



# Lexmark Distributed Intelligent Capture

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## Administrator's Guide

# Contents

- Lexmark Distributed Intelligent Capture overview.....8**
  - Understanding the stages of a job.....8
    - Document classification.....8
    - Document extraction .....8
    - Document capture .....9
    - Document processing .....9
    - Document routing.....9
    - Confirmation.....9
  - Understanding the Lexmark Distributed Intelligent Capture system.....10
    - System components .....10
    - Reliability, scalability, and disaster recovery .....10
    - Workflow solutions.....11
    - Client software.....11
    - Lexmark Management Console .....12
  - Security overview.....13
  - System setup overview.....13
  - Supported printers.....14
  - Supported ECM platforms.....14
  
- Installing Lexmark Distributed Intelligent Capture.....16**
  - Minimum and recommended system requirements.....16
  - Avoiding conflicts with other software.....19
  - Ports used by the Lexmark Distributed Intelligent Capture system.....19
  - Activating Lexmark Distributed Intelligent Capture licenses.....20
  - Understanding installation types.....24
  - Installing a workgroup system.....25
    - Configuration type for workgroup systems .....25
    - Installation overview for a workgroup system .....25
    - Installing system components in a workgroup system .....25
  - Installing an enterprise system.....26
    - Configuration types for enterprise systems.....26
    - System sizing guidelines .....29
    - Installation overview for an enterprise system .....30
    - Using Oracle database with Lexmark Distributed Intelligent Capture.....31
    - Installing the database and load balancer without clustering (configurations 1, 1-N, and 1-1-N).....32
    - Installing the database and load balancer with clustering (configurations X-N, and X-Y-N) .....33
    - Installing servers .....36
  - Antivirus policy requirements and recommendations.....37

Installing Lexmark Distributed Intelligent Capture components silently.....38

Using Kerberos authentication.....39

    Configuring Kerberos authentication on printers.....39

    Configuring Lexmark Distributed Intelligent Capture servers for Kerberos authentication .....41

**Monitoring and maintaining the system.....42**

Using Lexmark Management Console.....42

    Accessing Lexmark Management Console.....42

    Changing the administrator user name .....43

    Changing the administrator password.....43

    Enabling LDAP server authentication for LMC.....43

    Assigning privileges to groups .....44

    Device Groups tab tasks .....46

    Software Client Groups tab tasks.....47

    Devices tab tasks.....47

    Solutions tab tasks .....48

    cSF App tab tasks .....49

    E-Forms tab tasks.....49

    Services tab tasks.....49

    System tab tasks .....50

Finding basic information.....50

    Understanding the Home tab .....50

    Understanding the status bar .....51

    System status information on the status bar and Home tab.....51

    Viewing information summaries for Lexmark Distributed Intelligent Capture elements.....52

    Viewing jobs or system logs.....52

    Customizing columns for jobs and system logs .....52

    Viewing device group profile settings.....53

    Viewing software client group profiles .....53

    Viewing forms associated with a solution .....53

    Viewing version information.....53

Managing the Lexmark Distributed Intelligent Capture system.....54

    Viewing and changing server status .....54

    Viewing and managing scheduled tasks .....54

    Configuring the confirmation page.....55

    Adding servers to the system after initial installation .....56

    Changing the IP address on a configuration 1 system .....57

    Rebooting the Lexmark Distributed Intelligent Capture system .....57

    Restarting the Lexmark Solutions Application Server.....58

    Uninstalling Lexmark Distributed Intelligent Capture components.....59

    Updating the Advanced Prompting Bundle .....60

    Managing the e-mail watcher service.....60

Managing system performance.....61

- Accessing the System Health dashboard ..... 61
- Monitoring system health..... 61
- Adjusting limits on concurrent jobs ..... 62
- Tuning the load balancer for unequal servers ..... 63
- Assigning servers to only run LMC or process jobs..... 63
- Configuring chunk size for device discovery and policy updates ..... 64
- Configuring communications..... 64
  - Configuring connection to an SMTP server ..... 64
  - Configuring NPA device communication ..... 65
  - Configuring SNMP for discovering printers ..... 65
  - Configuring device security..... 65
- Managing licenses..... 66
  - Finding the host ID..... 66
  - Viewing or downloading existing licenses ..... 66
  - Upgrading the license of an existing server ..... 67
  - Adding an MFP, e-forms virtual printer, or software client license to an existing server ..... 69
  - Re-hosting licenses ..... 71
- Using the Solution Status Page..... 72
  - Accessing the Solution Status Page ..... 72
  - Understanding status information..... 72
  - Repairing common server problems..... 75
  - Adding printers to a server ..... 75
  - Adding licenses to a server ..... 76
  - Removing printers ..... 77
- Managing reports..... 77
  - Running a report ..... 77
  - Scheduling a report..... 78
  - Using built-in reports ..... 79
  - Adding a report ..... 80
  - Editing report settings ..... 81
  - Removing a report ..... 81
  - Configuring default report options ..... 81
  - Creating custom reports ..... 82
- Backup and disaster recovery..... 84
  - Scheduling automatic backups ..... 84
  - Recovering backup data with a new installation ..... 85
  - Installing new servers during recovery ..... 86
  - Connecting existing servers during recovery ..... 86
  - Recreating Lexmark Distributed Intelligent Capture printer ports after an address change..... 87
  - Manually backing up databases..... 88

**Managing solutions and cSF apps.....90**

- Understanding the deployment process.....90

- Understanding solution or cSF app settings.....90
- Uploading solutions and cSF apps to the Lexmark Distributed Intelligent Capture system.....91
- Configuring global settings.....91
  - Configuring global solution settings .....91
  - Configuring global cSF app settings .....91
- Editing local settings for a deployed or assigned solution.....92
- Configuring an eSF application associated with a solution.....92
- Managing solution-related files.....93
- Removing solutions or cSF apps.....93

**Managing device groups and devices.....95**

- Creating and populating device groups.....95
  - Understanding device groups .....95
  - Creating a device group .....95
  - Creating a device group from an existing device group.....96
  - Configuring policy updates .....96
  - Creating a new discovery profile .....96
  - Importing a list of printers to a device group .....97
  - Discovering printers.....98
  - Discovering missing printers .....99
  - Viewing all printers with outdated policies .....99
  - Scheduling a discovery task .....99
- Deploying solutions to a device group.....100
- Customizing the home screen for a device group.....100
- Updating policies for device groups.....104
- Scheduling policy updates.....104
- Enabling secure communication between servers and printers in a device group.....105
- Disabling validation of eSF application deployment.....105
- Using the Devices tab.....106
  - Searching for devices .....106
  - Editing the home screen layout on specific devices .....107
  - Viewing device profiles .....107
  - Updating device policies .....107
  - Removing devices from the system .....108

**Managing software clients.....109**

- Understanding software clients and software client groups.....109
- Understanding dynamic prompting support.....110
- Understanding software client setup.....111
- Creating and populating software client groups.....112

- Creating a software client group ..... 112
- Adding software clients to a software client group ..... 112
- Importing software clients to a software client group ..... 112
- Assigning solutions to a software client group..... 113
- Installing client software..... 113
- Installing client software on a Microsoft Cluster Server..... 114
- Adding Lexmark Distributed Intelligent Capture printers on a client workstation or print server..... 114
- Configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2..... 116
- Increasing Lexmark Distributed Intelligent Capture print queue availability using printer pooling..... 117

**Testing and using Intelligent Capture solutions..... 118**

- Using a solution from a printer..... 118
- Using Lexmark Distributed Intelligent Capture print queues..... 119
- Using Select'N'Send..... 119
  - Using the Select'N'Send GUI ..... 119
  - Using Select'N'Send from the command line ..... 122
- Scheduling scripts..... 122

**Viewing logs..... 124**

- Viewing installation logs..... 124
- Viewing the server log..... 124
- Viewing the Embedded Solutions Diagnostic Log..... 125

**Troubleshooting..... 126**

- Solving problems with LMC..... 126
  - The browser displays a 5yy error when accessing LMC..... 126
  - LMC responds very slowly ..... 126
  - LMC does not finish loading or data is missing..... 127
  - An error occurs when uploading a formset ..... 127
  - Reports are not displayed when run ..... 127
  - User cannot access some tasks in LMC..... 127
  - User can still access tasks even after privileges are removed ..... 127
  - The Solutions tab and the eSF Configuration task for device groups do not function ..... 127
  - Jobs do not respond after an error occurred ..... 127
- Solving problems with discovery..... 128
  - Discovery and policy updates running slowly ..... 128
  - Discoveries frequently time out ..... 128
  - Some printers on the network cannot be discovered ..... 128
- Solving server and printer problems..... 129
  - One or more servers cannot be set online ..... 129

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One or more servers cannot be set offline .....	129
Error in importing a license.....	129
<b>LDSS Server is unavailable</b> message appears on the printer control panel .....	130
The server log contains Quartz errors .....	130
Kerberos authentication is not working .....	131
An expected icon does not appear on the home screen after solution deployment .....	131
Policy updates failed for a printer .....	132
The printer only returns to the home screen after attempting to execute an Lexmark Distributed Intelligent Capture profile .....	133
The solution stops responding.....	134
The solution cannot connect to the network .....	134
<b>Solving problems with client software.....</b>	<b>134</b>
Cannot create new Lexmark Document Server ports.....	134
System processes terminate unexpectedly when creating a Lexmark Document Server port .....	135
Cannot create or configure a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2.....	135
Jobs are not sent to the Lexmark Distributed Intelligent Capture system .....	135
Select'N'Send cannot send files to Lexmark Distributed Intelligent Capture .....	136
Solutions are receiving inaccurate page counts .....	136
<b>Appendix.....</b>	<b>137</b>
<b>Notices.....</b>	<b>139</b>
Edition notice.....	139
<b>Index.....</b>	<b>143</b>

# Lexmark Distributed Intelligent Capture overview

Lexmark™ Distributed Intelligent Capture is a system for classifying and extracting documents, capturing and converting them to digital format, or capturing existing digital documents and then processing and routing these documents according to your business processes. Users can submit paper documents from *multifunction printers* (MFPs), or they can submit digital documents from individual computers. Additionally, some functions may be accessed from select single-function printers, such as print release.

The Lexmark Distributed Intelligent Capture system has two parts:

- *Intelligent Data Extraction* (IDE) engine—This is composed of the project and learnset created from the distiller.
- Distributed Capture Platform—This is the workflow solution created from the *Software Development Kit* (SDK).

**Note:** For more information on the integration of these parts, see the *Lexmark Distributed Intelligent Capture Integration Guide*.

Each Lexmark multifunction printer has the ability to print, copy, scan, e-mail, FTP, and fax. In addition to controlling and adjusting settings for these native functions, Intelligent Capture can add the following functions through the use of scripts:

- Display messages and prompt the user for input.
- Authenticate through prompts or card swipes.
- Combine scanned documents.
- Read bar codes.
- Use *optical character recognition* (OCR) to store the text from scanned documents.
- Check or validate information in documents against templates.
- Automatically fill fields on a form template from a database or user input.
- Convert documents to specific formats, such as PDF documents, TIF images, and plain text.
- Route and store documents in a database, network location, or *enterprise content management* (ECM) system.
- Provide a user confirmation of actions taken.
- Use Intelligent Data Extraction to classify and extract data from digital or scanned documents.
- Use *optical mark recognition* (OMR) to store human-mark data from document forms such as surveys.

## Understanding the stages of a job

### Document classification

A document is classified by a set of rules defined in the Intelligent Data Extraction engine.

### Document extraction

When a document is classified, a data extractor is assigned to it based on a set of rules defined in the Intelligent Data Extraction engine.



## Document capture

The paper document is converted into a digital document from a Lexmark printer, or a digital document is selected on a user's computer. Documents are also captured using the new functions such as the directory watcher and e-mail watcher. The user chooses from *profiles*, predefined job types that determine through scripts how the scanned document will be processed and routed. On a printer, the most commonly used profiles are often configured as buttons on the home screen.

## Document processing

Document processing takes place on the Lexmark Distributed Intelligent Capture server after the document capture stage is complete. The document is analyzed or modified according to scripts associated with the profile selected prior to document capture.

Common tasks in document processing include reading bar codes, OCR, OMR, and image processing and manipulation.

## Document routing

The main function of Lexmark Distributed Intelligent Capture is delivering captured documents to other systems, using its processing capabilities to transform paper documents into formats required by your business processes. A document can be routed to multiple destinations. When a user submits a document, Lexmark Distributed Intelligent Capture can automatically perform any combination of faxing, sending by e-mail, printing, and archiving without further user intervention.

Lexmark Distributed Intelligent Capture can route documents to any of the following destinations:

- ECM systems, such as SharePoint
- E-mail recipients
- Fax recipients
- Network shares
- FTP locations
- Printers

## Confirmation

After document capture, processing, and routing, the user can be provided with feedback indicating success or failure. A custom report may be printed, or a confirmation prompt can be displayed on the screen of e-Task 2 or later printers. Additionally, other Lexmark Distributed Intelligent Capture services can be used for confirmation purposes. For example, an e-mail notification can be sent to the user or other recipients each time a job is completed.

# Understanding the Lexmark Distributed Intelligent Capture system

## System components

- **Clients**—Clients can be either printers or workstations that use *Select'N'Send* (SnS) or the *Lexmark Document Server Port*. The document capture and confirmation stages of a job occur at a client, and, in the case of printer clients, prompts may be presented to the user to collect information during document processing and document routing.
- **Load balancer**—The load balancer receives jobs from clients and balances those jobs across servers, providing a transition between document capture and document processing stages of a job.
- **Lexmark Distributed Intelligent Capture servers**—The servers process incoming jobs, managing document processing and document routing stages of a job.
- **Database**—The database maintains information about clients, solutions, settings, and jobs.

## Reliability, scalability, and disaster recovery

The load balancer, database, and server components may be installed together on one computer or separately on individual computers, depending on the demands placed on the system. However, a one-computer setup is subject to downtime if that computer fails, and the server load will be fairly limited. Ideally, a system should have at least two server computers, connected to separate database and load balancer computers.

Lexmark Distributed Intelligent Capture is scalable to support a large number of clients, submitting jobs to as many servers as required to handle the load. The load balancer selects a server for each received job to distribute the total load and maintain system performance. Using multiple servers also increases system reliability. If one server fails, then the load balancer will direct jobs to the other servers until the failed server is back online.

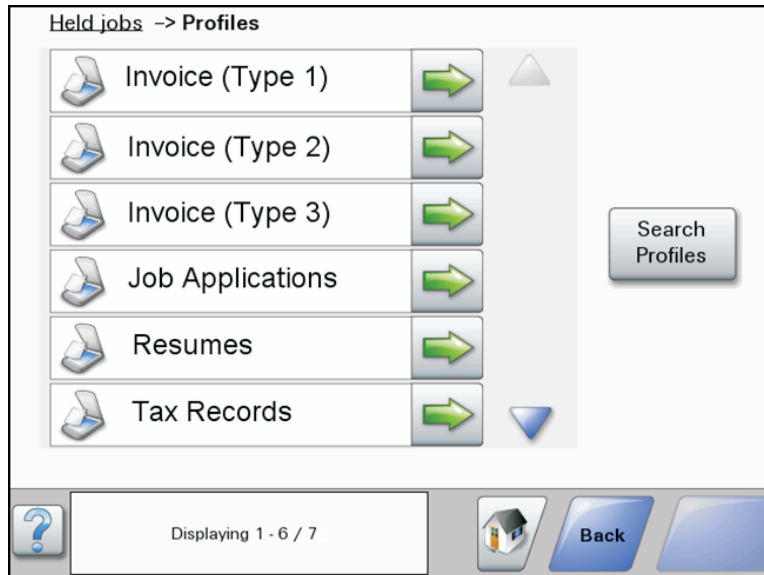
Lexmark Distributed Intelligent Capture uses a Tomcat Connector to manage load balancing in the system. The default balancing method is *session*, which estimates the number of sessions open by counting requests to the system that do not have a session cookie. The session count is decayed by dividing in half, once per minute by default. The server with the lowest number of estimated sessions is selected to process the request.

To further increase reliability by keeping the system online in the event of a failing load balancer or database, the load balancer and database can each be paired in a failover cluster using a *Microsoft Cluster Server* (MSCS).

Finally, you can back up the databases and solutions from the database and load balancer to a network share. If a recovery becomes necessary, then a new load balancer and/or database can access the recovery data using a Restore Install. Existing servers are directed to the new database and/or load balancer, or new servers are installed as necessary.

## Workflow solutions

A workflow solution determines the specifics of each stage of a job in Lexmark Distributed Intelligent Capture to meet a business need. A workflow solution usually provides a new *profile*, or type of job a user can initiate, on a printer or software client to which it is deployed. Some solutions, however, may be scheduled to run at particular times.



A workflow solution contains some or all of the following elements:

- **Script**—This defines the actions executed when a solution is initiated. Scripts can be static, or they may solicit user input to make decisions about processing and routing documents. For example, a script that processes bank loans may request additional user input such as a branch name, account number, or social security number.
- **Policy**—These are the settings for the solution and the printers to which it is deployed:
  - **Device settings**—This is the configuration required on printers to support the jobs. This configuration typically includes profiles but can include almost any device setting.
  - **Solution settings**—These are solution settings that allow you to adjust jobs or printer configurations. Some settings are global to the solution across all printers, while others vary from one group of printers to another.
- **Embedded Solution Framework (eSF) application**—This is an application installed on printer to provide functionality needed by the solution, such as delayed sending of scanned documents.
- **Components**—These are JAR files that provide services not available in the base Lexmark Distributed Intelligent Capture installation, such as interaction with a custom ECM system.
- **Formsets**—These are custom form files used for merging data with standard forms.
- **Custom reports**—These are reports created by a solution developer that present custom data.
- **Solution Status Page**—This is an easy-to-use Web page that can be included with solutions to simplify viewing system status and performing basic operations related to a solution.

## Client software

Client software is used to submit files from a Windows computer to the Lexmark Distributed Intelligent Capture system for processing. A computer that uses client software is known as a *software client*. Lexmark Distributed Intelligent Capture can process documents submitted through client software in the same way as documents scanned at a printer.

**Note:** For more information on the latest Lexmark Distributed Intelligent Capture port monitor support, see the *Readme* file.

There are two types of client software:

- **Select'N'Send**—This is a Windows application, including both a command line utility and a GUI version, that lets users send files directly to Lexmark Distributed Intelligent Capture and select Lexmark Distributed Intelligent Capture profiles to use in processing the sent files. Selected files are submitted to the system in their current formats.

**Note:** Select'N'Send does not support prompting from an Lexmark Distributed Intelligent Capture server system profile.

- **Lexmark Document Server Printer Port**—This is a port monitor that lets users submit documents to Lexmark Distributed Intelligent Capture by printing from any Windows application to a print queue assigned to the port. Printed documents are submitted to the system in the format determined by the print driver used with the print queue.

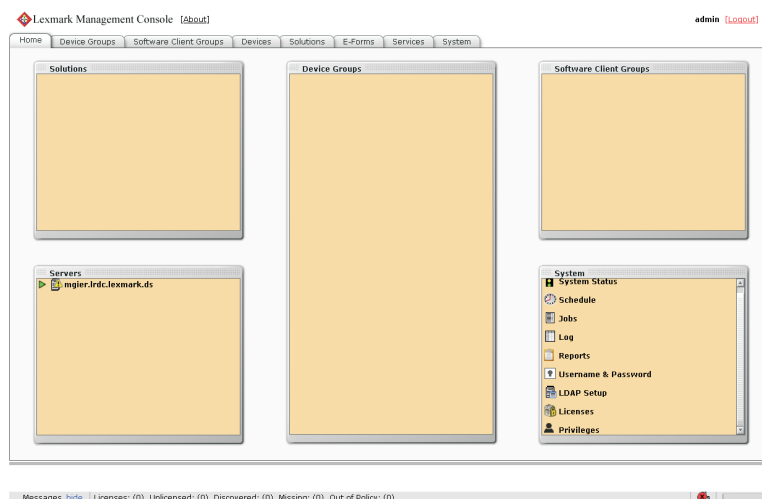
A Lexmark Distributed Intelligent Capture printer port can now be assigned to a Lexmark Distributed Intelligent Capture server system profile that prompts for user input at the time of printing. The prompting is controlled by the profile or script running on the Lexmark Distributed Intelligent Capture server system that the printer port is assigned to. For Lexmark Distributed Intelligent Capture printer port prompting, the port monitor software must be installed on the computer. The Lexmark Distributed Intelligent Capture printer port must be created and assigned to a profile that prompts to an existing print queue.

**Notes:**

- Lexmark Distributed Intelligent Capture printer port prompting is *not* supported on print servers. Do *not* configure a Lexmark Distributed Intelligent Capture port on a print server to use a profile that prompts; otherwise, the spooler will stop responding and possibly crash when print jobs start going into the print server. You can still use Lexmark Distributed Intelligent Capture ports on print servers, but you can assign them only to profiles that do not prompt.
- Configure the nonprompting profiles in the SDK with a property in the SDK that specifies that the profile does not prompt. This helps improve the performance of a Lexmark Distributed Intelligent Capture port assigned to a nonprompting profile.

## Lexmark Management Console

*Lexmark Management Console* (LMC) provides system administration for Lexmark Distributed Intelligent Capture. LMC is a Web application hosted on the Lexmark Distributed Intelligent Capture servers and accessed through the computer where the load balancer is installed. LMC is accessible from anywhere on the network using a Flash plug-in with Internet Explorer or Mozilla Firefox.



## Security overview

- **Administrative security**—Lexmark Management Console is password-protected so that only authorized administrators are allowed access.
- **User authentication**—Printers may require users to log in to run profiles. Text and password prompts are available for use in scripts. Kerberos authentication is available for use only with printers that support it.  
**Note:** *Secure Sockets Layer* (SSL) is required to use Kerberos authentication with an Lexmark Distributed Intelligent Capture system.
- **Data encryption**—Data encryption is available for communication between any two Lexmark Distributed Intelligent Capture components, or with any Lexmark printer that supports encryption. Encryption for communication between Lexmark Distributed Intelligent Capture components is accomplished using *Internet Protocol Security* (IPsec) through your operating system. Encryption for communication with printers can be enabled for each device group in LMC.

## System setup overview

Each of the following steps represents a different stage of the system setup process, covered in the chapter indicated:

- 1 Activate the appropriate licenses, and then install the database, load balancer, and servers. For more information, see “Installing Lexmark Distributed Intelligent Capture” on page 16.
- 2 Perform initial system configuration, including setting up device groups, discovering printers, and scheduling a backup. For more information, see “Managing device groups and devices” on page 95 and “Backup and disaster recovery” on page 84.
- 3 Deploy solutions to printers. For more information, see “Managing solutions and cSF apps” on page 90.
- 4 If you are using software clients, prepare software client groups and install client software where necessary. For more information, see “Managing software clients” on page 109.
- 5 Test deployed solutions on printers and software clients. For more information, see “Testing and using Intelligent Capture solutions” on page 118.

