automatically connects to the one it finds. Also, notice the 'LOFTWARE_VS' virtual server name. Even though there are actually two installations of LPS on the cluster, only the virtual name is available for connection purposes.

There are several ways to connect to the LPS, each of which is documented in other sections of this manual. Each connection type may behave slightly differently when a failover occurs.

Loftware Notification Agent

Tries to reconnect every 30 seconds after the connection is lost. Reconnect is automatic and usually occurs within 60 seconds of the beginning of transition time.

Software Thin On-Demand Print Client

A message box is displayed which informs the operator that the connection to the server has been lost. It does not know if this due to a failover. If it is a failover situation, the operator must exit the application, wait 30 to 60 seconds, and try again.

Software Status Agent

Tries to reconnect every 30 seconds after the connection is lost. Reconnect is automatic and usually occurs within 60 seconds of the beginning of transition time.

Software Client ActiveX Control

Many of the methods in the ActiveX control fail during the transition period. Be sure to trap the error event.

File Interface from a host or computer application

Writing the PAS file to the drop directory fails if it is attempted during the transition time. Be sure to take appropriate steps in your application to trap this error and handle it.

Socket Interface from a host, computer

The socket connection is terminated at the start of the transition period. Your application must recognize this and either inform the user, or try to reconnect.

Related Information

For information on trapping error events, see *ActiveX Client Control* in this guide.

Troubleshooting Software Print Server Clustering

Problem	Verify
During the installation, you receive a "Catastrophic Failure" during an installation of Software.	Verify the software\$ File Share Resource is online. If it is not, bring it online and restart the installation.
While upgrading Software, you receive the error "429 - ClusterTool.exe -R reported an error. No error message supplied. Setup will not continue."	Verify that there are no other Cluster Resources within the Software Group that have a dependency on any Software resources, even if the cluster resource is offline. If there are cluster resources with Software dependencies, you must remove the dependencies before attempting to restart the Software upgrade. Once the upgrade is complete, you can add the Software dependencies back to the appropriate cluster resources.
The Software Print Server Resource fails to go online and failover.	Verify the Application Event Log for any errors possible due to licensing or printers not configured.

Problem	Verify
<p>The Software Print Server Resource is not responding to print request, and failover is not occurring.</p>	<p>Verify the Application Event Log and System Event Log for possible errors.</p>

External Links

The following material was cited or consulted while developing LPS Family documentation or is a source of more detailed information that is beyond the scope of this documentation.

Apache. *[Apache Tomcat](http://tomcat.apache.org)*.

(<http://tomcat.apache.org>)

Microsoft. *[How to disable IPv6 or its components in Windows](http://support.microsoft.com/kb/929852)*.

(<http://support.microsoft.com/kb/929852>)

Wikipedia. *[Comparison of web server software](http://en.wikipedia.org/wiki/Comparison_of_web_server_software)*.

(http://en.wikipedia.org/wiki/Comparison_of_web_servers)