## Supported printers

e-Task 4 printers	e-Task 3 printers	e-Task 2+ printers	e-Task 2 printers	e-Task printers <sup>1</sup>	X642 printers
<ul style="list-style-type: none"> <li>MS610</li> <li>MS810, MS812</li> <li>MX410, MX510, MX511</li> <li>MX610, MX611</li> <li>MX710, MX711</li> <li>MX810, MX811, MX812</li> <li>CS510</li> <li>CX410</li> <li>CX510</li> </ul>	<ul style="list-style-type: none"> <li>X548</li> <li>6500</li> <li>X746, X748</li> <li>X792</li> <li>X950, X952, X954</li> <li>C748</li> <li>C792</li> <li>C925</li> <li>C950</li> </ul>	<ul style="list-style-type: none"> <li>X463, X464, X466</li> <li>X651, X652, X654, X656, X658</li> <li>X734, X736, X738</li> <li>X860, X862, X864</li> <li>T656<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>X644, X646</li> <li>X772</li> <li>X782</li> <li>X850, X852, X854</li> <li>X940, X945</li> <li>T654<sup>3</sup></li> <li>W850<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>X620<sup>2</sup></li> <li>X632, X634<sup>2</sup></li> <li>X752<sup>2</sup></li> <li>X820<sup>2</sup></li> <li>X830, X832<sup>2</sup></li> <li>X912<sup>2</sup></li> <li>C520, C522, C524<sup>3</sup></li> <li>C530, C532, C34<sup>3</sup></li> <li>C732, C734, C736<sup>3</sup></li> <li>C780, C782<sup>3</sup></li> <li>C920<sup>3</sup></li> <li>C935<sup>3</sup></li> <li>E450<sup>3</sup></li> <li>E460, E462<sup>3</sup></li> <li>T640, T632, T644<sup>3</sup></li> <li>T650, T652<sup>3</sup></li> <li>W840<sup>3</sup></li> </ul>	X642

<sup>1</sup> These printers do not support eSF applications used in hybrid solutions.

<sup>2</sup> These printers may be identified as “C”, “T” or “W” models in Lexmark Management Console.

<sup>3</sup> These single-function printers do not support all prompts supported by multifunction printers. For a list of supported prompts, see “Prompts supported by single-function printers” on page 137.

### Notes:

- For more information about the latest device and firmware level support, see the *Readme*.
- Double-byte characters are not supported by all printer models. For more information, see “Double-byte character support” on page 137.

## Supported ECM platforms

- IBM FileNet P8 Content Engine
- IBM FileNet IS 4.0 SP4
- IBM FileNet CS 5.4
- IBM FileNet CE 3.5.2
- Windows SharePoint Services 3.0
- Microsoft Office SharePoint Server 2007
- Microsoft SharePoint 2010
- Microsoft SharePoint Foundation 2010

- EMC Documentum 5.3
- Autonomy iManage WorkSite with WorkSite Server 8.2 or 8.5
- ImageNow 6.6

**Notes:**

- Integration with ECM systems may require specific licenses.
- For ECM platforms not capable of direct integration, Lexmark Distributed Intelligent Capture can save documents and a text file containing metadata, to a directory where an ECM system is configured to poll for files.

# Installing Lexmark Distributed Intelligent Capture

## Minimum and recommended system requirements

### Server, load balancer, and database components

Category	Required	Recommended for enterprise systems
Operating system	Any of the following: <ul style="list-style-type: none"> <li>• Windows Server 2008 R2 Standard or Enterprise Edition (x64)</li> <li>• Windows Server 2008 Standard or Enterprise Edition with SP2 (x86 and x64)</li> <li>• Windows Server 2003 R2 Standard or Enterprise Edition with SP2 (x86 and x64)</li> <li>• Windows Server 2003 Standard Edition with SP2 (x86 and x64)</li> </ul> <b>Note:</b> An x86-based system refers to a 32-bit operating system and an x64-based system refers to a 64-bit operating system.	Windows Server 2008 R2 (x64)
Processor	2GHz dual-core	Dual 2.5GHz quad-core Intel Xeon or AMD Opteron
RAM	2GB	4GB



Category	Required	Recommended for enterprise systems
Hard disk drive	<p>20GB free space for each system component</p> <p><b>Note:</b> The listed space requirement includes both space for the application and free space for operation, but requirements may vary depending on system complexity and number of jobs.</p>	<p>Configuration 1-N, X-N, or X-Y-N:</p> <ul style="list-style-type: none"> <li>• Database and load balancer <ul style="list-style-type: none"> <li>– Operating system and server configured for LMC installed on two 15000 RPM Serial-Attached SCSI drives configured as a RAID 1 array with at least 80GB free space</li> <li>– Database and load balancer installed on four 15000 RPM Serial-Attached SCSI drives configured as a RAID 5 array, with at least 300GB free space</li> </ul> </li> <li>• Servers <ul style="list-style-type: none"> <li>– Operating system and server configured for jobs installed on four 15000 RPM Serial-Attached SCSI drives configured as a RAID 5 array with at least 80GB free space</li> </ul> </li> </ul> <p><b>Note:</b> For more information, see “Assigning servers to only run LMC or process jobs” on page 63.</p>
Network speed	<p>100Mbps network</p> <p><b>Note:</b> Network speed affects the time required to perform a solution, and speed requirements depend on each solution. Solutions that require intensive processing and more network traffic may require Gigabit Ethernet to run at a satisfactory speed.</p>	Gigabit Ethernet using dual-port network adapters
Network name resolution	<p><i>Domain Name System (DNS) or Windows Internet Name Service (WINS)</i></p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• Local hosts files can be used instead of external DNS.</li> <li>• Contact Lexmark Professional Services for support of other network systems.</li> </ul>	

Category	Required	Recommended for enterprise systems
Static addressing	<ul style="list-style-type: none"> <li>The database must have a static IP address if it is installed on a cluster.</li> <li>The load balancer must have a static IP address if: <ul style="list-style-type: none"> <li>It is installed on a cluster.</li> <li>Any e-Task printers are used with the system.</li> <li>Any printers used with the system do not have a DNS server configured.</li> </ul> </li> </ul>	Static IP addresses are recommended for all system components and any e-Task printers used with the system.

**Note:** The database requires the most system resources and disk I/O and therefore should be installed on the fastest hardware with the fastest disk I/O infrastructure available. Second in resource usage are the servers.

### Computers where Lexmark Management Console is accessed

Category	Requirements
Browser	Internet Explorer 7.0 or later, or Mozilla Firefox 9.0 or later, with Adobe Flash Player 10 or later installed with cookies enabled for the address where LMC is accessed
Video	Capable of displaying 1024 x 768 or higher resolutions

### Virtual machine where components are installed

Category	Requirement
Virtual machine monitor	VMware ESX 3.0.1 or later

**Note:** It is not recommended to install the database on a virtual machine.

### Client software operating system compatibility

Select'N'Send and the Lexmark Document Server Printer Port can be used on the following operating systems:

- Windows Server 2008 R2 Standard or Enterprise Edition (x86 and x64)
- Windows Server 2008 Standard or Enterprise Edition with SP2 (x86 and x64)
- Windows Server 2003 R2 Standard or Enterprise Edition with SP2 (x86 and x64)
- Windows Server 2003 Standard or Enterprise Edition with SP2 (x86 and x64)
- Windows 7 (x86 and x64)
- Windows Vista with SP2 (x86 and x64)
- Windows XP Professional with SP2 (x86 and x64)

#### Notes:

- An x86-based system refers to a 32-bit operating system and an x64-based system refers to a 64-bit operating system.
- Enterprise Editions and Enterprise x64 Editions of Windows Server support an active/passive or active/active clustered print server with the Lexmark Document Server Printer Port.
- 32-bit Enterprise Editions of Windows Server support Citrix Presentation Server 4.0.

## Avoiding conflicts with other software

- Install each system component on a computer with a new Windows installation and with no other software installed.
- Avoid installing other software that includes these applications on the same computer where Lexmark Distributed Intelligent Capture components are installed:
  - Apache HTTP Server
  - Apache Tomcat
  - Firebird database server
- Microsoft *Internet Information Services* (IIS) may conflict with Apache HTTP Server and should not be installed.

## Ports used by the Lexmark Distributed Intelligent Capture system

Communication using the following ports should be allowed on the network.

### Notes:

- Ports depend on the implementation of each Lexmark Distributed Intelligent Capture system and may differ from the listing shown here.
- Any ports used by forms printers are determined by the Lexmark Distributed Intelligent Capture administrator.

Component	Port	Protocol	Function
Database	3050	TCP	Database communications
	8001	TCP	Backup/restore agent
Load balancer	4113	TCP	Web adapter (JMX)
	9700	TCP	Profile submission to e-Task printers, Web adapter (JMX)
	9705	TCP	Apache agent
	9780	TCP	Load balancer communications, including LMC
Server	4111	TCP	JMX
	5111	TCP	RMI
	8009	TCP	AJP/Tomcat connector (load balancer worker)
	9743	TCP	Profile submission to printers using SSL
	9780	TCP	Profile submission to printers
	9788	TCP	Profile submission to printers

Component	Port	Protocol	Function
Printer	79	TCP	Finger
	161	UDP	SNMP, device discovery
	5000	TCP	Policy updates, ObjectStore plain text communication
	5353	UDP	Multicast DNS
	6000	UDP	Device discovery, ObjectStore communication using XML protocol
	6100	UDP	Device discovery, policy updates, <i>Lexmark Secure Transport</i> (LST) encrypted data
	6110	TCP	Device discovery, policy updates, LST authentication and negotiation
	9100	TCP	Printing, policy updates
	9300	UDP	Device discovery, NPA protocol UDP communications
	9500	TCP	NPA protocol TCP communications
Software clients	9780	TCP	Profile submission
	9788	TCP	Profile submission

## Activating Lexmark Distributed Intelligent Capture licenses

### Notes:

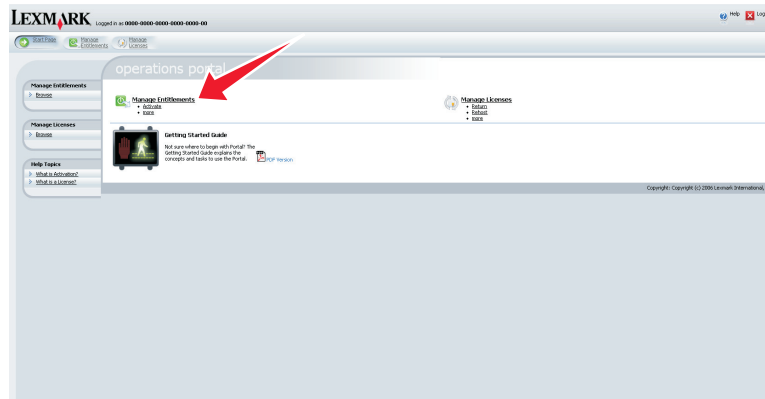
- If your Lexmark reseller has provided you with license files, then save them in a folder accessible to the server, skip the following procedure, and then continue with the server installation using the provided license files.
- If your Lexmark reseller manages your licenses, then you may not be provided with an entitlement ID. Contact your reseller to obtain the proper licenses.
- When using a failover cluster for the load balancer, a complete set of licenses (including a server license, printer licenses for all printers, a client license if applicable, and e-forms virtual printer licenses if applicable) must be activated for the host ID of *each* node in the cluster and made available on the shared drive.
- Before installing the load balancer, the appropriate licenses must be activated. Activation associates the server license, each printer license, and, if applicable, a client license with the physical address of the load balancer in the Lexmark Distributed Intelligent Capture system and generates license files that will only work with that system.

- 1 On the computer where you want to install the load balancer or workgroup system, click **Activate and Download License File(s)** in the installation window.
- 2 Enter the entitlement ID provided with the server software package.
- 3 Copy the host ID displayed on the installation window.

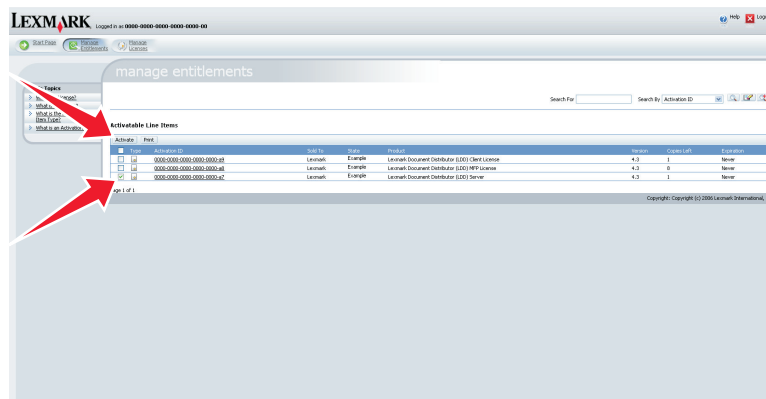
### Notes:

- The host ID is the physical address (MAC address) of the network adapter in the server, without hyphens or other punctuation.
- If multiple network adapters are present, then a list of host IDs are shown. Any listed host ID is appropriate as long as the associated network adapter remains in the server. However, using the host ID associated with the network adapter connected to the same network as your Lexmark Distributed Intelligent Capture system may help avoid future confusion. For more information, see “Finding the host ID” on page 66.

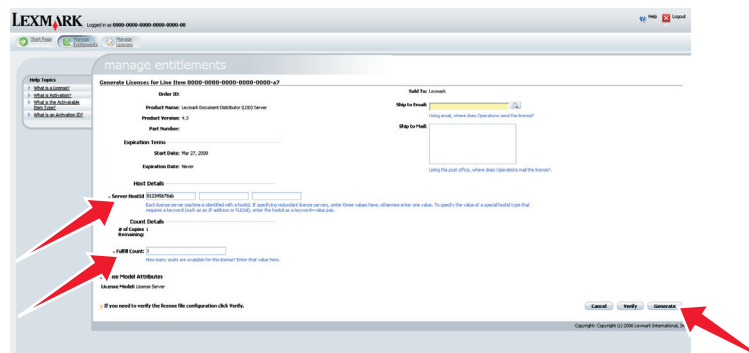
- 4 Click **Launch Lexmark Licensing Portal**.
- 5 In your Web browser, click **Manage Entitlements**.



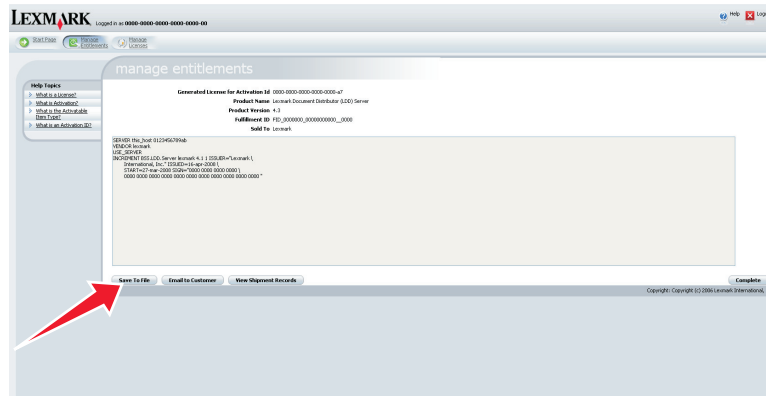
- 6 Activate and download the license for your Lexmark Distributed Intelligent Capture server system:
  - a Select the line for the product Lexmark Distributed Intelligent Capture Server, and then click **Activate**.



- b In the first Host ID field, enter the host ID determined in step 3.
  - Note:** The host ID is the physical address (MAC address) of the network adapter in the server, without hyphens or other punctuation.
- c In the Fulfill Count field, type **1**.
- d Click **Generate**.



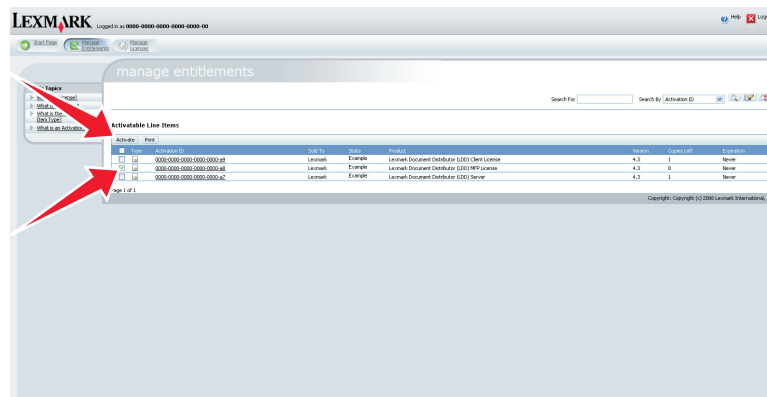
- e Click **Save To File**, and then save the file using a descriptive file name, such as **server.lic**, to a folder accessible to the load balancer.



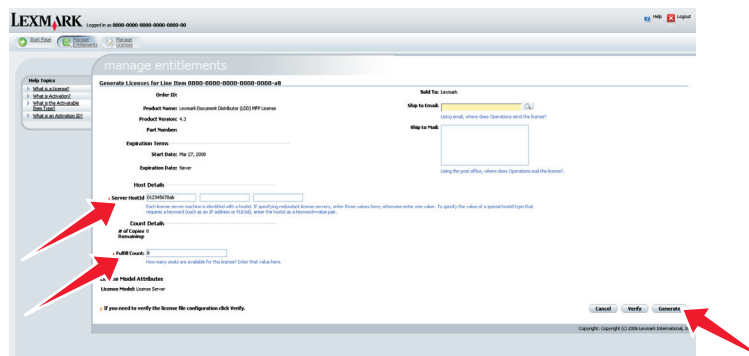
- f Click **Complete**.

**7** Activate and download the license for using Lexmark Distributed Intelligent Capture with your printers:

- a Select the line for the product Lexmark Distributed Intelligent Capture MFP License, and then click **Activate**.

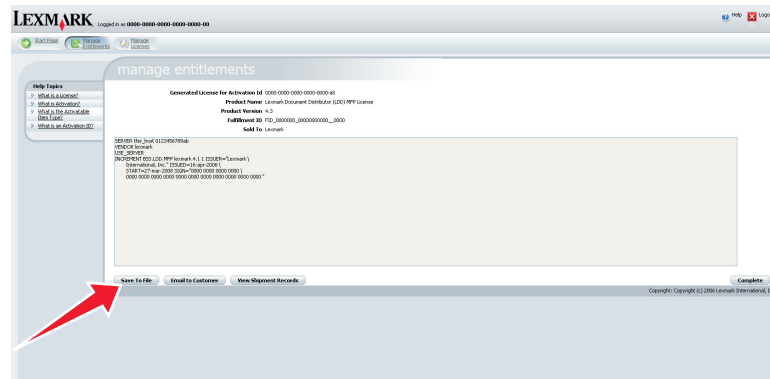


- b In the first Host ID field, type the host ID determined in step 3.
- c In the Fulfill Count field, type the number of printers associated with the server you are licensing.
- d Click **Generate**.



- e Click **Save To File**, and then save the file using a descriptive file name, such as **printer.lic**, in the same folder used in step 6.

**Note:** Use a file name different from any other saved license files so they are not overwritten.



f Click **Complete**.

8 If you are using e-forms, then activate and download the license for e-forms virtual printers:

a Select the line for the product Lexmark Distributed Intelligent Capture EFVP License, and then click **Activate**.

b In the first Host ID field, type the host ID determined in step 3.

c In the Fulfill Count field, type the number of e-forms virtual printers associated with the server.

d Click **Generate**.

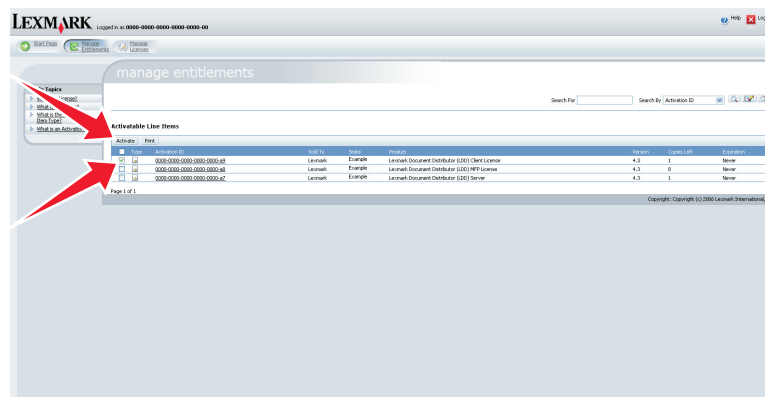
e Click **Save To File**, and then save the file using a descriptive file name, such as **efvp.lic**, in the same folder used in step 6.

**Note:** Use a file name different from any other saved license files so they are not overwritten.

f Click **Complete**.

9 If you are using software clients with your Lexmark Distributed Intelligent Capture system, then activate and download the license for software clients:

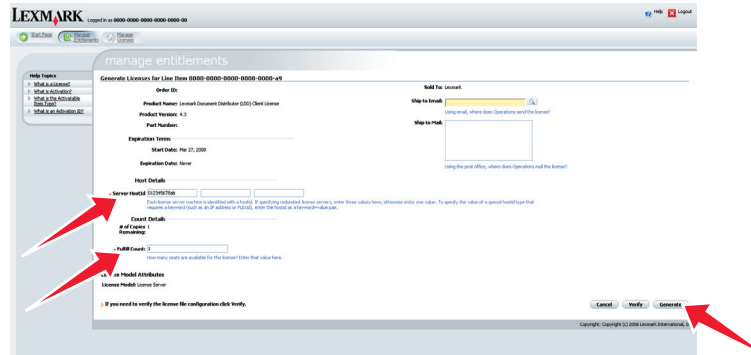
a Select the line for the product Lexmark Distributed Intelligent Capture Client License, and then click **Activate**.



b In the first Host ID field, type the host ID determined in step 3. If you are using a failover cluster for the load balancer, then type the host IDs for standby nodes in the additional host ID fields.

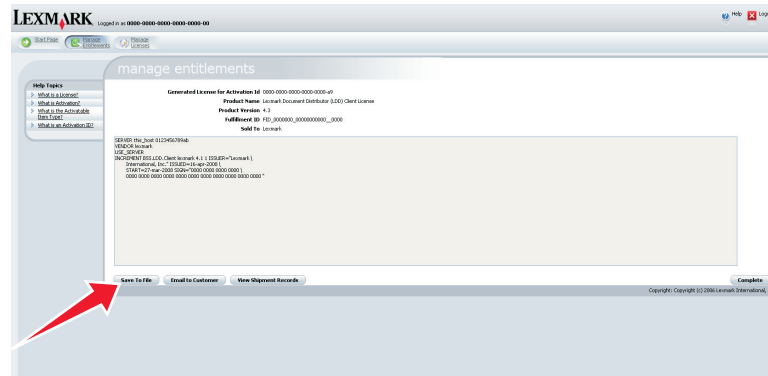
c In the Fulfill Count field, type the number of software clients associated with the server.

d Click **Generate**.



e Click **Save To File**, and then save the file using a descriptive file name, such as `client.lic`, in the same folder used in step 6 and step 7.

**Note:** Use a file name different from any other saved license files so they are not overwritten.



f Click **Complete**.

## Understanding installation types

Two types of Lexmark Distributed Intelligent Capture systems can be installed:

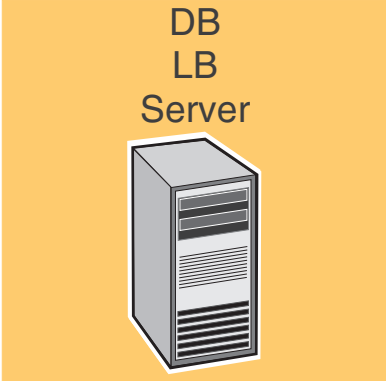
- **Workgroup system**—This is a Lexmark Distributed Intelligent Capture installation with a packaged solution for smaller systems. Installing a workgroup system quickly installs the database, load balancer, and one server on one computer, and a solution is installed during the installation.
- **Enterprise system**—This is the standard Lexmark Distributed Intelligent Capture installation for larger systems and more demanding applications. Installing an enterprise system lets you install the database, load balancer, and servers on different computers to create a reliable and scalable system.



## Installing a workgroup system

### Configuration type for workgroup systems

#### Configuration type and its advantages and disadvantages

Description	Advantage	Disadvantage
Database (DB), load balancer (LB), and server on a single computer 	Minimum equipment	No failover for database or load balancer, limited resources

### Installation overview for a workgroup system

- 1 Configure the computer where to install Lexmark Distributed Intelligent Capture on the network.
- 2 Activate and download licenses.
- 3 Install Lexmark Distributed Intelligent Capture using a workgroup installation.
- 4 Change the administrator password, and optionally, the administrator user name.
- 5 Temporarily set servers online to test function.

**Note:** Because software clients are managed differently than printers, client software is installed later in the system setup process. For information about installing client software and managing software clients, see “Managing software clients” on page 109.

### Installing system components in a workgroup system

- 1 From the Lexmark Distributed Intelligent Capture installation package, run **Setup.exe**.
- 2 From the Lexmark Solutions installation window, click **Install Workgroup System**.
- 3 Click **Agree** to accept the license agreement.
- 4 Specify the folder where the server software should be installed, and then click **Next**.
- 5 If multiple network adapters are present, then select the network containing your printers by selecting the IP address of the server on that network, and then click **Next**.

6 If you are installing a system to recover a backup, then do the following:

- a Select **Restore Install (RI)**.
- b Type the path of the folder containing the .ri file from the backup, or click the folder icon and then locate the .ri file.

7 Specify the folder where you stored the license files during the activation process.

**Notes:**

- If the license files are located on a network share that requires authentication, then you must supply authentication before specifying the license location. To authenticate with the remote server, click **Start > Run**, type the UNC path to the share (for example, `\\myserver\myshare\`), and then type the user name and password when prompted.
- During installation, the license files are copied to the program folder. You can safely move the license files from the temporary location where you saved them.

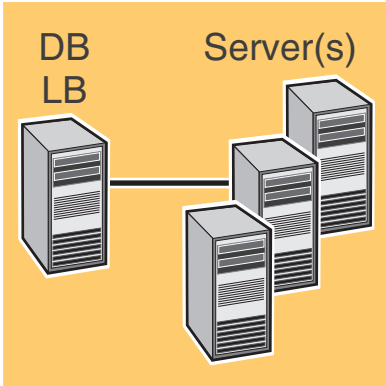
8 Specify the solution file that should be installed with the workgroup system.

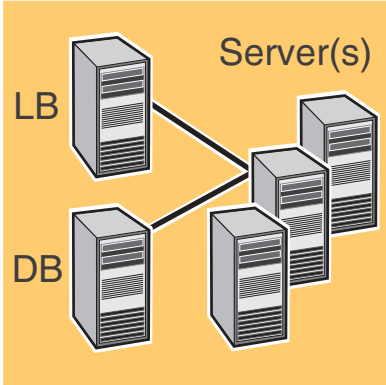
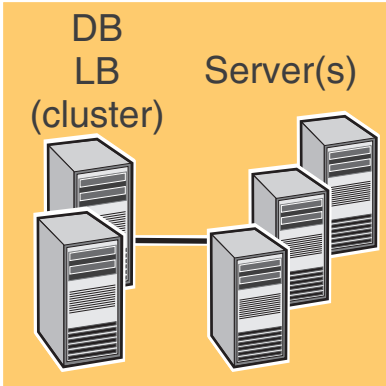
9 Click **Finish > Done**.

## Installing an enterprise system

### Configuration types for enterprise systems

When installing an enterprise system, Lexmark Distributed Intelligent Capture can be installed using the following hardware configurations:

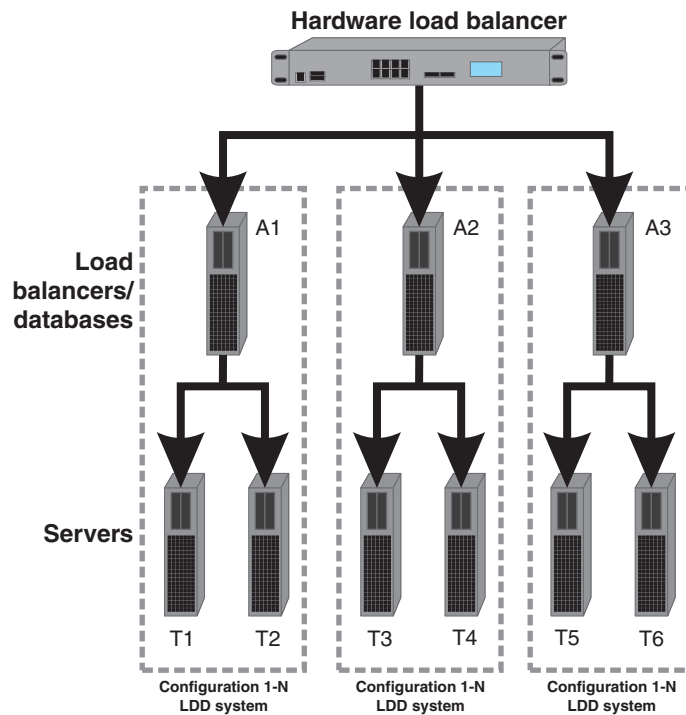
Configuration	Description	Advantages	Disadvantages
1-N	<p>Database (DB) and load balancer (LB) on one computer, server on one or more additional computers (most common setup when failover is not used)</p> 	Improved performance	Increased hardware needs, no failover for database or load balancer

Configuration	Description	Advantages	Disadvantages
1-1-N	<p>Database (DB) and load balancer (LB) on separate computers, server on one or more additional computers</p>  <p><b>Note:</b> An external Oracle database may be installed in place of the standard database, resulting in an E-1-N configuration. The external database (E) and load balancer (LB) are on separate computers, and the server is on one or more additional computers.</p>	Further improved performance	Further increased hardware needs, no failover for database or load balancer
X-N	<p>Database (DB) and load balancer (LB) together on X computers in a Microsoft Cluster Server for failover, server on one or more additional computers (most common setup when using failover)</p> 	High availability, improved performance	Increased hardware needs, cluster licensing

Configuration	Description	Advantages	Disadvantages
X-Y-N	<p>Database (DB) on X computers in a Microsoft Cluster Server for failover, load balancer (LB) on Y other computers in a Microsoft Cluster Server for failover, server on one or more additional computers</p> <div data-bbox="500 396 883 779" data-label="Diagram"> </div> <p><b>Note:</b> An external Oracle database may be installed in place of the standard database, resulting in an E-Y-N configuration. The external database (E) on X computers and the load balancer (LB) on Y other computers are in a Microsoft Cluster Server for failover. The server is on one or more additional computers.</p>	<p>High availability, further improved performance</p>	<p>Further increased hardware needs, cluster licensing</p>

### Using multiple systems for high availability

When configuring multiple Lexmark Distributed Intelligent Capture systems, you can connect them to a hardware load balancer or Global Site Selector (GSS) to provide high availability, without using clustering, as well as increased capacity.



Each system group contains two identical Lexmark Distributed Intelligent Capture systems. Jobs are balanced between these systems in each group by the hardware load balancer or GSS. If a failure occurs in one system in a group, then the other system in the group receives all incoming jobs until the failed system can be restored.

With this type of setup, you need additional computers, as well as a hardware load balancer or GSS. You also need to manually configure these systems to be identical.

**Note:** Printers that do not support eSF applications cannot be used with a Lexmark Distributed Intelligent Capture system that uses a hardware load balancer or GSS.

When a hardware load balancer is used with multiple Lexmark Distributed Intelligent Capture systems, the hardware load balancer must be configured as follows:

- The X-Forwarded-For HTTP header must be inserted into incoming packets.

The packets going into the Lexmark Distributed Intelligent Capture systems from the HW LB should not appear to be from the hardware load balancer of the packet headers so that device or clients groups and their settings will work properly.

- Cookie-based session persistence must be disabled.

This is needed in case one of the Lexmark Distributed Intelligent Capture systems is down. If this is enabled, then LMC may not work properly when one of the Lexmark Distributed Intelligent Capture systems is down.

- The load balancing algorithm should be set to Round Robin.

Based on tests made on hardware balancing algorithms, Lexmark Distributed Intelligent Capture systems work better with round robin than the other algorithms.

## System sizing guidelines

There are two main factors for determining the number of servers required to process jobs efficiently:

- **Peak demand**—This is usually the deciding factor when the average execution time for a solution is under 30 seconds.
- **Concurrency**—This is usually the deciding factor when the average execution time for a solution is over 30 seconds.

Additionally, the database, when installed on the recommended hardware and connected using Gigabit Ethernet, can process 200,000 logged messages per hour, which is approximately 40,000 jobs per hour when using a typical solution (five logged messages per job). If this limit is reached, then it may be necessary to use multiple systems.

### Peak demand

Use the following formulas to determine the number of servers necessary to handle peak loads for a particular solution:

**(System-wide hourly job rate)** = (system printer capacity) x (jobs per printer per day) / (length of business day)

**(Peak demand)** = 2 x (system-wide hourly job rate)

**(Minimum number of servers)** = (peak demand) / (single-server throughput for current solution)

Consider the following example:

- Each server in your system can process 3000 jobs per hour using the solution.
- There is capacity for 300 printers in your system.
- Each printer in your system averages 100 jobs per day.

Perform the following calculations:

- 1 Determine the system-wide hourly job rate:

$$(300 \text{ printers}) \times (100 \text{ daily jobs/printer}) / (8 \text{ hours/day}) = \mathbf{3750 \text{ jobs/hour}}$$

- 2 Determine the peak demand:

$$2 \times (3750 \text{ jobs/hour}) = \mathbf{7500 \text{ jobs/hour}}$$

**3** Determine the minimum number of servers:

$$(7500 \text{ jobs/hour}) / (3000 \text{ jobs/hour}) = 2.5$$

Rounding up, the system should include three servers to reliably handle the peak load for a solution with average execution time below 30 seconds.

The single-server throughput for a solution must be determined by the solution developer, though the following typical throughputs on a server with the recommended hardware may help determine a rough estimate:

Solution processing load	Functions used	Average single-server throughput
Typical	<ul style="list-style-type: none"> <li>Some image processing</li> <li>Printing</li> </ul>	6000–8000 jobs per hour
Heavy	<ul style="list-style-type: none"> <li>Extensive image processing</li> <li>Bar codes</li> <li>External processes</li> <li>Small to medium Document Producer (e-forms) jobs</li> </ul>	2000–3000 jobs per hour
Very heavy (OCR)	<ul style="list-style-type: none"> <li>OCR</li> <li>Large Document Producer (e-forms) jobs</li> </ul>	100–200 jobs per hour

**Note:** Using less than the recommended RAM significantly reduces throughput. For example, a dual-processor server with only 2GB of RAM can process only 600–800 jobs/hour when using a “heavy” solution.

For more information, see the *Lexmark Document Distributor SDK Guide*.

## Concurrency

Each server that meets recommended requirements can process 30 concurrent jobs from clients. The following formula determines the number of servers necessary to meet concurrency requirements:

$$(\text{minimum number of servers}) = (\text{number of printers expected to submit jobs near the same time}) / 30$$

For example, assume that 1/3 of the 300 printers in the last example might be active at the same time:

$$100 / 30 = 3.33$$

Rounding up, the system should include four servers to allow for 100 active printers for a solution with average execution time below 30 seconds.

## Installation overview for an enterprise system

- 1 Select a system configuration, and then configure the appropriate hardware on the network.
- 2 Make sure the time on all computers used in the Lexmark Distributed Intelligent Capture system is synchronized using a *Network Time Protocol* (NTP) server.
- 3 Install the system components.

**Note:** If you are installing Lexmark Distributed Intelligent Capture using the default database (Firebird), then the system components can be installed in any order. However, if you are using Oracle database, then see “Using Oracle database with Lexmark Distributed Intelligent Capture” on page 31 before installing Lexmark Distributed Intelligent Capture.

- a Install the database.
- b Activate and download licenses on the computer where the load balancer will be installed.

- c Install the load balancer.
- d If you are using one or more Microsoft Cluster Servers, then extend the database and load balancer to standby nodes.
- e Install servers.

**Note:** Multiple servers should not be installed at the same time. Let each server installation complete before beginning another server installation.

- 4 Change the administrator password. You can also change the administrator user name.
- 5 Temporarily set servers online to test function.

**Notes:**

- The database requires the most system resources and disk I/O, and therefore should be installed on the fastest hardware with the fastest disk I/O infrastructure available. Second in resource usage are the servers.
- Lexmark Distributed Intelligent Capture components can be installed on virtual servers using VMware ESX 3.0.1 or later. However, the best performance can be achieved only by using separate physical servers.

## Using Oracle database with Lexmark Distributed Intelligent Capture

If you are using Oracle as the back-end database, then make sure:

- The Oracle database 10g or later is completely installed before proceeding with the Lexmark Distributed Intelligent Capture installation.
- Lexmark Distributed Intelligent Capture system components are not installed on the server running Oracle.
- The internal Lexmark Distributed Intelligent Capture database is not installed.

For Lexmark Distributed Intelligent Capture to work with Oracle, six databases should be created before the load balancer and server are installed. To help the database administrator create these databases, Lexmark Distributed Intelligent Capture includes the following in the installation package:

- Database templates—These are Database Configuration Assistant (DBCA) templates used to create databases. Your database administrator can launch these templates through DBCA, and then configure parameter settings as needed.
- Scripts—These are user configuration scripts for adding users. Users are added to access and manage Lexmark Distributed Intelligent Capture databases.
- Pfiles—These files contain information about the database configuration parameters. The values of database configuration parameters may vary, except the parameter value for `nls_timestamp_format` and `nls_timestamp_tz_format` of the MONITOR database.

These parameters should have the following values:

```
nls_timestamp_format string YYYY-MM-DD HH24:MI:SS:FF3
```

```
nls_timestamp_tz_format string YYYY-MM-DD HH24:MI:SS:FF3
```

**Note:** Make sure to follow the correct time-stamp format when configuring time-stamp parameters.

## Installing the database and load balancer without clustering (configurations 1, 1-N, and 1-1-N)

### Installing the database

**Note:** If you are installing an Oracle database, then do not install the default database.

Do the following on the computer that will run the database:

- 1 From the installation package, run **Setup.exe**.
- 2 From the Lexmark Solutions installation window, click **Install Enterprise System > Install Database**.
- 3 Click **Agree** to accept the license agreement.
- 4 If necessary, specify a location for the installation, and then click **Next**.  
**Note:** The installation path cannot contain double-byte characters.
- 5 Select the IP address of the computer that will run the database.
- 6 If you want to use only IP addresses for a system without reliable DNS, then select **IP address only install**, and then click **Next**.
- 7 If you are installing a system to recover a backup, then do the following:
  - a Select **Restore Install (RI)**.
  - b Type the path of the folder containing the .ri file from the backup, or click the folder icon, and then locate the .ri file.
- 8 Click **Finish**.
- 9 Allow the installation to complete, and then click **Done**.

### Installing the load balancer

Do the following on the computer that will run the load balancer:

- 1 If the Lexmark Solutions installation window is not open, then run **Setup.exe** from the installation package.
- 2 From the Lexmark Solutions installation window, click **Install Enterprise System > Install Load Balancer**.
- 3 Click **Agree** to accept the license agreement.
- 4 If necessary, specify a location for the installation, and then click **Next**.  
**Note:** The installation path cannot contain double-byte characters.
- 5 Select the IP address of the computer that will run the load balancer.
- 6 If you want to use only IP addresses for a system without reliable DNS, then select **IP address only install**, and then click **Next**.
- 7 Type the fully qualified domain name or IP address of the computer where the database is installed.

#### Notes:

- If you are installing the load balancer on the same computer as the database, then you must still use the fully qualified domain name or IP address of the computer on the network. Do not use localhost or the loopback IP address (127.0.0.1) for the location of the database.
- When installing any configuration other than configuration 1, the location of the database can be set most conveniently during installation. If the database is moved, or the IP address of the database changes for any



other reason, then you must uninstall, and then reinstall the load balancer. For more information about changing the IP address of a Configuration 1 system, see “Changing the IP address on a configuration 1 system” on page 57.

**8** Select the type of database, and then click **Next**.

**Note:** If you are using an Oracle database, then make sure the database is already installed before proceeding with the installation.

**9** Specify the folder that contains your license files, and then click **Next**.

**Notes:**

- If the license files are located on a network share that requires authentication, then you must supply authentication before specifying the license location. To authenticate with the remote server, click **Start > Run**, type the *Uniform Naming Convention* (UNC) path to the share (for example, `\\myserver\myshare\`), and then type the user name and password when prompted.
- During installation, the license files are copied to the program folder. You can safely move the license files from the temporary location where you saved them.

**10** If you are installing a system to recover a backup, then do the following:

- a** Select **Restore Install (RI)**.
- b** Type the path of the folder containing the .ri file from the backup, or click the folder icon and then locate the .ri file.

**11** Click **Finish**.

**12** Allow the installation to complete, and then click **Done**.

## Installing the database and load balancer with clustering (configurations X-N, and X-Y-N)

**Notes:**

- Before installing Lexmark Distributed Intelligent Capture, set up the failover clusters using Microsoft Windows Server Clustering Services.
- Make sure to set up all firewall exceptions on all physical and logical nodes in the cluster before installing Lexmark Distributed Intelligent Capture.

### Setting up firewall exceptions on a Windows Server 2008 cluster node

- 1** Create a temporary directory.
- 2** From the `install\Cluster_Config_Script` of the Lexmark Distributed Intelligent Capture installation package, copy all the batch files (`2008-cluster-*.bat`) to the temporary directory.
- 3** Open a command prompt window as an administrator.
  - a** Click **Start > All Programs > Accessories**.
  - b** Right-click **Command prompt**, and then click **Run as administrator**.
  - c** If the User Account Control dialog appears, then confirm that you want to start the command prompt as an administrator, and then click **Continue**.

- 4 From the command prompt window, change the current directory to the temporary directory you created.
- 5 Run the batch files (2008-cluster-\*.bat) by typing the batch file name and then pressing **Enter**.

**Note:** If you are using an Oracle database for Lexmark Distributed Intelligent Capture, then do not run the Lexmark Distributed Intelligent Capture DB firewall batch file (2008-cluster-firewall-config-DB.bat).

### Installing the database

If you are installing the Lexmark Distributed Intelligent Capture database on a Microsoft server cluster, then install the Microsoft C++ 2005 Redistributable package on all physical nodes or servers in the cluster. If these files are not installed, then the Lexmark Distributed Intelligent Capture database cluster resource will not initiate failover to the cluster node where Lexmark Distributed Intelligent Capture is not installed.

Depending on the operating system installed on the cluster node (x86 or x64), run the Microsoft C++ 2005 Redistributable package, found in the packages folder of the Lexmark Distributed Intelligent Capture installation package (vcredist\_x86\*.exe or vcredist\_x64\*.exe).

**Note:** If you are using an Oracle database, then do not install the Lexmark Distributed Intelligent Capture database.

Do the following on the primary node of the failover cluster that will run the database:

- 1 From the Lexmark Distributed Intelligent Capture installation package, run **Setup.exe**.
- 2 From the Lexmark Solutions installation window, click **Install Enterprise System > Install Database**.
- 3 Click **Agree** to accept the license agreement.
- 4 Specify a location on a shared cluster disk for the installation, and then click **Next**.  
**Note:** The installation path cannot contain double-byte characters.
- 5 Select the IP address or host name of the logical host of the cluster.
- 6 If you want to use only IP addresses for a system without reliable DNS, then select **IP address only install**, and then click **Next**.
- 7 If you are installing a system to recover a backup, then do the following:
  - a Select **Restore Install (RI)**.
  - b Type the path of the folder containing the .ri file from the backup, or click the folder icon and then locate the .ri file.
- 8 Click **Finish**.
- 9 Allow the installation to complete, and then click **Done**.

### Installing the load balancer

Do the following on the primary node of the failover cluster that will run the load balancer:

- 1 If the Lexmark Solutions installation window is not open, then run **Setup.exe** from the Lexmark Distributed Intelligent Capture installation package.
- 2 From the Lexmark Solutions installation window, click **Install Enterprise System > Install Load Balancer**.
- 3 Click **Agree** to accept the license agreement.
- 4 If necessary, specify a location on a shared cluster disk for the installation, and then click **Next**.  
**Note:** The installation path cannot contain double-byte characters.
- 5 Select the IP address or host name of the logical host of the cluster.

**6** If you want to use only IP addresses for a system without reliable DNS, then select **IP address only install**, and then click **Next**.

**7** Type the fully qualified domain name or IP address of the logical host where the database is installed.

**Notes:**

- If you are installing the load balancer on the same computer as the database, then you must still use the fully qualified domain name or IP address of the logical host on the network. Do not use localhost or the loopback IP address (127.0.0.1) for the location of the database.
- For installation on a cluster, the location of the database can be set most conveniently during installation. If the database is moved, then you must uninstall, and then reinstall the load balancer, or contact Lexmark Professional Services to assist in modifying your current installation.

**8** Select the type of database, and then click **Next**.

**Note:** If you are using an Oracle database, then make sure that the database is already installed before proceeding with the installation.

**9** Specify the folder that contains your Lexmark Distributed Intelligent Capture license files, and then click **Next**.

**Notes:**

- If the license files are located on a network share that requires authentication, then you must supply authentication before specifying the license location. To authenticate with the remote server, click **Start > Run**, type the UNC path to the share (for example, `\\myserver\myshare\`), and then type the user name and password when prompted.
- For cluster installation, the folder must contain the license files for all of the cluster nodes with their appropriate network card MAC addresses.
- During installation, the license files are copied to the program folder. You can safely move the license files from the temporary location where you saved them.

**10** If you are installing a system to recover a backup, then do the following:

**a** Select **Restore Install (RI)**.

**b** Type the path of the folder containing the .ri file from the backup, or click the folder icon and then locate the .ri file.

**11** Click **Finish**.

**12** Allow the installation to complete, and then click **Done**.

### Extending the database and load balancer to standby nodes

Do the following on the primary node of each failover cluster:

**1** Run the Lexmark Solutions Cluster Configuration script:

**In Windows Server 2003**

From the `install\Cluster_Config_Script` folder of the Lexmark Distributed Intelligent Capture installation package, run the **LexmarkSolutionsClusterConfigScript.vbs** script.

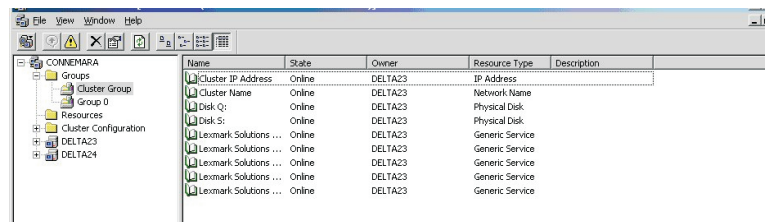
**In Windows Server 2008**

**a** Create a temporary directory.

**b** From the `install\Cluster_Config_Script` of the Lexmark Distributed Intelligent Capture installation package, copy **LexmarkSolutionsClusterConfigScript.vbs** to the temporary directory.

- c Open a command prompt window as an administrator.
    - 1 Click **Start > All Programs > Accessories**.
    - 2 Right-click **Command prompt**, and then click **Run as administrator**.
    - 3 If the User Account Control dialog appears, then confirm that you want to start the command prompt as an administrator, and then click **Continue**.
  - d From the command prompt window, change the current directory to the temporary directory you created.
  - e Run the VBScript file by typing `cscript LexmarkSolutionsClusterConfigScript.vbs` and then pressing **Enter**.
- 2 Click **Yes** to begin the installation.
  - 3 Enter a number to select a resource group as shown in the dialog, and then click **OK**.
  - 4 Enter a number to select an IP address for the logical host as shown in the dialog, and then click **OK**.
  - 5 Allow the installation to complete, and then click **OK**.

The configured cluster contains the necessary Lexmark services.



Name	State	Owner	Resource Type	Description
Cluster IP Address	Online	DELTA23	IP Address	
Cluster Name	Online	DELTA23	Network Name	
Cluster Group	Online	DELTA23	Physical Disk	
Group 0	Online	DELTA23	Physical Disk	
Resources	Online	DELTA23	Physical Disk	
Cluster Configuration	Online	DELTA23	Generic Service	
DELTA23	Online	DELTA23	Generic Service	
DELTA24	Online	DELTA23	Generic Service	
Lexmark Solutions ...	Online	DELTA23	Generic Service	
Lexmark Solutions ...	Online	DELTA23	Generic Service	
Lexmark Solutions ...	Online	DELTA23	Generic Service	
Lexmark Solutions ...	Online	DELTA23	Generic Service	
Lexmark Solutions ...	Online	DELTA23	Generic Service	

## Installing servers

**Note:** Multiple servers should not be installed at the same time. Complete each server installation before beginning another one.

Do the following on each computer that will run a server:

- 1 If the Lexmark Solutions installation window is not open, then run **Setup.exe** from the installation package.
- 2 From the Lexmark Solutions installation window, click **Install Enterprise System > Install Server**.
- 3 Click **Agree** to accept the license agreement.
- 4 If necessary, specify a location for the installation, and then click **Next**.
- 5 If the computer contains multiple network adapters, then select the IP address to bind to the installed server.
- 6 If you want to use only IP addresses for a system without reliable DNS, then select **IP address only install**, and then click **Next**.
- 7 Type the fully qualified domain name or IP address of the computer or cluster logical host where the database is installed.

### Notes:

- If you are installing the server on the same computer as the database and/or the load balancer, then you must still use the fully qualified domain name or IP address of the computer on the network. Do not use **localhost** or the loopback IP address (**127.0.0.1**) for the location of the database or load balancer.
- If you are using DNS aliases for connection to a backup system during a recovery, then use the DNS aliases of the database and load balancer.

**8** Select the type of database, and then click **Next**.

**Note:** If you are using an Oracle database, then make sure that the database is already installed before proceeding with the installation.

**9** Select the **Same as Database** check box if the load balancer is installed on the same computer as the database, or type the fully qualified domain name or IP address of the computer or cluster logical host where the load balancer is installed.

**Notes:**

- If you want to type the fully qualified domain name or IP address of the computer or cluster logical host, then clear the **Same as Database** check box.
- When installing any configuration other than configuration 1, the location of the database and load balancer can be set most conveniently during installation. If the database or load balancer is moved, or the IP address of the database or load balancer changes for any other reason, then you must uninstall and then reinstall the load balancer. For more information about changing the IP address of a Configuration 1 system, see “Changing the IP address on a configuration 1 system” on page 57.

**10** If you want to set the Globe Site Selector (GSS) IP address, then do the following:

- a** Click **Advanced**.
- b** Type the GSS IP address, and then click **OK**.

**Note:** You can type a GSS IP address only if all the printers in the system are e -Task 2 or later. GSS is not supported in e -Task and earlier printers.

**11** Click **Finish**.

**12** Allow the installation to complete, and then click **Done**.

After all servers are installed, log on to LMC, then change the administrator password, and then set the servers online.

## Antivirus policy requirements and recommendations

### Required antivirus policies

- Do not include the following folders when performing real-time virus scanning:
  - Load balancer server or database server (or only the database server if the load balancer is installed on another server)
    - \Lexmark\solutions\firebird\data
    - \Lexmark\solutions\Apache2\logs
    - \Lexmark\solutions\Apache2\htdocs\apachewebdav
  - All Tomcat transaction servers (\Lexmark and all subfolders)

If this is not allowed, the following folders *must* be excluded:

- \Lexmark\Solutions\tomcat\temp
- \Lexmark\Solutions\tomcat\logs
- \Lexmark\Solutions\tomcat\webapps\webdav and all subfolders
- \Lexmark\Solutions\apps\wf-ldss and all subfolders

- Print servers where applicable
  - Directory where print jobs are spooled (for example, C:\spool or C:\Windows\system32\spool\printers)
  - Windows temporary directory (C:\Windows\temp)
- Network file shares and subdirectories where solutions installed write files
- Make sure full virus scans and virus definition updates on all Lexmark servers, including load balancers or databases, application servers, and print servers are scheduled to run during off-peak hours.

## Recommended antivirus policy

If you are running the system on a virtualized server environment, then make sure full virus scans and virus definition updates on all virtual machines on the same virtual machine hosts as the Lexmark virtual machine servers are scheduled to run during off-peak hours.

# Installing Lexmark Distributed Intelligent Capture components silently

Lexmark Distributed Intelligent Capture components may be installed silently using the batch files located in the install \Silent\_Install\_Script\_Examples folder of the installation CD. Additionally, batch files are included for uninstallation and cleanup. All batch files included on the installation CD contain usage instructions. The included batch files are examples for basic setups and may be modified as necessary for your system.

**Note:** To run an installation script from a network share, you must map a drive letter to the network share. The UNC path cannot be used when running an installation script.

- 1 Select the appropriate batch file from those included with the installation package:

### Installation batch files

- **Install\_All\_on\_One\_PC.bat**—This installs the database, load balancer, and server components on the local computer for configuration 1.
- **Install\_Client\_Software.bat**—This installs client software on the local computer.
- **Install\_Database.bat**—This installs the database component on the local computer for configurations 1-1-N and X-Y-N.
- **Install\_DB\_LB\_on\_One\_PC.bat**—This installs the database and load balancer components on the local computer for configurations 1-N and X-N.
- **Install\_LoadBalancer.bat**—This installs the load balancer component on the local computer for configurations 1-1-N and X-Y-N.
- **Install\_Server.bat**—This installs the server component on the local computer for configurations 1-N, 1-1-N, X-N, and X-Y-N.

### Uninstallation and cleanup batch files

- **clean.bat**—This removes files left behind from a previous installation.
  - Note:** Only use this file if there is no other Lexmark software that should remain installed.
- **Uninstall\_DB\_LB\_Server\_on\_One\_PC.bat**—This uninstalls the database and load balancer components from the local computer.
- **Uninstall\_Server.bat**—This uninstalls the server component from the local computer.

- 2 From the command prompt, run the batch file using the switch `/?` to view the instructions for using the selected file.
- 3 Run the batch file again using the appropriate options as shown in the usage instructions.
- 4 Follow any other instructions in the command prompt window.

## Using Kerberos authentication

If a user logs on at a printer using Kerberos, the credentials can be used by the Lexmark Distributed Intelligent Capture system to manipulate files on the network and interact with ECM systems on behalf of the user.

### Notes:

- SSL is required to use Kerberos authentication with an Lexmark Distributed Intelligent Capture system, and secure communication between printers and servers must be enabled for any device group that uses a solution with Kerberos authentication. For more information, see “Enabling secure communication between servers and printers in a device group” on page 105.
- The date and time must be correct on the printer, Lexmark Distributed Intelligent Capture server, and KDC server when using Kerberos authentication.

## Configuring Kerberos authentication on printers

### Notes:

- These steps may vary slightly depending on printer model. If these steps do not apply to your printer, then see the documentation that came with your printer.
  - The names and locations of some links differ depending on the firmware installed on your printer. Where multiple link names or locations are specified below, click the specified link that appears for your printer.
- 1 Type the printer IP address or host name in the address field of your Web browser to access the printer Embedded Web Server.

**Note:** If you do not know the IP address or host name of the printer, then you can:

- View the information on the printer control panel home screen, or in the TCP/IP section under the Networks/Ports menu.
- Print a network setup page or menu settings page and locate the information in the TCP/IP section.

- 2 Click **Settings > Security > Security Setup**.

- 3 Configure the connection to the Kerberos Domain Controller:

**a** In the “Step 1: Configuring a Security Building Block” section, click **Kerberos 5**.

**b** Select a configuration method:

- To import a Kerberos configuration file, which allows more control over Kerberos tickets, use the Import Kerberos File section:
  - 1 Click **Browse** to find the `krb5.conf` file.
  - 2 Click **Submit**.

### Notes:

- Click **Delete File** to remove the Kerberos configuration file from the printer.
- Click **View File** to view the Kerberos configuration file for the printer.

The following example represents a minimal configuration file:

```
[libdefaults]
    default_realm = MY.REALM
    kdc_timesync = 1
    forwardable = true

[realms]
    MY.REALM = {
        kdc = MY.KDC.ADDRESS
    }
```

When a configuration file is used, tickets should be marked forwardable by default. Tickets must be forwardable in order to forward them to the Lexmark Distributed Intelligent Capture system.

For more information about configuration files, see the Kerberos documentation.

- To use a simple Kerberos setup, use the Simple Kerberos Setup section:
  - 1** In the KDC Address field, type the *key distribution center* (KDC) address.
  - 2** In the KDC Port field, type the number of the port (**1–88**) used by the Kerberos server. The default is **88**.
  - 3** In the Realm field, type the realm used by the Kerberos server.
  - 4** Click **Submit**.

**c** Click **Test Setup** to verify that the Kerberos configuration file for the selected device is functional.

**d** Click **Return to Edit security Setup**.

#### 4 Add a security template:

**a** In the “Step 2: Set up a Security Template” section, click **Security Template**.

**b** Click **Add a Security Template**.

**c** Type a security template name.

**d** Select the **Kerberos\_Building\_Block** authentication setup.

**e** Click **Save Template > Return to Security Setup**.

#### 5 Configure access controls for profiles:

**a** In the “Step 3: Apply your Security Template to one or more Access Controls.” section, click **Access Controls**.

**b** Apply the security template to either all profiles or a specific profile:

- To apply the security template to all profiles on the printer, including eSF applications, select the security template you created beside Use Profiles.

- To apply the security template to an individual profile:

**1** Determine the access control number of the profile:

**Note:** Keep the printer Embedded Web Server open while accessing LMC.

**a** From the Device Groups tab in LMC, select the device group that contains the printer and the solution.

**b** Select the **Profiles** task.

**c** In the main window, select the tab that corresponds to the device class of the printer.

**d** Find the number beside Access Control.

**Note:** If **0** appears beside Access Control, then no access control number has been assigned to the profile. For more information, contact the developer of the solution.

**2** From the Access Controls page in the printer Embedded Web Server, locate the setting between Solution 1 and Solution 10 that corresponds to the access control number assigned to the profile, and select the security template you created.

**c** Click **Submit**.



Depending on the overall authentication setup on the printer, the user is required to provide authentication either before accessing the home screen or when accessing an Lexmark Distributed Intelligent Capture profile from the printer.

## Configuring Lexmark Distributed Intelligent Capture servers for Kerberos authentication

When using Kerberos authentication, you may need to configure Kerberos on each Lexmark Distributed Intelligent Capture server in your system.

The Lexmark Distributed Intelligent Capture server requesting a ticket must have the KDC address and realm available in order to request a Kerberos ticket. Often, the KDC address and realm can be determined from the ticket forwarded from the printer. In this case, no configuration is necessary. A warning is included in the log indicating that the server is attempting to determine the KDC address and realm from a forwarded ticket.

To manually configure each Lexmark Distributed Intelligent Capture server for Kerberos authentication, do one of the following:

- Create a Kerberos configuration file for the server. This file may be a duplicate of the file uploaded to configure Kerberos on the printer, but we recommend a minimal configuration specifying only the KDC address and realm. The configuration file must be named `krb5.ini`, and it should be placed in the folder `\Lexmark\Solutions\Security` where Lexmark Distributed Intelligent Capture is installed on each server. You may have to create the Security folder.

**Note:** If you need to read the Kerberos configuration file from another location, see the Apache Tomcat documentation for more information.

- Set the KDC address and realm from the script.

# Monitoring and maintaining the system

## Using Lexmark Management Console

### Accessing Lexmark Management Console

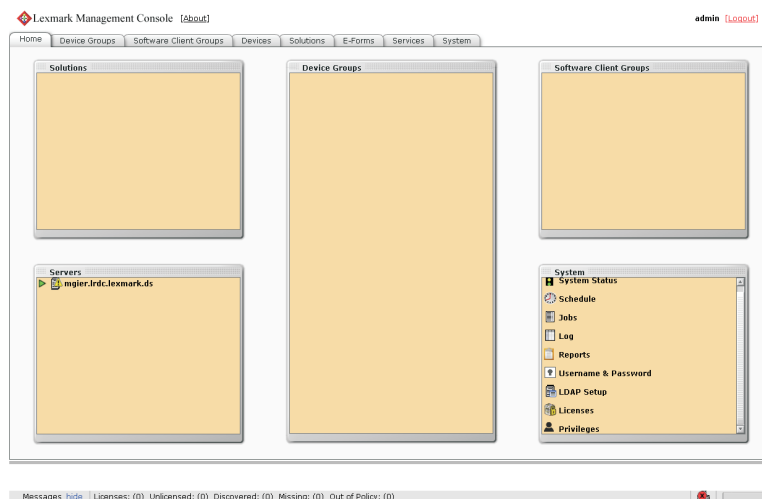
- 1 Launch LMC from your Web browser using the URL `http://loadbalancer:9780/lmc`, where `loadbalancer` is the computer where the load balancer is installed.

The load balancer selects a server to host the LMC session, indicated by a green arrow beside a server in the Servers list on the Home tab after logging in.

#### Notes:

- On a computer where a server is installed, you can use the desktop shortcut to access LMC.
- To access LMC on a particular server, use the URL `http://server:9788/lmc`, where `server` is the computer where the chosen server is installed.
- It may take several minutes to start all services after the system boots. If LMC cannot be accessed immediately after booting the system, wait a few minutes, and then try again.
- Cookies must be enabled on your Web browser in order to use LMC.
- Adobe Flash Player 10 or later is required. If your Web browser settings do not allow ActiveX controls to run, then you must upgrade manually by visiting the Adobe Web site.

- 2 Enter the administrator user name and password, and then click **Login**.



#### Notes:

- The default user name and password are both **admin**.
- If LMC is configured to connect to an LDAP server, any valid user name and password may be used.

The Home tab is displayed after a successful login.

## Changing the administrator user name

- 1 In LMC, click the **System** tab.
- 2 Select **Username & Password** from the System list.
- 3 Type the new user name.
- 4 Re-type the new user name to confirm it.
- 5 Click **Apply**.

## Changing the administrator password

- 1 Click the **System** tab.
- 2 Select **Username & Password** from the System list.
- 3 Type the current password.
- 4 Type the new password, and then re-type it to confirm.
- 5 Click **Apply**.

## Enabling LDAP server authentication for LMC

The administrator can set up a connection with an LDAP server to authenticate user names and passwords other than those for the administrator account.

- 1 Select **LDAP Setup** from the System list.
- 2 Select the **Enable LDAP Authentication** check box.
- 3 If your LDAP server requires a secure connection, then select **Use Secure Connection (SSL/TLS)**.
- 4 Type the LDAP server address and server port.  
**Note:** Port 389 is typically used for non-secure communication, and Port 636 is typically used for secure communication.
- 5 In the User Search Filter field, type the attribute used in the directory to identify a user name, such as **cn**, **sn**, **uid**, or **sAMAccountName**.
- 6 In the User Search Base field, type the relative distinguished name where a subtree search for a user should begin in the directory, such as **ou=Employees**.
- 7 Do the following to filter the search to users in specific groups:
  - a In the Group Search Filter field, type the attribute used to identify a member of the group, such as **member** or **uniquemember**.
  - b In the Group Search Base field, type the relative distinguished name where a subtree search should begin in the directory for groups, such as **ou=Groups**.
  - c In the “Member of Group(s)” field, type a comma-delimited list of group names to search. The user name must be a member of at least one of the groups listed.
  - d In the Group Identifier field, type a name for the object class.

**Note:** The object class name can be used to search for the group base when assigning privileges to groups.

### Example

- User Search Filter: **uid**
- User Search Base: **ou=Employees**
- Group Search Filter: **uniquemember**
- Group Search Base: **ou=Groups**
- Group Identifier: **groupOfNames**
- Member of Group(s): **Dept A, Dept C**

If the user name **testuser** is used to log in to LMC, then the user can be authenticated if each of the following is true:

- The distinguished name **uid=testuser,ou=Employees,o=MyOrganization** is found in the directory.
- The distinguished name **cn=Dept A,ou=Groups,o=MyOrganization** or **cn=Dept C,ou=Groups,o=MyOrganization** is found in the directory and contains the attribute **uniquemember: uid=testuser,ou=Employees,o=MyOrganization**.
- The object class is **groupOfNames**.
- The correct password is supplied for the user.

#### 8 Select an authentication method:

- If the LDAP server accepts anonymous connections, then select **Anonymous**.
- If the LDAP server requires authentication, then do the following:
  - a Select the **Username** option.
  - b In the Username field, type a distinguished name used to log on to the LDAP server, such as **uid=ldapuser,ou=Employees,o=MyOrganization**.
  - c Type the password associated with the selected user name.

#### 9 If you want to test the connection settings, then click **Test Settings**.

**Note:** If the LDAP server accepts anonymous connections but you want to authenticate with a user name and password, then the test cannot determine whether the user name and password are correct. If the test reports an anonymous connection when you have chosen to use a user name and password, then you should check the user name and password.

#### 10 In the Search Base field, type the distinguished name where the directory search should begin, such as **o=MyOrganization**.

#### 11 Click **Save Settings**.

## Assigning privileges to groups

You can add access control to users accessing LMC. This feature allows you to restrict system access to authorized groups. The Privileges settings depend on the role assigned to the user.

### Notes:

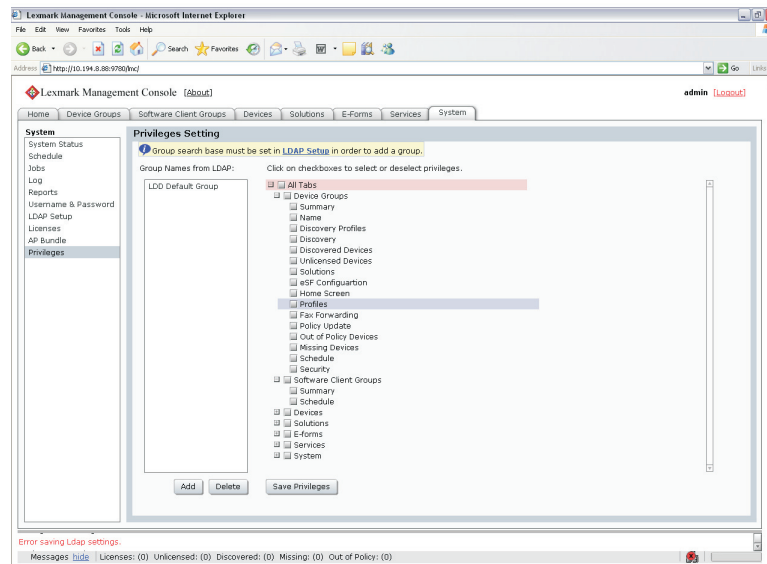
- You need to add a group first before defining privileges. By default, the Default Group is already added to the group list. This group has access to all tabs and tasks of LMC. The administrator can modify the privileges of the default group.

- If a user belongs to multiple groups, then group privileges are combined. Privileges can be modified for LDAP users only. The default administrator has access to all tabs and tasks, and these settings cannot be modified.

- 1 Select **Privileges** from the System list.
- 2 Select a group from the “Group Names from LDAP” list, or add a new group.

### To add a group:

- a Click **Add**, then type the first few characters of the group name, and then click **Search**.
  - b Select a group name from the list, and then click **Add**.
- 3 Select the tabs and tasks the group is allowed to access and perform.  
When assigning privileges, you can select specific tasks under each tab.



- 4 Click **Save Privileges** to save settings.

## Device Groups tab tasks

Task	Operation
Summary	<p>Displays the following information for a selected group:</p> <ul style="list-style-type: none"> <li>• A list of solutions deployed for the device group</li> <li>• The number of discovered printers</li> <li>• The number of unlicensed printers. Unlicensed printers are those that do not have a license available on the server.</li> <li>• The number of missing printers. Missing printers are those that have been previously discovered but did not respond on the network during the most recent discovery operation.</li> <li>• The number of out-of-policy printers. Out-of-policy printers are those that have not been updated with policy changes initiated on the server.</li> <li>• Whether the device group is configured to use a secure communication channel when submitting jobs. When Secure Server Communication is enabled, communication between the server and printers associated with the selected group is encrypted.</li> </ul> <p>Some of these values are linked to appropriate tasks for more information or to make changes.</p> <p>When <b>All Device Groups</b> is selected in the Device Groups list, a table is displayed that lists the following information for each device group:</p> <ul style="list-style-type: none"> <li>• A list of solutions deployed</li> <li>• The number of discovered printers</li> <li>• The number of unlicensed printers</li> <li>• The number of missing printers</li> <li>• The number of out-of-policy printers</li> <li>• Whether Secure Server Communication is enabled</li> </ul>
Name*	Allows you to change the unique name for the selected group
Discovery Profiles*	Allows you to add, edit, import, and remove discovery profiles used to discover printers
Discovery	Finds printers on the network that match the discovery profile for each selected group
Discovered Devices	<p>Displays a table listing the following information for all printers within selected device groups:</p> <ul style="list-style-type: none"> <li>• Address</li> <li>• Host name</li> <li>• Model</li> <li>• Serial number</li> <li>• Contact name</li> <li>• Contact location</li> <li>• Property tag</li> <li>• Last discovered date</li> <li>• Policy last applied date</li> </ul>
Unlicensed Devices	Displays a table of unlicensed printers within the selected device groups. The table contains the same fields as the Discovered Devices table.
Solutions*	Allows you to select solutions to deploy to the printers within the selected group. When the solutions are selected, you can edit local settings for the current device group, and the solutions are deployed using the Policy Update task.
* These tasks are not available when <b>All Device Groups</b> is selected.	

Task	Operation
cSF Apps*	Allows you to select cSF apps to deploy to the printers within the selected group. cSF apps are custom applications written using the Cloud Solutions Framework and deployed from an application server to a supported Lexmark device. For more information, see the <i>Cloud Solutions Framework SDK Developer's Guide</i> .
eSF Configuration*	Allows you to edit the settings of eSF application associated with hybrid solutions deployed to the device group
Home Screen*	Allows you to customize the layout of the home screens for the printers included in the device group. There is a tab for each supported class of printer.
Profiles*	Displays the profile settings for the device group for each device class
Fax Forwarding	Allows you to configure MFPs such that incoming faxes are forwarded to a fax number, e-mail address, FTP site, or LDSS. Based on configuration, you can set the system to manage all incoming fax requests for processing before the MFP prints and forwards received faxes.
Policy Update	Deploys group device policies to printers included in selected device groups
Out of Policy Devices	Displays a table that lists all out-of-policy printers in the specified device group. The table contains the same fields as the Discovered Devices table. You can click <b>Update Policy</b> to apply any changes.
Missing Devices	Displays a table of missing printers in the selected device group or groups. The table contains the same fields as the Discovered Devices table.
Schedule	Allows you to add, edit, and delete Discovery, Policy Update, and script tasks scheduled to run for the selected device group or groups
Security*	Enables or disables secure communication between the server and the printers in the device group
* These tasks are not available when <b>All Device Groups</b> is selected.	

## Software Client Groups tab tasks

Task	Operation
Summary	When an individual software client group is selected in the Software Client Groups list, it displays the group name and solutions added to the group. When <b>All Software Client Groups</b> is selected in the Software Client Groups list, it displays a table containing the preceding information about all the software client groups in the system.
Name*	Allows you to change the unique name for the selected group
Client Profiles*	Allows you to add and remove software clients within the selected group
Solutions*	Allows you to select solutions which solutions are available to software clients within the group
Profiles*	Displays the profile settings for the software client group
Schedule	Allows you to add, edit, and delete script tasks scheduled to run for the selected software client group or groups
* These tasks are not available when <b>All Software Client Groups</b> is selected.	

## Devices tab tasks

The Devices tab is used for maintenance of printers that have already been discovered through the Device Groups tab. Only discovered printers can be found using the search function on this tab.

Task	Description
Summary	<p>When one device is selected, it displays the following device information:</p> <ul style="list-style-type: none"> <li>• Address</li> <li>• Host name</li> <li>• List of device groups to which the device belongs</li> <li>• List of solutions deployed on the device</li> <li>• Model</li> <li>• Serial number</li> <li>• Contact name</li> <li>• Contact location</li> <li>• Property tag</li> <li>• Last discovered date and time</li> <li>• Unlicensed status</li> </ul> <p>When multiple devices are selected, it displays a table with the same information for each device. The total number is shown for Device Groups and Solutions and may be expanded to show the list for each.</p>
Profiles	<p>Displays each profile and the associated settings for a selected device</p> <p><b>Note:</b> This task shows only one device at a time. When multiple devices are selected, the first device selected is shown, and other devices may be selected by clicking <b>Next</b>, <b>Previous</b>, or individual page numbers.</p>
Policy Update	Sends policy updates to selected devices
Missing Devices	Identifies any missing devices in the current selection
Unlicensed Devices	Identifies any unlicensed devices in the current selection
Home Screen	<p>Displays the layout of the home screen on a selected device and provides an interface to edit the home screen of an individual device</p> <p><b>Note:</b> This task shows only one device at a time. When multiple devices are selected, the first device selected is shown, and other devices may be selected by clicking <b>Next</b>, <b>Previous</b>, or individual page numbers.</p>
Jobs	Displays a sortable table of the jobs for selected devices
Log	Displays a sortable table of logged messages for the selected device

## Solutions tab tasks

Task	Description
Summary	<p>When an individual solution is selected in the Solutions list, it displays the solution name, version number, install time, update time, lists of the device groups and software client groups to which the selected solution is assigned, and lists of the formsets and reports included in the solution.</p> <p>When <b>All Solutions</b> is selected in the Solutions list, a table is displayed containing the preceding information about all the solutions deployed on the network.</p>
Configuration*	Adjusts the global settings for the selected solution. The parameters are predetermined for each solution.
* This task is not available when <b>All Solutions</b> is selected in the Solutions list.	



Task	Description
EForms*	Displays a list of the formsets associated with the selected solution
eSF*	Displays a list of eSF applications associated with the selected solution
Jobs*	Displays a table of the jobs that utilize the selected solution
Log*	Displays a table of the events and messages generated by the selected solution
* This task is not available when <b>All Solutions</b> is selected in the Solutions list.	

## cSF App tab tasks

Task	Description
Summary	<p>When an individual cSF App is selected in the cSF Apps list, it displays the cSF app name, list of device groups to which the selected cSF app is assigned, cSF App version, WebClient version, install time, and update time.</p> <p>When <b>All cSF Apps</b> is selected in the cSF Apps list, a table is displayed containing the preceding information about all the cSF Apps deployed on the network.</p>

## E-Forms tab tasks

Task	Description
Form printers	Allows you to view and manage the virtual printers that process e-forms
Formsets	Allows you to view and manage formsets for all solutions

## Services tab tasks

### Services tab tasks and their descriptions

Task	Description
Confirm	Allows you to set the font parameters for all services.
DeviceSecurity	Allows you to set the authentication type for security-enabled devices.
E-mail	Allows you to set the e-mail server parameters.
General	Allows you to configure the chunk size for device discovery and policy updates.
NPA	Allows you to set the default port and the timeout periods between retries during device discovery.
PolicyUpdate	Allows you to set the policy update parameters, such as the timeout for each device and whether to overwrite function overrides on the device such as copy or fax.
Reports	Allows you to configure the e-mail parameters, such as the default sender, receiver, and e-mail message.
SNMP	Allows you to configure the SNMP parameters.
IDRLicenseMonitor	<p>Allows you to configure e-mails and thresholds for IDR licenses.</p> <p><b>Note:</b> This service uses e-mail server parameters defined in the e-mail service. For this service to function, make sure the e-mail service is properly configured.</p>

## System tab tasks

Task	Description
System Status	Shows a table that lists all servers in the system, and the corresponding server address, host name, status, license, number of running tasks, CPU usage, memory usage, network load, and thread count for each server. The server where the current LMC session is running is indicated by a green arrow beside the server address in the table. <b>Note:</b> You can also set a server online or offline.
Schedule	Shows all script, report, backup and restore, discovery, and policy update tasks scheduled to run on the system and lets you add, edit, and delete scheduled tasks. This task is equivalent to the Schedule task on the Device Groups tab when <b>All Device Groups</b> is selected.
Jobs	Shows a sortable table of all pending and completed jobs from all printers within the system.
Log	Shows a sortable table of event messages generated from all pending and completed jobs from all printers within the system.
Reports	Allows you to manage and schedule built-in and custom reports.
Username & Password	Allows you to set a new administrator user name and password for LMC.
LDAP Setup	Allows you to set up a connection with the LDAP server to enable other user accounts.
Licenses	Shows a table that lists all licenses installed on the system, the license usage of the IDR engine, and the corresponding feature ID (where the license applies), expiration date, number of licenses, licenses in use, and license type for each license. You can also add new licenses to the system.
AP Bundle	Allows you to update the Advanced Prompting Bundle (AP Bundle) eSF application that e-Task 2 printers require for support. Specifying updated files here updates the applications on the printers during the next policy update.
Privileges	Allows you to add access control to users. You can assign privileges to users depending on the group to which they belong.
cSF App Certificates	Allows you to update the certificates required for https. The public key uploaded here will update the one on the printers during the next policy update.

## Finding basic information

### Understanding the Home tab

The Home tab provides shortcuts to tasks on the System tab and individual items on other tabs, as well as indicating the status of each server and device group in the system.

Home tab section	Description
Solutions	Lists all solutions available in the system. Clicking a solution in the list links to that solution on the Solutions tab.
Servers	Lists all servers connected to the system. The icon of each server indicates the status of that server. Clicking a server in the list links to the System Status task on the System tab.
Device Groups	Lists all device groups that have been created. A yellow exclamation mark icon appears on the icon of a device group that contains out-of-policy printers. Clicking a device group in the list links to that device group on the Device Groups tab.
Software Client Groups	Lists all groups of software clients connected to the system. Clicking a software client group in the list links to that group on the Software Client Groups tab.
System	Provides shortcuts for all tasks on the System tab. Clicking a task in the list links to that task on the System tab.

## Understanding the status bar

The status bar appears on all tabs and shows the number of licenses, discovered printers, unlicensed printers, missing printers, and printers known to be out-of-policy, as well as the overall system status. The message bar above the status bar also appears on all tabs. This area provides feedback when the system setup or device discovery changes and lists any errors or warnings.



Status bar item	Description
Messages	Toggles the message bar by clicking <b>show</b> or <b>hide</b>
Licenses	Displays the number of licenses available on the system
Discovered	Displays the number of discovered printers currently stored in the database
Unlicensed	Displays the number of discovered printers that do not have a license available in the system
Missing	Displays the number of previously discovered printers that are no longer responding on the network
Out of Policy	Displays the number of discovered printers known to have settings different from profiles required by solutions deployed to those printers
System status icon	Indicates the overall status of the system
Progress bar	Shows the progress of the current operation

## System status information on the status bar and Home tab

The overall system status is indicated by the icon showing three server boxes in the status bar. If any servers are offline or not communicating, then a yellow exclamation mark icon appears on the system status icon to indicate the system is operating at reduced capacity. If all servers are offline or not communicating, then a red X icon appears on the system status icon.

More detailed system status information is available through the System Status task on the System tab. Click **System Status** in the System section of the Home tab to access this information.

## Viewing information summaries for Lexmark Distributed Intelligent Capture elements

Summaries of essential information are available for device groups, software client groups, printers, and solutions.

- 1 Click the **Device Groups**, **Software Client Groups**, **Devices**, **Solutions**, or **cSF Apps** tab.
- 2 Select an item from the list, or when on the Devices tab, perform a search.
- 3 Click **Summary** from the Tasks list.

A summary of basic information about the selected element appears. The summary includes links to find more information or settings about the included information.

## Viewing jobs or system logs

You can view all jobs initiated in the system, including both tasks performed in LMC and print jobs initiated using a printer or software client. Additionally, a log is available showing any messages reported by jobs, such as printers discovered during a discovery task. Data for both jobs and logs are saved for seven days.

- 1 Click the **System** tab.
- 2 Select **Jobs** from the System list to view jobs, or select **Log** to view logs.

Optionally, apply a filter to the jobs list or log:

- To apply a filter, make selections or entries in the applicable fields, and then click **Refresh**. If you want to access less commonly used filter fields, then click **Show More Filters**.
- To remove a previously applied filter, click **Reset Filter**, and then click **Refresh**.

**Note:** You can also view jobs and logs for specific solutions or printers through the Jobs and Log tasks on the Solutions and Devices tabs.

While viewing the jobs list, you can view all log entries that apply to a specific job by clicking the task ID of a job. The log is automatically filtered for the selected task ID. Additionally, to quickly filter the list to view only jobs in progress, click **Running Tasks**.

To stop a job, click **Stop Task**.

To refresh the jobs list or log, click **Refresh**. To set the jobs list to automatically refresh on a timed interval, select the **Auto Refresh** option, and then select a time interval.

To change the number of entries that appear on each page of the jobs list or log, select a new value for **Number of Jobs/Page**.

To export the jobs list or logs in *comma-separated values* (CSV) format, click **Export Report**.

## Customizing columns for jobs and system logs

- 1 Click the **System** tab.
- 2 Select **Jobs** or **Log**.
- 3 Click **Customize Table**.

All columns are shown by default.

- 4 From the Customize Jobs Table or Customize Log Table, adjust the columns as necessary:
  - To remove a column from view, select it in the Current Columns list, and then click **Remove**.
  - To add a column back to the Current Columns list, select it in the Available Columns list, and then click **Add**.
  - To adjust the position of a column, select it in the Current Columns list, and then click **Move Up** or **Move Down**.
  - To return all columns to view in the default order, click **Reset**.
- 5 Click **OK** to save your changes, or click **Cancel** to keep the current view.

Custom selections for columns are saved in a cookie in your browser so they are available each time you use LMC.

## Viewing device group profile settings

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list.
- 3 Select **Profiles** from the Tasks list.
- 4 In the main section, select the desired Device Class tab.
- 5 Select a profile name to display the settings.

## Viewing software client group profiles

- 1 Click the **Software Client Groups** tab.
- 2 Select a software client group from the Software Client Groups list.
- 3 Select **Profiles** from the Tasks list.

## Viewing forms associated with a solution

Solutions that include forms merge functionality are associated with forms that are installed along with the solution.

- 1 Click the **Solutions** tab.
- 2 Select a solution from the Solutions list.
- 3 Select **EForms** from the Tasks list.

## Viewing version information

You can view version numbers for all system components, which may help you to troubleshoot problems and make sure all components are up to date.

- 1 Click the **System** tab.
- 2 Select **System Status** from the System list.
- 3 In the Components column, click **Version Info**. You may have to scroll to the right to see the Components column.

To export component version information along with system status information, click **Export Report** in the System Status window.

## Managing the Lexmark Distributed Intelligent Capture system

To perform system tasks, such as creating reports on the overall performance of the system, setting servers offline, changing the administrative user name and password, or viewing the overall job schedule, use the System tab in Lexmark Management Console.

### Viewing and changing server status

To view server status, click the **System** tab, and then select **System Status** from the System list.

A table is displayed with information about each server in the system. The Status column indicates whether the server is online, offline, or has a communication problem. A yellow exclamation mark icon appears beside the status when the server is offline, and a red X icon appears to indicate a communication problem.

**Note:** Multiple non-communicating servers may impact system performance. If you do not expect a non-communicating server to quickly reestablish communication, you should remove it.

The server on which the current LMC session is running is indicated by a green arrow beside the Server Address.

You can perform the following tasks:

- To change the online status of a server, select the check box of a server from the table, and then click **Set Online** or **Set Offline**.
- To export all system status information and component version information, click **Export Report**.
- To remove a server that is not communicating, select the check box beside it in the table, and then click **Remove Server(s)**. If the server later reestablishes communication, it automatically reappears in the server list.

### Viewing and managing scheduled tasks

To access a list of all scheduled discovery, policy update, and script tasks for all device groups and software client groups, select **Schedule** from the System list on the System tab.

From this list, you can perform the following actions:

- **Add a new task**—Click **Add**.
- **Edit an existing task**—Select the existing scheduled task you want to edit, and then click **Edit**.  
**Note:** You cannot change the task type for an existing task.
- **Delete an existing task**—Select the existing scheduled task you want to delete, and then click **Delete**.

Do the following when adding or editing a task:

- 1 If you are adding a new task, then select a task to schedule.
- 2 Edit the description of the task, and then click **Next**.
- 3 Configure the task:
  - If you are adding or editing a discovery or policy update task, then select the device groups for which the task is performed, and then click **Next**.
  - If you are adding or editing a script task, then do the following:
    - a Select whether to associate the scheduled script with a device group or software client group to access the local solution settings of that group:
      - To associate the script with a device group, click **DeviceGroup**, and then click **Next**.
      - To associate the script with a software client group, click **SftClientGroup**, and then click **Next**.

- To schedule the script without associating it with a device group or software client group, click **None**, and then click **Next**.

**b** Select the device group or software client group for which the task is performed, and then click **Next**.

**Note:** You can select only one device group or software client group for a script task.

**c** Select the solution that contains the script you want to run.

**d** Select the script to run, and then click **Next**.

- If you are adding or editing a discovery or policy update task, then select the device groups for which the task is performed, and then click **Next**.
- If you are adding or editing a report task, then select and configure the report to run, and then click **Next**.
- If you are adding or editing a backup and restore task, then type the backup share path and the credentials required to access the specified share, and then click **Next**.
- If you are adding or editing a directory watcher task, then do the following:
  - a** Type the directory path and the credentials required to access the specified share.

**Note:** You cannot configure another directory watcher task to an existing task with the same directory path and regular expression.

**b** Type the regular expression and the batch size.

A regular expression is a set of characters that specify a pattern. This helps you specify the type of files the system will process each time the task is run. A batch size is the number of files the system will process each time the task is run.

**c** Click **Test Settings** to check the directory settings.

**d** Select the solution that contains the script you want to run.

**Note:** Make sure that at least one solution is configured in the scheduled script task.

**e** Select the script to run, and then click **Next**.

**4** Configure the date, time, and frequency information for the task.

**5** Click **Finish**.

## Configuring the confirmation page

When a job is completed, a confirmation is automatically delivered through a printout or e-mail message unless it is disabled within a particular solution. These settings determine the type of confirmation, how it appears, and, if it is an e-mail message, to whom it is sent.

**1** Click the **Services** tab.

**2** Select **Confirm** from the Services list.

**3** Select **Parameters** from the Tasks list.

**4** Select the lowest level of messages to include in confirmations:

- **debug**—This includes detailed messages used to diagnose problems, as well as other lower message levels than this level.
- **info**—This includes messages that indicate successful job activities, as well as other lower message levels than this level.
- **warn**—This includes messages that indicate potential problems, as well as other lower message levels than this level.

- **error**—This includes messages that indicate unsuccessful job activities, as well as other lower message levels than this level.
- **fatal**—This includes only messages that indicate complete failure of jobs.

5 Select a task from the “Task used to deliver confirmation page” list:

- **confirm.printPS**—This prints a confirmation page in PostScript format.
- **confirm.printPDF**—This prints a confirmation page in PDF format.
- **confirm.emailAdmin**—This sends a message to the administrator e-mail address with a PDF confirmation page attached.
- **confirm.emailAdminTextOnly**—This sends a message containing the confirmation information to the administrator e-mail address with no attachments.

**Note:** The e-mail service must be correctly configured to use `confirm.emailAdmin` or `confirm.emailAdminTextOnly`.

- 6 If you are using e-mail confirmations, then type the address where e-mail confirmations are sent in the “Admin email address” field.
- 7 Type a page title to appear on the confirmation page or message.
- 8 Edit the remaining parameters to determine the font settings for the title and page text.
- 9 Click **Apply**.

## Adding servers to the system after initial installation

New servers may be added to an existing system to increase capacity, or servers may be replaced without reinstalling other components. When a new server is installed on a system that already has solutions, the solutions and all associated settings are added to the new server. However, any third-party services used with existing solutions must be installed manually. If the new server is left without the same services as existing servers, any jobs that use the solution that is missing services on the new server will fail.

- 1 Add the computer where the server will be installed on the network, and make sure the time is synchronized using an NTP server.
- 2 Install the server. For more information, see “Installing servers” on page 36.
- 3 Install any third-party services required by existing solutions on the new server.
- 4 From the System tab in LMC, set the new server online. For more information, see “Viewing and changing server status” on page 54.



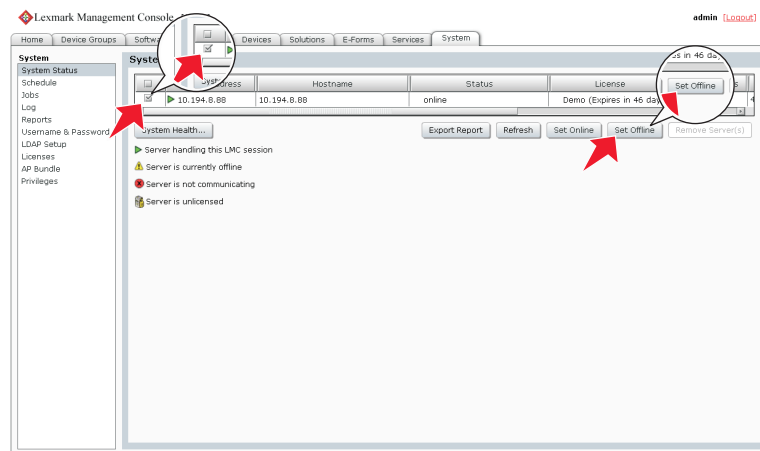
## Changing the IP address on a configuration 1 system

If an incorrect IP address or fully qualified domain name is used when installing a configuration 1 system, or the IP address of the computer on which the components of a configuration 1 system are installed changes for any reason, then the IP address of the components can be changed without reinstallation.

- 1 From the command line on the computer where all components are installed, navigate to the Lexmark\Solutions\InstallHelper folder in the location where the components are installed. (The default is C:\Program Files\Lexmark\Solutions\InstallHelper.)
- 2 Type `update-addr.bat -hostname` to use the fully qualified domain name of the local computer, and then press **Enter**  
 or  
 Type `update-addr.bat -ip` to use the IP address of the local computer, and then press **Enter**.
- 3 The desktop shortcut must be changed to the new address manually:
  - a On the desktop of the computer where the components are installed, right click the **Lexmark Management Console (LMC)** icon, and then click **Properties**.
  - b Click **Find Target**.
  - c In the folder that appears, right click the shortcut **lmc**, and then click **Properties**.
  - d Change the IP address or host name part of the URL to the new IP address or host name of the local computer. The complete URL should be `http://hostname:9780/lmc/`, where *hostname* is the host name or IP address of the computer where the components are installed.

## Rebooting the Lexmark Distributed Intelligent Capture system

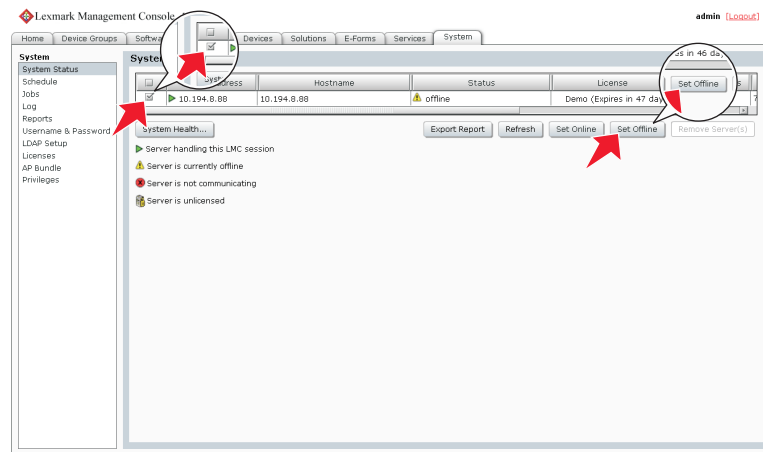
- 1 Click the **System** tab.
- 2 Set all servers offline. For more information, see “Viewing and changing server status” on page 54.



- 3 Shut down all server computers, load balancer computers, and database computers.
- 4 Boot the database computers, load balancer computers, and server computers.

**Note:** You can boot the server components in any order.

- 5 From the System tab in LMC, set all servers online. For more information, see “Viewing and changing server status” on page 54.



**Note:** It may take several minutes to start all services when the Lexmark Distributed Intelligent Capture system is first booted. If LMC cannot be accessed immediately after booting the system, then wait a few minutes, and then try again.

## Restarting the Lexmark Solutions Application Server

If you install a workflow solution that includes a component, then you may need to restart the Lexmark Solutions Application Server for the solution to fully function.

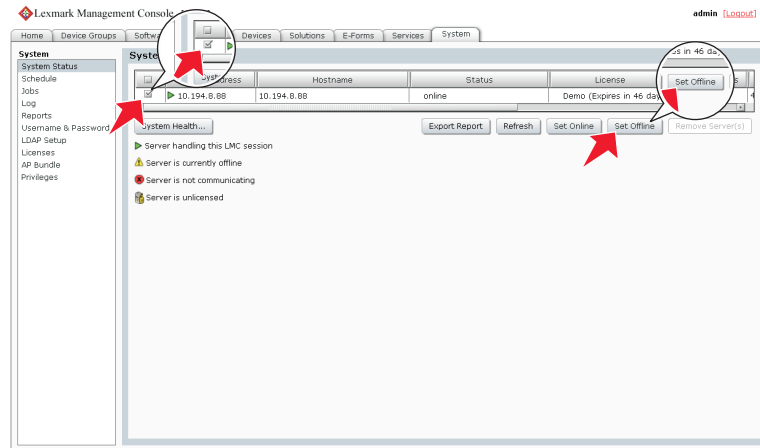
Before restarting the Lexmark Solutions Application Server, set the server offline on the System tab in LMC. Make sure the server is offline before proceeding. Click **Refresh**, and then make sure **offline** is reported in the Status column for the server.

You can restart the Lexmark Solutions Application Server from the Windows Services control panel.

**Note:** When you restart the Lexmark Solutions Application Server service, any solution-related file in the \Lexmark\Solutions\apps\wf-ldss\ or \Lexmark\Solutions\apps\wf-ldss\solutions folders, such as a property file for a solution, is reverted to the version stored with the solution package as it was initially installed or upgraded, and any manual changes are lost.

## Uninstalling Lexmark Distributed Intelligent Capture components

- 1 Click the **System** tab.
- 2 Set all servers offline. For more information, see “Viewing and changing server status” on page 54.



### Notes:

- Make sure all servers are offline before proceeding. Click **Refresh**, and then make sure **offline** is reported in the Status column for each server.
  - Any jobs running or queued on a server must be completed before the server goes offline.
  - If a server does not change from the status **setting offline** after all jobs have been completed, restart the server computer, and then make sure the status of the server is **offline**.
- 3 If the database or load balancer is installed on a failover cluster, then do the following:
    - a On the primary node in each cluster, close all unnecessary applications, and make sure no applications are using the shared drive where Lexmark Distributed Intelligent Capture components are installed.
    - b In the Cluster Administrator, move all cluster resources to the primary node where the system components are originally installed.
    - c Stop the cluster service on standby nodes.  
Wait for confirmation from the Cluster Administrator that the standby nodes are disabled before continuing the upgrade.
  - 4 From the computer where the component(s) are installed, do the following:
    - a Click **Start**.
    - b Click **Programs** or **All Programs**.
    - c Click **Lexmark > Solutions Software Uninstall**.

**Note:** If a database or load balancer is installed on a failover cluster, then use the node where the component is originally installed.
  - 5 Select the components to uninstall, and then click **Finish**.
  - 6 Allow the process to complete, and then click **Done**.

## Updating the Advanced Prompting Bundle

The Advanced Prompting Bundle (AP Bundle) is an eSF application that Lexmark Distributed Intelligent Capture installs on most printers. This application is required for Lexmark Distributed Intelligent Capture support and provides prompting capabilities, held jobs support, and security support.

**Note:** The AP Bundle is not required for e-Task printers. For a list of e-Task printers, see “Supported printers” on page 14.

- 1 Click **System** tab > **AP Bundle**.
- 2 Beside AP Bundle Application File, click **Browse**, and then locate the file `ap-x.x.x.x.fl`.
- 3 Beside AP Bundle Descriptor File, click **Browse**, and then locate the file `ap-x.x.x.x_desc.xml`.

**Notes:**

- The descriptor file is required in order to update the AP Bundle.
- You can change the default settings of the AP Bundle application on e-Task 2+ printers by editing the value attributes of the property elements in the descriptor file. Adding or removing settings in the descriptor file does not affect the application. For a list of e-Task 2+ printers, see “Supported printers” on page 14.

- 4 Click **Upload**.

During the next policy update, Lexmark Distributed Intelligent Capture updates the AP Bundle application on printers where it has not been installed or when an older version is installed.

**Note:** If a printer already has a newer version of the AP Bundle application installed, then the version specified for the update is not installed.

## Managing the e-mail watcher service

The e-mail watcher service lets you capture and process digital documents from the Lexmark Distributed Intelligent Capture profile. This service checks an e-mail account for any incoming e-mails, including attachments. You need to configure the e-mail watcher configuration files to set the parameters.

The following folders are located within the **EmailWatcher** folder where the Lexmark Distributed Intelligent Capture load balancer is installed:

- **lib**—This contains JAR files, including third-party and Lexmark Distributed Intelligent Capture e-mail watcher JAR files.

**Note:** Make sure *not* to make any changes in this folder.

- **conf**—This folder contains two files: **config\_EmailWatcher.properties** and **l4j\_EmailWatcher.xml**.
- **logs**—All logs related to the e-mail watcher are saved in this folder.

### Configuring e-mail watcher

**Notes:**

- Only one e-mail address at a time can be configured to be read by the e-mail watcher service.
  - Make sure there are no spaces between the parameter values.
- 1 From the **conf** folder, open `config_EmailWatcher.properties` in a text editor, and then modify the following:
    - **l4d.server**—This is the IP address of the load balancer where the solution is deployed. This IP address can have a port or domain name.
    - **l4d.profile**—This is the name of the profile which will be invoked when an e-mail is received.

- **mail.type**—This is the e-mail protocol used to read the mailbox. Supported values are **POP3** and **IMAP**.  
**Note:** E-mail servers which support POP3 or IMAP, and are within the same firewall can be configured in the e-mail watcher service.
- **mail.server**—This is the e-mail server address.
- **mail.user**—This is the user ID used to log in to the mail server.
- **mail.pw**—This is the password used to log in to the mail server.
- **mail.port**—This is the port used to read the mail from the mail server. If no port is provided, then the default and standard port is used based on the e-mail protocol and SSL usage.
- **mail.ssl**—If the mail server requires SSL authentication, then set the value to **1**. Otherwise, set it **0**. The default value is **0**.
- **mail.folder**—This is the name of the mailbox folder from which all e-mails received will be read. The default folder name is **INBOX**.
- **mail.allowIdle**—If you want the mail server to support IMAP IDLE, then set this value to **1**. Otherwise, leave it blank.

**2** From the conf folder, open `I4j_EmailWatcher.xml` in a text editor, and then do the following:

- a Type the file location of the log folder. This is the log folder in the **EmailWatcher** folder.
- b Type the log priority. The default and suggested value is **fatal**.
- c Save your changes.

**Note:** If there are new changes made to the `config_EmailWatcher.properties` and `I4j_EmailWatcher.xml`, then you need to restart the Lexmark E-mail Watcher service from the Windows Services control panel.

**3** Make sure to add the IP address of the load balancer in LMC. From the Software Client Groups tab in LMC, select a software client group, then click **Client Profiles**, and then add the IP address.

## Managing system performance

### Accessing the System Health dashboard

- 1** Click the **System** tab.
- 2** Select **System Status** from the System list, and then click **System Health**.

### Monitoring system health

The overall system health is shown in the top section of the page by the following indicators:

- **Overloaded**—The indicator changes color depending on the overload condition of the system:
  - **Green**—No servers are overloaded, and all servers are operating at normal capacity.
  - **Yellow**—One or more servers are overloaded, but at least one server is not. Overloaded servers operate at diminished capacity until they are no longer overloaded.
  - **Red**—All servers are overloaded and operating at diminished capacity.
- **Tasks / hour**—This displays the current hourly task rate, based on tasks done in the past minute.
- **Threshold exceptions**—This displays the hourly rate of tasks that exceed the threshold time set for each job on each server, based on tasks done in the past minute.

To view the performance data for an individual server, select the address of the server from the list in the Server Health section. The following data are shown for overall server performance:

- **Task Count**—This displays the number of jobs running on the server over time.
- **Overload / hour**—This displays the hourly rate of overload events. An overload event occurs when more tasks are sent to the server than the currently configured design load and ends when the number of tasks is reduced to the currently configured recover load.

**Note:** For more information about design load and recover load, see “Tuning the load balancer for unequal servers” on page 63.

The following task-specific data are shown for the task selected from the list:

- **Task / hour**—This displays the current hourly task rate for the selected task, based on tasks done in the past minute.
- **Threshold exceptions / hour**—This displays the hourly rate of task that exceed the threshold time set for the selected task, based on tasks done in the past minute.

**Note:** To change the threshold time for the selected task on the selected server, type a new value beside “Set threshold (seconds),” and then click **Apply**.

To zoom in any of the performance graphs in the Server Health section, click the graph. Click the graph again to return to the view of all graphs.

#### Notes:

- Each time a graph reaches a significant number of data points, each two points are averaged, and then new data is recorded as normal until the maximum number of data points is again reached.
- The slider controls at the bottom of the page are used to tune system performance. For information about these controls, see “Tuning the load balancer for unequal servers” on page 63 and “Adjusting limits on concurrent jobs” on page 62.

## Adjusting limits on concurrent jobs

A server that meets recommended requirements is tested to process 30 concurrent jobs from clients. If a server is faster than the recommended system, then you may be able to raise the limit on concurrent jobs for that server to increase system capacity. If a server is slower than the recommended system, then you may need to lower the limit on concurrent jobs to maintain system reliability.

**Warning—Potential Damage:** Setting high limits on concurrent jobs could cause failures with some solutions, including **out of memory** errors, timeouts, very slow system response, and database failures. Make sure databases are properly backed up before raising limits for concurrently running tasks.

The adjustment shown here sets the baseline *design load* for the server. Additionally, a *recover load* is set at 80% of the design load. When the jobs running on the server exceed the design load, the server is considered to be overloaded, and the load balancer reduces job submissions to the server until the recover load is reached.

Do the following for each server for which you want to change the limit on concurrent jobs:

- 1 From the System Health dashboard, select the address of the server from the list in the Server Health section.
- 2 Adjust the Concurrently Running Task Limit slider to the desired limit for the server.

**Note:** These settings are not saved during an upgrade. If you upgrade your system, then you must repeat these steps.

## Tuning the load balancer for unequal servers

When all servers in the system are approximately equal, server loads should be optimal without manually tuning the load balancer. However, when servers are unequal, the least powerful machine determines the overall throughput unless you compensate by manually assigning a load balancing factor to each server. Since more powerful machines can run more concurrent jobs and complete each job in less time, routing more traffic to them increases the overall job capacity of the system.

The load balancer component is composed of three different Tomcat load balancing workers that separately manage Lexmark Management Console (LMC) sessions, job submissions from e-Task 2 and e-Task 3 printers, and job submissions from e-Task printers. The adjustment shown here affects the e-Task 2, e-Task 3, and e-Task load balancers, but not the LMC load balancer. Each load balancer distributes jobs to servers in proportion to the load balancing factors assigned to each server. For example, in a system with three servers with load balancing factors of 10,10, and 20, the first two servers each receive 25% of jobs, and the third receives 50%.

The ideal job distribution depends on the hardware, network environment, and the solution being run. The optimal proportions for load balancing factors can be found by running performance tests on each server. However, some factors such as memory, number of processors, or CPU speed may suggest an initial value for the load balancing factor to add more system capacity. Note, however, that performance improvements are not linear functions of numerical improvements in hardware.

Perform the following steps on each server after initial values are determined for load balancing factors:

- 1 From the System Health dashboard, select the address of the server from the list in the Server Health section.
- 2 Adjust the Load Factor slider to the desired load balancing factor for the server.

**Note:** These settings are not saved during an upgrade. If you upgrade your system, then you must repeat these steps.

## Assigning servers to only run LMC or process jobs

When using more than one server in a system, you can assign some servers to only run LMC and other servers to only process jobs. When all servers are separated in this manner, it is usually adequate to assign only one server to run LMC.

When using a configuration 1-N, X-N, or X-Y-N system with the recommended hardware, it is recommend to do the following:

- Install the server component on the RAID 1 array where the operating system is installed on the load balancer computer, and configure it to only run LMC.
- Configure servers installed on dedicated computers to only process jobs.

- 1 Launch JK Status Manager from your Web browser using the URL `http://loadbalancer:9780/status/?opt=454`, where *loadbalancer* is the computer where your load balancer is installed.

Server information and the worker status for each of the three load balancing workers appear. Each server in the system is listed as a worker in each Balancer Members list.

- 2 For each server that should only process jobs, stop the associated worker on the adminloadbalancer load balancing worker, which balances requests to LMC:
  - a In the “Worker Status for adminloadbalancer” section, click **E** beside the server name.
  - b For Activation, select the **Stopped** option.
  - c Click **Update Worker**.

- 3** For each server that should only run LMC, stop the associated worker on the clientloadbalancer and adaptorloadbalancer load balancing workers, that balance job requests:
  - a** In the “Worker Status for clientloadbalancer” section, click **E** beside the server name.
  - b** For Activation, select the **Stopped** option.
  - c** Click **Update Worker**.
  - d** Repeat these steps for the same server in the “Worker Status for adaptorbalancer” section.

**Notes:**

- Make sure at least one server is assigned to run LMC and at least one server is assigned to process jobs.
- Changing other load balancer and server properties is not recommended in most cases.

## Configuring chunk size for device discovery and policy updates

When using three or more servers, reducing the chunk size may increase the speed of device discovery and policy updates.

- 1** Click the **Services** tab.
- 2** Select **General** from the Services list.
- 3** Select **Parameters** from the Tasks list.
- 4** In the ChunkSize field, type a new value. When using three or more servers, a value as low as **2** may be appropriate.
- 5** Click **Apply**.

## Configuring communications

### Configuring connection to an SMTP server

- 1** Click the **Services** tab.
- 2** Select **Email** from the Services list.
- 3** Select **Parameters** from the Tasks list.
- 4** Type the password and user ID used to log on to your SMTP server.
- 5** Type the e-mail server connection timeout in seconds. The default is 60.
- 6** Type the e-mail server host name or IP address.
- 7** Enter the e-mail server I/O timeout in seconds.
- 8** Click **Apply**.



## Configuring NPA device communication

Though the default port is usually used for NPA device communication, the timeout periods between retries can be changed to improve reliability during device discovery.

- 1 Click the **Services** tab.
- 2 Select **NPA** from the Services list.
- 3 Select **Parameters** from the Tasks list.
- 4 Type the port number used for NPA on your network in the Unsecure Port field. The default setting is 9300.
- 5 Type a timeout period in milliseconds for each retry in sequence, separating each by a space in the NPANT Timeout field. The default settings are 1000 and 5000.
- 6 Click **Apply**.

## Configuring SNMP for discovering printers

- 1 Click the **Services** tab.
- 2 Select **SNMP** from the Services list.
- 3 Select **Parameters** from the Tasks list.
- 4 In the Port field, type the port number used for SNMP on your network. The default is 161.
- 5 In the Write Community Name field, type the write community string for printers on your network.
- 6 In the Timeouts/Retries field, type a timeout period in milliseconds for each retry in sequence, separating each by a space.
- 7 In the Read Community Name field, type the read community string for printers on your network.
- 8 Click **Apply**.

## Configuring device security


To enable communication with Basic Security template–enabled devices, make sure the Basic Security template matches the authentication type and the password or PIN configured in LMC. Only authentication through password or PIN is supported.

- 1 Click the **Services** tab.
- 2 Select **DeviceSecurity** from the Services list.
- 3 Select **Parameters** from the Tasks list.
- 4 Select the type of authentication for the device, and then type the password or PIN.
- 5 Click **Apply**.

## Managing licenses

### Finding the host ID

Each license file installed on the server is associated with a host ID on the server, which is the physical address (MAC address) of a network adapter in the load balancer without hyphens or other punctuation. During installation, the host ID is shown by clicking **Activate and Download License File(s)**. If you do not have access to the installation files, or if you have multiple host IDs and want to determine which is associated with the network adapter connected to the same network as your printers, then do following:

- 1 Click , or click **Start** and then click **Run**.
- 2 In the Start Search or Run box, type `cmd`.
- 3 Press **Enter**, or click **OK**.
- 4 From the command prompt window, type `ipconfig /all`, and then press **Enter**.

```
Ethernet adapter Local Area Connection:
    Connection-specific DNS Suffix . : test.company.ds
    Description . . . . . : Broadcom NetXtreme 57xx Gigabit Cont
roller
    Physical Address. . . . . : 00-1A-A0-B4-D5-E6
    Dhcp Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IP Address. . . . . : 10.194.8.88
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.194.8.1
    DHCP Server . . . . . : 157.184.63.8
    DNS Servers . . . . . : 157.184.63.8
    . . . . . : 157.184.80.10
    Primary WINS Server . . . . . : 157.184.84.10
    Secondary WINS Server . . . . . : 157.184.80.194
    Lease Obtained. . . . . : Tuesday, November 16, 2010 9:45:53 A
M
    Lease Expires . . . . . : Saturday, November 20, 2010 9:45:53
```

- 5 If you want to use the host ID associated with the network adapter connected to the same network as your system, then determine the correct network adapter using the description and IP address.

**Note:** The host ID of any listed network adapter is appropriate for creating license files as long as the associated network adapter remains in the server. However, using the host ID associated with the network adapter connected to the same network as your system may help avoid future confusion.

- 6 Write down the physical address shown with the selected network adapter, removing the hyphens, and store it in a safe place for use as the host ID in the Lexmark Licensing Portal.

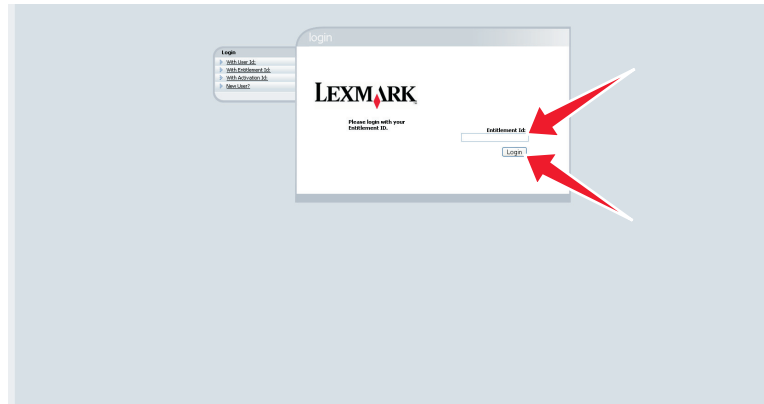
### Viewing or downloading existing licenses

- 1 Open the Lexmark Licensing portal at <http://software.lexmark.com>.
- 2 Type the entitlement ID you received when you purchased your licenses, and then click **Login**.
- 3 Click **Manage Licenses**.  
Each record represents a license file generated using the current entitlement ID.
- 4 Select the line for the license you want to view or download, and then click **View Licenses**.
- 5 To download the license file, click **Save To File**.
- 6 To return to the start page of the Lexmark Licensing Portal, click **Complete**.

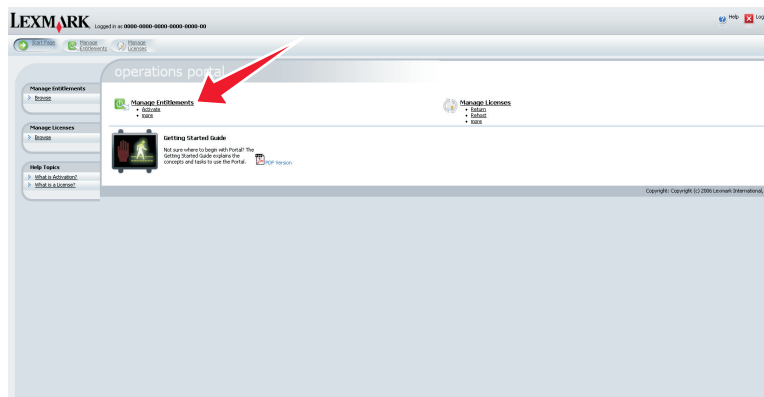
## Upgrading the license of an existing server

**Note:** Back up your current license files before updating with new files.

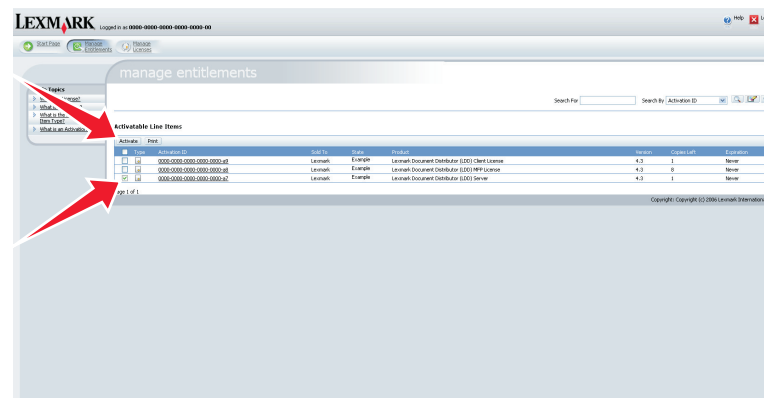
- 1 Open the Lexmark Licensing portal at <http://software.lexmark.com>.
- 2 Type the entitlement ID you received when you purchased your license, and then click **Login**.



- 3 Click **Manage Entitlements**.

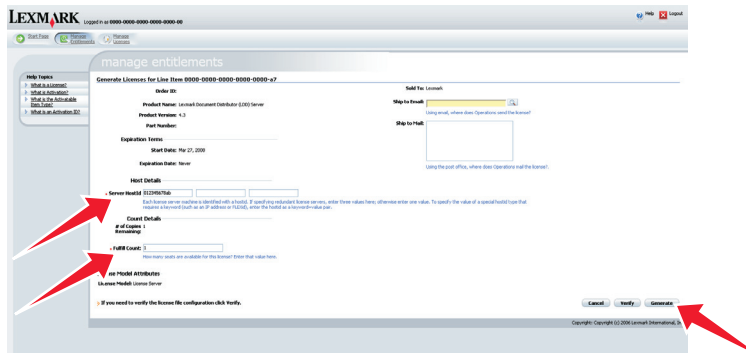


- 4 Select the line for the product Lexmark Distributed Intelligent Capture Server License that indicates one or more licenses in the Copies Left column, and then click **Activate**.

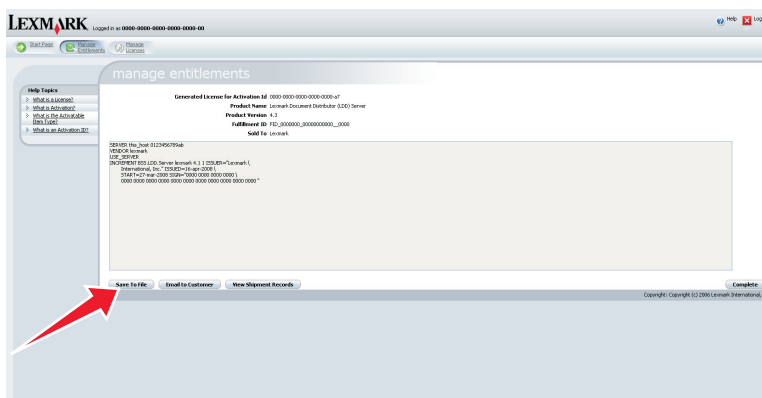


- 5 In the Host ID field, type the host ID of your server. For more information, see “Finding the host ID” on page 66.

6 In the Fulfill Count field, type 1, and then click **Generate**.



7 Click **Save To File**, and then save the file using a descriptive file name, such as **server.lic**, to a folder accessible to the load balancer.



8 Click **Complete**.

**Note:** If you are using a failover cluster for the load balancer, then repeat steps through 1 through 7, using the host ID of each standby node of the failover cluster. Use unique file names to avoid overwriting existing license files.

9 From the System tab in LMC, select **Licenses** from the System list.

10 Click **Add License**.

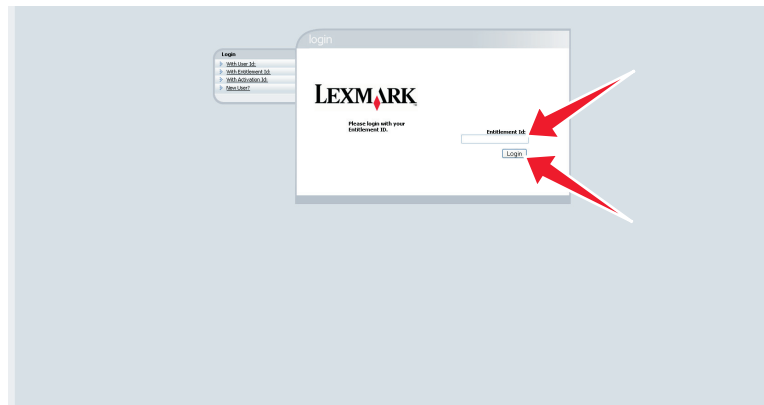
11 In the window that appears, type a path to a license file, or click **Browse** to browse for a license file, and then click **Upload**.

**Note:** Uploading license files copies them to the program folder. You can safely move or delete the license files from the temporary location where you saved them.

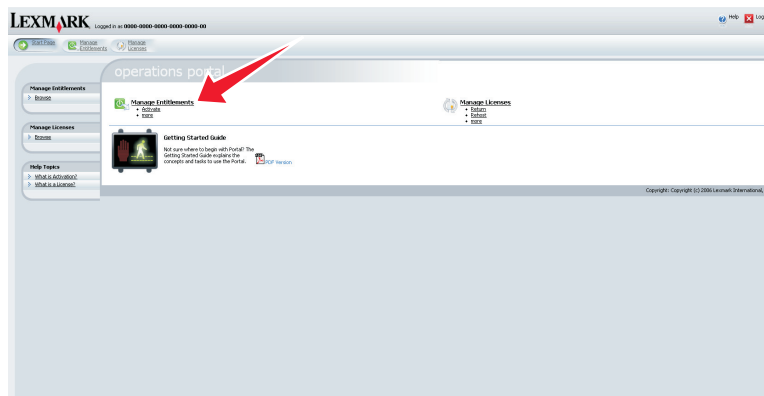
## Adding an MFP, e-forms virtual printer, or software client license to an existing server

**Note:** Back up your current license files before updating with new files.

- 1 Open the Lexmark Licensing portal at <http://software.lexmark.com>.
- 2 Type the entitlement ID you received when you purchased your licenses, and then click **Login**.

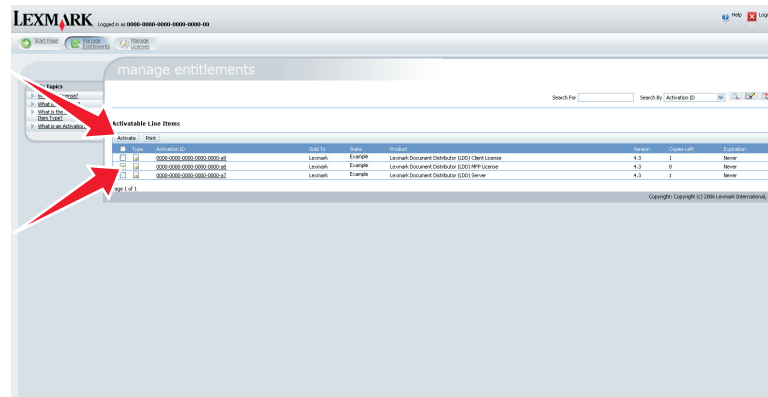


- 3 Click **Manage Entitlements**.

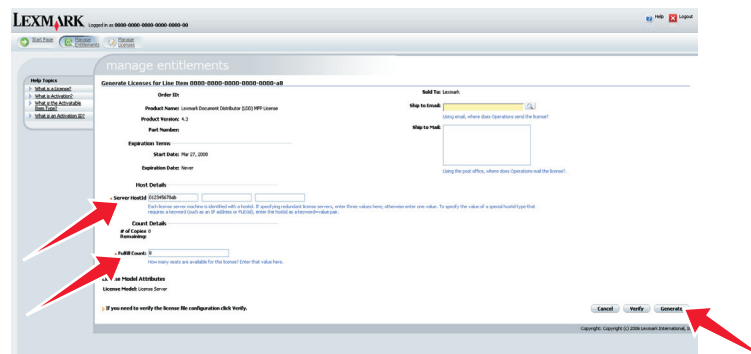


- 4 Select the license to activate:

- For an MFP license, select the line for the product Lexmark Distributed Intelligent Capture MFP License that indicates one or more licenses in the Copies Left column, and then click **Activate**.
- For an e-forms virtual printer license, select the line for the product Lexmark Distributed Intelligent Capture EFVP License that indicates one or more licenses in the Copies Left column, and then click **Activate**.
- For a software client license, select the line for the product Lexmark Distributed Intelligent Capture Client License that indicates one or more licenses in the Copies Left column, and then click **Activate**.



- 5 Type the host ID of your server into the first Host ID field. For more information, see “Finding the host ID” on page 66.
- 6 Type the number of printers, virtual printers, or software clients associated with the current server in the Fulfill Count field.
- 7 Click **Generate**.



- 8 Click **Save To File**, and then save the file using a descriptive file name, such as `mfp.lic`, `efvp.lic`, or `client.lic`, to a folder accessible to the load balancer.

**Note:** The server automatically adds a time stamp to the file name of new licenses as they are installed, so existing licenses are not overwritten if the file name used is the same as an already installed license file.

- 9 Click **Complete**.
 

**Note:** If you are using a failover cluster for the load balancer, then repeat steps 1 through 8, using the host ID of each standby node of the failover cluster. Use unique file names to avoid overwriting existing license files.
- 10 From the System tab in LMC, select **Licenses** from the System list.
- 11 Click **Add License**.
- 12 In the window that appears, type a path to a license file, or click **Browse** to browse for a license file.
- 13 Click **Upload**.

**Note:** Uploading license files copies them to the program folder. You can safely move the license files from the temporary location where you saved them.

## Re-hosting licenses

Activating purchased licenses associates the server license and each printer license with the host ID of the load balancer and generates license files that will work only with that load balancer. If the load balancer is transferred to a new computer, then printers are moved to a different server system, or the network adapter is changed in the load balancer, the applicable licenses must be reallocated to the new host ID.

- 1 Open the Lexmark Licensing portal at <http://software.lexmark.com>.
- 2 Type the entitlement ID you received when you purchased your licenses, and then click **Login**.
- 3 Click **Manage Licenses**.
- 4 Select a license, and then click **Rehost**.
- 5 Replace the existing server host ID with the host ID of the new load balancer. For more information on determining the host ID, see “Activating Lexmark Distributed Intelligent Capture licenses” on page 20.
- 6 In the Rehost Count field, type the number of licenses to re-host :
  - When moving a server license, always use 1.
  - When moving all printer licenses to the new server system, use the number shown in the Fulfill Count field.
  - To move only some of the existing printer licenses to the new server system (known as a partial re-host), enter a number less than the number shown in the Fulfill Count field.
- 7 Click **Rehost**.

The new license is shown. If you are re-hosting only some printer licenses, a second fulfillment ID is shown.
- 8 If you are re-hosting all licenses, then click **Save To File**, and then save the new license file to a folder accessible to the new Lexmark Distributed Intelligent Capture system.

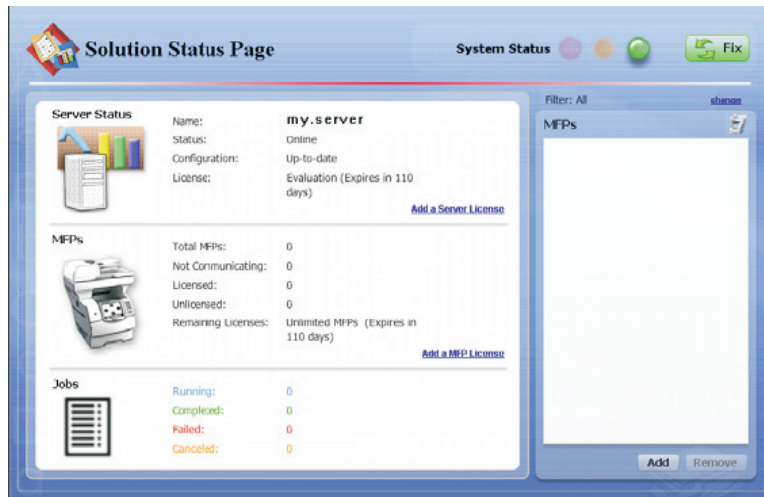
If you are re-hosting only some of the printer licenses, then you must replace the license file on the original server system:

  - a Note the host ID for the license file associated with each fulfillment ID shown to determine the server system with which each of the new license files is associated.
  - b Click **Save To File** while viewing the license for the original server system, and then save the new license file.
  - c Click **Save To File** while viewing the license for the new server system, and then save the new license file. Use a different name or folder from the license file for the original server system so that you do not overwrite it.
- 9 Click **Complete**.

**Note:** When moving all licenses, this procedure must be completed once for the server license, and a second time for all printer licenses.
- 10 Launch Lexmark Management Console for the new system in your Web browser, and then add a new license. For more information, see “Adding an MFP, e-forms virtual printer, or software client license to an existing server” on page 69.
- 11 If you are re-hosting only some of the printer licenses, then repeat step 10 for the original server.

## Using the Solution Status Page

Some solutions include a Solution Status Page that provides simple and easy-to-use access to status information for the server system where the solution is running and the printers in the device group associated with the Solution Status Page. Additionally, new printers and licenses can be added, and a single Fix button can fix many common problems. The Solution Status Page is particularly suited to less-experienced users.



**Note:** The Solution Status Page can only be enabled for solutions designed for device groups.

## Accessing the Solution Status Page

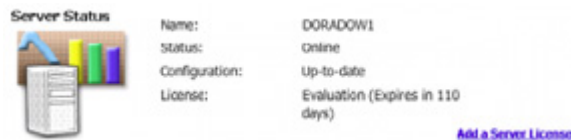
Launch the Solution Status Page from your Web browser using the URL `http://loadbalancer:9780/lmc/statuspage/?solutionName=solutionname`, where *loadbalancer* is the computer where your load balancer is installed, and *solutionname* is the name of the associated solution.

## Understanding status information

**Note:** The following section titles and fields may have been customized for your solution and may differ from the text shown here.

### Server Status

The Server Status section provides basic information about the server system and indicates any problems related to the server system itself.



Field	Description
Name	The host name of the computer where the server system is running
Status	Indicates whether the server system is online or offline
Configuration	Indicates the current status of the server configuration



Field	Description
License	Indicates the type of license, if any, that is provided for the server

## MFPs (overview)

The MFPs section in the left pane shows the overall status of the printers connected to the server.



Field	Description
Total Stations	Indicates the number of printers connected to the server system
Not Communicating	Indicates the number of printers that are not responding to the server system
Licensed	Indicates the number of printers connected to the server that have licenses available on the server system
Unlicensed	Indicates the number of printers connected to the server that do not have licenses available on the server system. Solutions will not function on printers added that exceed the number of licenses available.
Remaining Licenses	Indicates the number of licenses available for connecting more printers to the server system

## Jobs

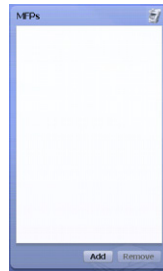
The Jobs section provides an overview of jobs run on the connected printers.



Field	Description
Running	Indicates how many jobs are currently being processed on all connected printers
Completed	Indicates how many jobs have been successfully processed on all connected printers since the server was installed
Failed	Indicates how many jobs failed to successfully complete on all connected printers since the server was installed
Canceled	Indicates how many jobs were canceled by the user on all connected printers since the server was installed

## MFPs (detail)

The MFPs section in the right pane lists each connected printer. Expand a printer in the list to show the following information:



Field	Description
Configuration	Indicates the current status of the printer configuration
Licensed	Indicates whether the printer has a license available on the server
State	Indicates the current status of the printer and any errors reported by the printer

To filter the list of printers by status, select an option from the **Filter** list.

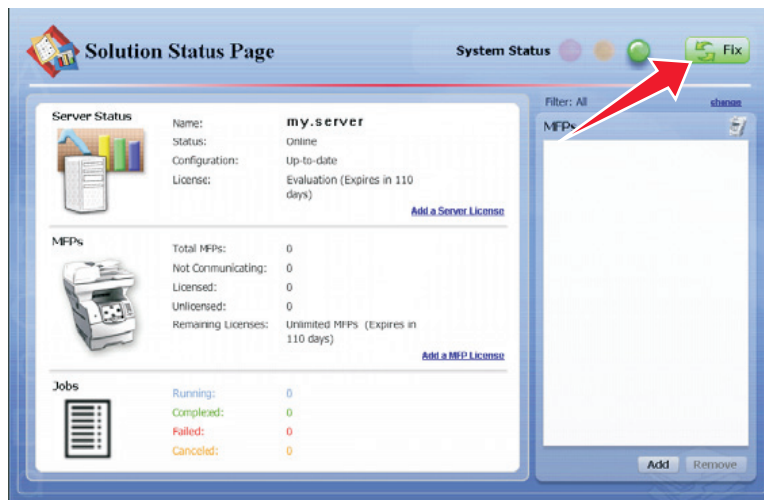
The screenshot displays the 'Solution Status Page' with the following sections:

- Server Status:**
  - Name: my.server
  - Status: Online
  - Configuration: Up-to-date
  - License: Evaluation (Expires in 110 days)
  - [Add a Server License](#)
- MFPs:**
  - Total MFPs: 0
  - Not Communicating: 0
  - Licensed: 0
  - Unlicensed: 0
  - Remaining Licenses: Unlimited MFPs (Expires in 110 days)
  - [Add a MFP License](#)
- Jobs:**
  - Running: 0
  - Completed: 0
  - Failed: 0
  - Canceled: 0

The 'Filter' dropdown menu is open, showing the following options: All, Missing, Out of policy, Unlicensed, and Running. A red arrow points to the 'Filter' dropdown menu.

## Repairing common server problems

Click **Fix** to repair several common problems that occur in the system.



The Fix button does each of the following as necessary:

- Set all servers online.
- Run a discovery for the associated device group.
- Update policies on associated printers.
- Reload the license files on the server system.

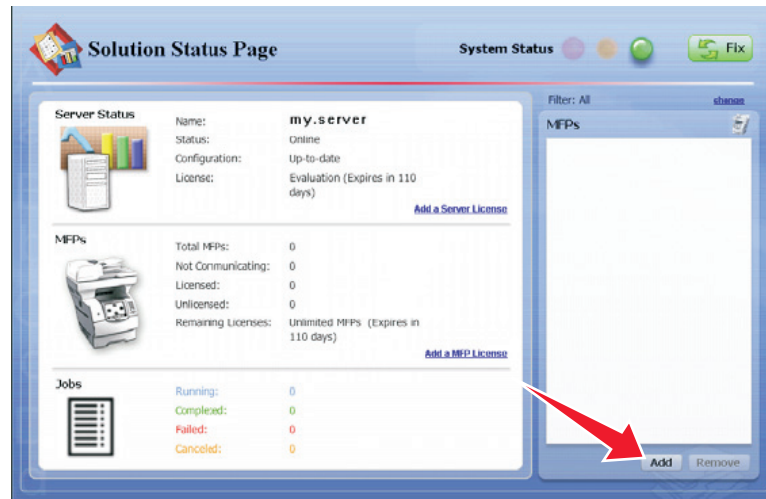
Printers that are powered off when using the Fix button are placed in the Not Communicating category. To recover communication with a printer in the Not Communicating category, turn on the printer, and then click **Fix** again.

## Adding printers to a server

Adding a printer using the Solution Status Page adds the printer to the device group associated with the solution and runs a discovery to initiate communication with the printer. Each printer added uses one of the available licenses on the server.

- 1 Make sure the printers being added are turned on.
- 2 In the right pane of the Solution Status Page, click **Add**.

**Note:** The Add button is available only if the server has unused licenses.



3 Type the IP address or host name of the printer, and then click **Add**.

The printer is added to the MFPs list in the right pane, and the numbers in the MFPs section of the left pane are adjusted accordingly.

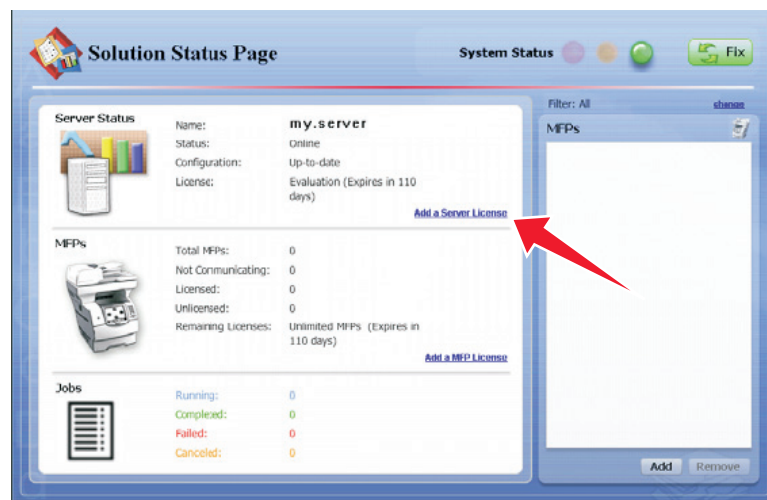
4 Click **Yes** to add another printer, or click **No** to complete the process.

## Adding licenses to a server

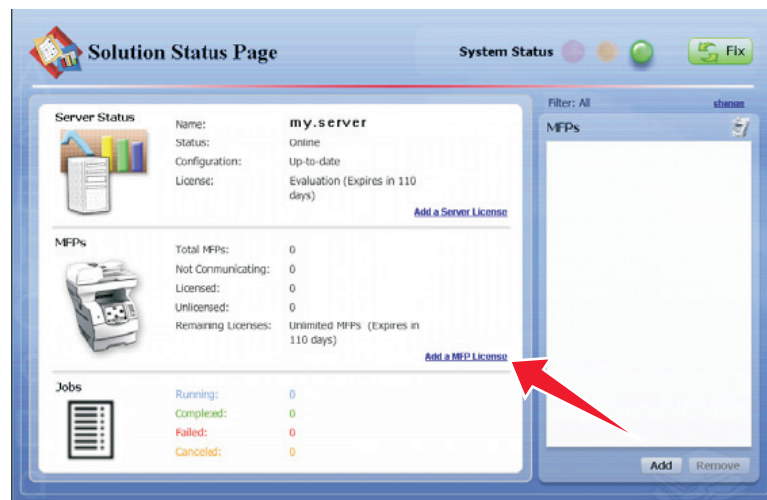
You can add both server licenses and MFP licenses from the Solution Status Page.

1 Select the type of license to add:

- To add a new server license, click **Add a Server License**.



- To add a new printer license, click **Add a MFP license**.



- 2 In the window that appears, type a path to a license file, or click **Browse** to browse to the license file.
- 3 Click **Upload**.

## Removing printers

Removing a printer disables the solution on that printer and frees a license on the server.

- 1 In the right pane of the Solution Status Page, select a printer to remove.
- 2 Click **Remove**.
- 3 Click **Yes** to confirm.

The printer is removed from the associated device group, and its license is made available.

## Managing reports

### Running a report


**Note:** It is recommended to run reports during off-peak usage times to avoid affecting system performance.

- 1 Click the **System** tab.
- 2 Select **Reports** from the System list.
- 3 Select a report from the Available Reports list.
- 4 Specify the reporting period.
- 5 Select an output format from the Output Format drop-down menu.


**Note:** Each report has a default selection for the output format, which may be the format that the report was specifically designed to use. For more information about a custom report, contact the designer of your custom report.

- 6 Save the report to a file, or send it in an e-mail message:

To save the report to a file:

- a Select the **Save To** check box.
- b Click  beside the Save To field.
- c Type a destination folder path using either a local drive letter or a UNC path for a network share.
- d If the folder is located on a network share that requires authentication, then type the network share user name and password.
- e Click **OK**.

To send the report in an e-mail message:

- a Select the **Email To** check box .
- b Click  beside the Email To field.
- c Edit the fields of the e-mail message as necessary, and then click **OK**.

- 7 If additional query parameters are available for the selected report, then click **Additional Parameters** to specify values for those parameters. If no additional parameters are available, then the button is disabled.

**Note:** Additional parameters can be defined only when including a report with a workflow solution during development.

- 8 Click **Run Report**.

The report appears in a new window and may be saved to a file or sent in an e-mail message.

**Notes:**

- Only summary reports are supported. Even if a custom report has a detail section defined, the section does not appear. If a custom report does not have a summary section, then the finished report is blank.
- Pop-ups must be allowed for LMC in your Web browser to view reports.
- Adobe Reader is required to view PDF reports.

## Scheduling a report

**Note:** It is recommended to run reports during off-peak usage times to avoid affecting system performance.

- 1 Click the **System** tab.
- 2 Select **Schedule** from the System list.
- 3 Click **Add > Report**.

**Note:** Some solutions may include a script that runs a report with a predetermined configuration which can be scheduled like any other script. Additionally, reports that run through a script can be run separately for each server in the system. For more information, contact the developer of your solution.


- 4 Type a description for the task, and then click **Next**.
- 5 Select and configure the scheduled report:
  - a Select a report from the Available Reports list.
  - b Select a reporting period.

- c Select an output format from the Output Format drop-down menu.


**Note:** Each report has a default selection for Output Format, which may be the format that the report was specifically designed to use. For more information about a custom report, contact the designer of your custom report.

- d Save the report to a file or send it in an e-mail message:

To save the report to a file:

- 1 Select the **Save To** check box.
- 2 Click  beside the Save To field.
- 3 Type a destination folder path using either a local drive letter or a UNC path for a network share.
- 4 If the folder is located on a network share that requires authentication, then type the network share user name and password.
- 5 Click **OK**.

To send the report in an e-mail message:

- 1 Select the **Save To** check box..
- 2 Click  beside the Email To field.

- e If additional query parameters are available for the selected report, then click **Additional Parameters** to specify values for those parameters. If no additional parameters are available, then the button is disabled.

- 6 Click **Next**.
- 7 Enter a start date and a start time.
- 8 Configure the frequency of the scheduled event, and then click **Finish**.

## Using built-in reports

Built-in reports are available to display commonly used data. All built-in reports are designed for PDF output, except for those that specify CSV in the report title.

- **Jobs Report - CSV**—This displays the jobs list in CSV format.
- **Log Report - CSV**—This displays all log entries in CSV format.
- **Log Report - Failed Jobs**—This displays log entries for failed jobs.
- **Printer Report**—This displays data related to printer usage, such as printer success rates, printer model usage, printer usage per profile, and most active users per printer.
- **Report by Time**—This displays daily and hourly data, such as job totals, job success rates, printer usage, user usage, server usage, and job durations.
- **Server Report**—This displays data related to server usage, such as job success rates, hourly job rates, job duration, and server distribution. Both a summary for all servers and details for individual servers are available.
- **Software Client Report**—This displays data related to software client usage, such as software client success rates, software client usage per profile, and most active users per software client.
- **Solution Report**—This displays data related to solution usage, such as solution success rates, most used solutions, and how solutions are accessed.
- **Task Summary Report**—This displays data related to tasks, such as task attempts, task success rates, and task times. Both a summary and details are available.
- **Tops Report**—This displays the most active of the following elements:
  - Users
  - Printers

- Printer models
- Profiles
- User for each profile
- Servers
- User for each printer
- Software client for each profile
- User for each software client
- Tasks
- Printer for each profile
- Scheduled scripts
- **User Report**—This displays data related to users, such as user job success rates, most active users, and job duration.

## Adding a report

**Note:** Only summary reports are supported. Even if a custom report has a detail section defined, the section will not be displayed. If a custom report does not have a summary section, then any reports generated from the custom report will be blank.

- 1 Click the **System** tab.
  - 2 Click **Reports** in the System list.
  - 3 Upload the report files:
    - a Click **Upload Report Files > Browse**.
    - b Select a .jasper compiled report file, as well as any of the following:
      - .jasper compiled report files used as subreports
      - .jpg or .png graphics included in the report
      - .jrxml report source files (optional)
    - c Click **Open**.
    - d Existing files are overwritten by default. If you do not want to overwrite existing files, then clear the **Overwrite if file already exists** check box.
    - e Click **Upload**.

Selected files are copied to the folder \Lexmark\Solutions\apps\wf-ldss\WEB-INF\reports\ where the system is installed on each server.
  - 4 Below the Available Reports list, click **Add**.
  - 5 Type a descriptive report name.
  - 6 Select the Jasper report file name for the compiled report you uploaded.
  - 7 Select the database the report was designed to access from the Datasource drop-down menu. Commonly used databases include:
    - **MONITOR**—This is used by reports that access the jobs list and the log.
    - **SOLUTIONINFO**—This is used by some solutions to store custom data.
- For more information about a custom report, contact the designer of your custom report.



8 Select the default output format.

**Note:** Each report has a default selection for output format, which may be the format that the report was specifically designed to use. For more information about a custom report, contact the designer of your custom report.

9 Click **Save**.

## Editing report settings

1 Click the **System** tab.

2 Click **Reports** in the System list.

3 Select a report from the Available Reports list, and then click **Edit**.

4 Edit the report settings as necessary:

- Type a descriptive report name.
- Select the Jasper report file name for a compiled report that has been uploaded to the system.
- Select the data source.
- Select the default output format.

**Note:** Each report has a default selection for output format, which may be the format the report was specifically designed to use. For more information about a custom report, contact the designer of your custom report.

5 Click **Save**.

## Removing a report

To remove a report, select a report from the Available Reports list, and then click **Remove**.

**Note:** Removing a report automatically removes any associated scheduled report tasks. However, any scheduled script tasks that use the report are not detected and must be removed manually.

After removing a report from the Available Reports list, you can optionally delete associated files from the folder `\Lexmark\Solutions\apps\wf-ldss\WEB-INF\reports\` where the system is installed on each server.

## Configuring default report options

You can configure default report options, such as default e-mail or file destination and default reporting period.

Select the **Reports** service from the Services tab.

Clicking **Refresh Defaults** while configuring a report returns settings to defaults.

## Creating custom reports

Lexmark Distributed Intelligent Capture uses JasperReports for custom reports. You can create custom reports using the open source application iReport 3.5.2, available from <http://jasperforge.org/ireport>. For more information about overall report design, see the documentation for iReport.

**Note:** Only summary reports are supported. Even if a custom report has a detail section defined, the section will not be displayed. If a custom report does not have a summary section, any reports generated from the custom report will be blank.

## Using special Lexmark Distributed Intelligent Capture parameters

You can add the following parameters to the report design in order to use the specified information in other parts of the report:

- **start\_date**—This retrieves the start date for report data, as specified in a script or by the administrator when the report is run.
- **end\_date**—This retrieves the end date for report data, as specified in a script or by the administrator when the report is run.
- **SUBREPORT\_DIR**—This retrieves the reports folder, located at \Lexmark\Solutions\apps\wf-Idss\WEB-INF\reports\ where Lexmark Distributed Intelligent Capture is installed on each server, from the Lexmark Distributed Intelligent Capture installation in order to locate subreport files.

**Note:** Additional parameters can only be added when a report is developed and uploaded with a solution using the SDK..

## Querying the database

Information for built-in reports and many custom reports are retrieved from the MONITOR database, which contains information about tasks. Custom reports may also retrieve information from the SOLUTIONINFO database, where some solutions store custom data.

The credentials for all databases are as follows:

- **User name**—`framework`
- **Password**—`rivet`

Information that appear in the log are available from the TASK\_LOG table in the MONITOR database. The following fields are available:

- **ID**—This is a unique ID number assigned to each entry in the log.
- **LOG\_TIME**—This is the time when an entry was added to the log.
- **STATUS**—This is the status reported by the solution that added the log entry.
- **PERCENT\_COMPLETE**—This is the progress reported by the solution that added the log entry.
- **TASK\_MESSAGE**—This is the log message reported by the solution.
- **TASK\_ID**—This is the unique ID number assigned to a task. Each entry recorded from the same task has the same TASK\_ID.

Information from the Jobs list are available from the TASK\_INFO table in the MONITOR database. The following fields are available:

- **TASK\_ID**—This is the unique ID number assigned to the task.
- **HOST\_NAME**—This is the host name of the server where the job was run.

- **TASK\_NAME**—This is the name of the task.
- **SOLUTION\_NAME**—This is the name of the solution where the task was run.
- **STATUS**—This is the status reported when the job was completed or abandoned.
- **START\_TIME**—This is the time when the job was received.
- **END\_TIME**—This is the time when the job was completed or abandoned.
- **PERCENT\_COMPLETE**—This is the progress reported by the job when it was completed or abandoned.
- **USER\_ID**—This is the user who submitted the job, if applicable.
- **PRINTER**—This is the address of the printer or software client that submitted the job, if applicable.
- **ADDRESS**—This is the unique ID number of a printer.
- **SCHEDULE\_ID**—This is the ID for the scheduled task that ran, if applicable.
- **PARENT\_ID**—This is the task ID of the previous task that started the listed task, if applicable.
- **THREAD\_NAME**—This is the name of the thread used by the task.
- **CLIENT\_NAME**—This is the host name of the printer or software client that submitted the job, if applicable.
- **PRINTER\_MODEL**—This is the printer model number reported by the printer that submitted the job, if applicable.
- **JOB\_TYPE**—This is the device class for which a profile was run by the task, if applicable.
- **HAS\_SCANNER**—This is the boolean value (0 or 1) for whether the printer that submitted that job has a scanner.

## Using included subreports

Some subreports included may be useful in developing other custom reports. Since these files are included with the installation, they do not have to be uploaded before adding a form that includes any of them.

When using a subreport in a custom report, you must pass the **start\_date**, **end\_date**, and **SUBREPORT\_DIR** to the subreport using the Parameters property of the subreport element.

File name	Page orientation	Description
_portrait_title.jasper	Portrait	Displays a default header image, the title of the report, and the selected reporting period for use as a header in a report
_landscape_title.jasper	Landscape	
_portrait_footer.jasper	Portrait	Displays the date when the report was created, and the page number for use as a footer in the report
_landscape_footer.jasper	Landscape	
_portrait_no_data_message.jasper	Portrait	Displays a message indicating that no data was found within the selected period for use as a No Data node in a report <b>Note:</b> By default, iReport does not generate a report if there is no data. To use a No Data node, change the setting for when there is no data in the report from No Pages selection to No Data Section.
_landscape_no_data_message.jasper	Landscape	
_Printers_Least_Used	Either	Displays the printers least used to submit jobs
_Printer_Models_Most_Used	Either	Displays the printer models most used to submit jobs
_Printers_Most_Used	Either	Displays the printers most used to submit jobs
_Server_Stats	Either	Displays a breakdown of job types run on a server <b>Note:</b> This subreport uses the additional parameter <b>SERVER</b> , which contains the host name of the server for which the subreport should be run.

File name	Page orientation	Description
_Servers_Most_Used	Either	Displays the servers that have processed the most jobs
_SoftwareClients_Most_Used	Either	Displays the software clients most used to submit jobs
_Solution_Profile_Most_Used	Either	Displays the solution profiles most used for submitted jobs
_Solution_Profile_Printers	Either	Displays the printers from where the most jobs are submitted for each profile
_Solution_Profile_Scheduled_Scripts	Either	Displays the solution profiles most often run by scheduled tasks
_Solution_Profile_SoftwareClients	Either	Displays the software clients from where the most jobs are submitted for each profiles
_Solution_Profile_Users	Either	Displays the users who most often submit jobs for each profile
_Solutions_Most_Used	Either	Displays the solutions most used for submitted jobs
_Task_Most_Run	Either	Displays the most frequently run tasks
_Users_Most_Active	Either	Displays the users who have submitted the most jobs
_Users_Most_Cancellations	Either	Displays the users who have canceled the most jobs
_Users_Printers	Either	Displays the users who most often submit jobs for each printer
_Users_SoftwareClients	Either	Displays the users who most often submit jobs from each software client

## Backup and disaster recovery

### Scheduling automatic backups

You can back up the databases and solutions in an Lexmark Distributed Intelligent Capture system to a network share. In the event a recovery is necessary, a new system can access the recovery data using Restore Install. You can direct existing servers from a partially failed system to the new load balancer and/or database, or you can install new servers.

When a scheduled backup occurs, the system validates backup database files on the share and sends an e-mail message that indicates success or failure to the address specified for the “Admin email address” setting of the Confirm service. Any failures are also recorded in the system log.

**Note:** Backups should be scheduled during off-peak times to avoid negatively affecting system performance.

- 1 Click the **System** tab.
- 2 Select **Schedule** from the System list.
- 3 Click **Add > Backup Restore**.
- 4 Type a description for the task, and then click **Next**.

- 5 Type the UNC path of the existing network share (for example, `\\myserver\myshare\`) where the system should be backed up.

**Note:** When storing backup data from multiple Lexmark Distributed Intelligent Capture systems, make sure to assign a different folder to each system. Assigning a backup folder for each Lexmark Distributed Intelligent Capture system prevents an existing data from being overwritten by another system. This also helps you identify from which Lexmark Distributed Intelligent Capture system the backup data belongs to.

- 6 If the network share requires authentication, then type the user name and password.
- 7 To back up the jobs list and the log, make sure the **Keep Jobs Logs Database** check box is selected.
- 8 To keep previous backup sets, make sure the **Keep previous backups** check box is selected. If this option is selected, data from each backup is stored in a folder named with the date of the backup within the specified network share folder. If it is cleared, backup data is stored directly in the specified network share folder, overwriting any previous data.

**Note:** The database containing the jobs list and the log may be very large. If both **Keep Jobs Logs Database** and **Keep previous backups** check boxes are selected, regularly make sure that you have enough space on the network share where the files are backed up.

- 9 Click **Next**.
- 10 Enter a start date and a start time.
- 11 Configure the frequency of the scheduled event, and then click **Finish**.

**Note:** When keeping previous backups, you can delete dated backup folders containing entire previous backups as necessary, but do not modify the internal folder structure of backup data.

## Recovering backup data with a new installation

When a recovery is necessary and you are using a network share backup, a new load balancer or database and load balancer together can access backup data using Restore Install.

**Note:** If only the load balancer has failed, then you can restore the load balancer by itself. However, if only the database has failed, then you *must* restore the database, and then restore the load balancer as well.

- 1 Select the appropriate installation, proceeding to the final step of the installation wizard *without* clicking **Finish**:
  - If a workgroup system has failed, then perform a workgroup installation.
  - If the database and load balancer together or the database only has failed in an enterprise system, then install the database.
  - If only the load balancer has failed in an enterprise system, then install the load balancer.
- 2 Select **Restore Install (RI)**.
- 3 Type the path of the folder containing the `.ri` file from the backup data.

*or*

Click the folder icon and then locate the `.ri` file from the backup data.
- 4 Click **Finish** to complete Restore Install.
- 5 If you are using an enterprise system and you just installed the database, then repeat steps 1 through 4 for the load balancer.

- 6 If you are using an enterprise system, then add servers to the system and set them online.
  - If you are installing new servers, then see “Installing new servers during recovery” on page 86.
  - If you are using existing servers, then see “Connecting existing servers during recovery” on page 86.
- 7 If the new load balancer is identified by a new IP address or fully qualified domain name, then do the following:
  - a Recreate any printer ports on software clients. For more information, see “Recreating Lexmark Distributed Intelligent Capture printer ports after an address change” on page 87.
  - b Change settings for any associated eSF applications that specify the load balancer address using the eSF Configuration task on the Device Groups tab in LMC. For more information, see “Configuring an eSF application associated with a solution” on page 92.

## Installing new servers during recovery

- 1 On computers where you want to install servers, make sure the time is synchronized with existing system components using an NTP server.
- 2 Perform server installations using the new database and/or load balancer. For more information, see “Installing servers” on page 36.
- 3 Install any third-party services required by installed solutions on each new server.
- 4 Perform policy updates as necessary:
  - If the new database and load balancer are identified by the same IP address(es) and fully qualified domain name(s) as the failed database and/or load balancer, then perform a policy update for any device groups that contain e-Task printers, making sure to clear the **Only update those devices which are Out of Policy** check box.
  - If the backup database or load balancer is identified by a new IP address or fully qualified domain name, then perform a policy update for all device groups, making sure to clear the **Only update those devices which are Out of Policy** check box.
- 5 From the System tab in LMC, set the new servers online. For more information, see “Viewing and changing server status” on page 54.
- 6 If new servers are identified by different addresses than the failed servers, then the failed servers remain in the system and appear as non-communicating on the System Status page. To avoid affecting system performance, remove these servers from the System tab in LMC.

## Connecting existing servers during recovery

Do the following after the database or load balancer is recovered:

- If the new database and load balancer are identified by the same IP address(es) and fully qualified domain name(s) as the failed database and/or load balancer, then do the following:
  - 1 Make sure the time is synchronized among all system components using an NTP server.
  - 2 Restart the Lexmark Solutions Application Server service from the Windows Services control panel on each server.
  - 3 Perform a policy update for any device groups that contain e-Task printers, making sure to clear the **Only update those devices which are Out of Policy** check box.
  - 4 From the System tab in LMC, set the servers online. For more information, see “Viewing and changing server status” on page 54.

- If the new database or load balancer is identified by a new IP address or fully qualified domain name, then do the following on each server:
  - 1 Make sure the time is synchronized among all system components using an NTP server.
  - 2 From the Services control panel, stop the Lexmark Solutions Application Server service.
  - 3 In the file `\Lexmark\Solutions\apps\wf-ldss\WEB-INF\classes\adaptor.properties` where the server is installed, change each of the properties `adaptor.address` and `adaptor.canonicalhostname` to the IP address or fully qualified domain name of the new load balancer.

**Note:** If the setting is currently an IP address, then use the IP address of the load balancer. Likewise, if the setting is currently a fully qualified domain name, then use the fully qualified domain name of the load balancer.
  - 4 Change the URL for the desktop shortcut to LMC on the server:
    - a In the folder `\Lexmark\Solutions\apps\wf-ldss\`, right click the shortcut **lmc**, and then click **Properties**.
    - b Change the IP address or host name part of the URL to the new IP address or host name of the new load balancer. The complete URL should be `http://hostname:9780/lmc/`, where *hostname* is the host name or IP address of the new load balancer.
  - 5 If you are using a new database, then locate the file `\Lexmark\Solutions\apps\wf-ldss\WEB-INF\classes\database.properties` where the server is installed, and then change the property `database.hostname` to the fully qualified domain name of the new database.

**Note:** If you are using an IP address for this setting because the network does not have a reliable DNS, then you can use the IP address of the new database.
  - 6 From the Services control panel, start the Lexmark Solutions Application Server service.
  - 7 Perform a policy update for all device groups, making sure to clear the **Only update those devices which are Out of Policy** check box.
  - 8 From the System tab in LMC, set the servers online. For more information, see “Viewing and changing server status” on page 54.

## Recreating Lexmark Distributed Intelligent Capture printer ports after an address change

If the new load balancer is identified by a new IP address or fully qualified domain name after a recovery, then you must recreate any Lexmark Distributed Intelligent Capture printer ports on software clients.

- 1 In the printers control panel in Windows, right-click a Lexmark Distributed Intelligent Capture print queue, and then click **Properties**.

**Note:** For more information about accessing the properties for the Lexmark Document Server port, see “Configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2” on page 116.
- 2 Click the **Ports** tab > **Add Port** > **Lexmark Document Server Port - Enterprise** > **New Port**.

**Note:** The port name must be 75 characters or fewer.
- 3 Add the new Lexmark Document Server:
  - a Click **Manage List**.
  - b From the Server Setup dialog, click **Add**.
  - c Type the fully qualified domain name or IP address of the load balancer, and then click **OK**.

- d Select the old load balancer from the list, then click **Remove**, and then click **Yes** to confirm removal.
        - e Click **OK** to exit the Server Setup dialog.
- 4 Make sure the new server is selected from the Document Server list, and then click **Next**.
- 5 Select a profile on the server to use with the new port, and then click **Next**.

**Note:** If the server is currently running a large number of jobs, then profiles on the server may not appear in the list. Wait until the server is not as busy, and then try adding the port again.
- 6 Click **Finish** to add the new port.
- 7 If you are using pooled ports, then add additional ports using the same server and profile.
- 8 If the Printer Ports dialog is still open, then click **Close**.
- 9 Make sure only newly created ports are selected, and then click **Apply**.
- 10 Do the following for each port associated with the failed load balancer:
  - a Select the port from the list.
  - b Click **Delete**, and then click **Yes** to confirm deletion.

**Note:** If a port cannot be deleted, then it may still be associated with the print queue. Make sure only newly created ports are selected, then click **Apply**, and then try again.
- 11 If necessary, select newly created ports again.
- 12 Click **Close**.

## Manually backing up databases

You can back up the Lexmark Distributed Intelligent Capture databases using any normal Firebird backup procedure. For manual backups, you can use **GBAK.exe**, located in the \Lexmark\Solutions\firebird\bin\ folder within the folder where the Lexmark Distributed Intelligent Capture load balancer or database is installed.

The following databases, located in the \Lexmark\Solutions\firebird\data\ folder within the folder where the Lexmark Distributed Intelligent Capture database is installed, should be included in the backup:

- EFORMS.FDB
- FRAMEWORK.FDB
- LICENSE.FDB
- MONITOR.FDB
- QUARTZ.FDB
- SOLUTIONINFO.FDB

The user name for each database is **framework**, and the password is **rivet**.

The following command is recommended for each file:

```
LDD_folder\firebird\bin\gbak.exe -v -t -user framework -password rivet  
"DB_IP_address:LDD_folder\firebird\data\source_db" "backup_db"
```

Make the following replacements:

- **LDD\_folder**—This is the folder where the Lexmark Distributed Intelligent Capture database is installed. This folder typically starts with a prefix C:\Program Files\Lexmark\Solutions\.
- **DB\_IP\_address**—This is the IP address of the Lexmark Distributed Intelligent Capture database.



- *source\_db*—This is the file name of the database file to back up.
- *backup\_db*—This is the path and file name of the backup database file, which uses the extension .fbk.

# Managing solutions and cSF apps

## Understanding the deployment process

- 1 Set servers offline to prevent execution of profiles before configuration is complete. For more information, see “Viewing and changing server status” on page 54.
- 2 Upload the solution or cSF app to the system and adjust global settings for the solution.
- 3 Create a device group to contain printers where the solution or cSF app will be deployed.
  - Note:** Multifunction and single-function printers are known as *devices* in LMC.
- 4 Create discovery profiles to add printers to the device group.
- 5 Discover printers in the device group according to the discovery profiles.
- 6 Add the solution or cSF app to the device group and adjust local settings, if necessary.
- 7 Configure home screens for the device group to use the deployed solution or cSF app.
- 8 Update the device policies for the printers in the device group.
- 9 Set servers online. For more information, see “Viewing and changing server status” on page 54.

Each step is covered in more detail in the following sections.

**Note:** Some solutions or cSF apps may automatically complete any or all of steps 3 through 8 if the creator of the solution or cSF apps included auto-configure. For more information, see the documentation associated with a specific solution.

## Understanding solution or cSF app settings

Setting type	Location in LMC		Initial configuration	Scope
	Solution	cSF app		
Global	Configuration task on the Solutions tab	<ol style="list-style-type: none"> <li>1 Click the <b>cSF App</b> tab.</li> <li>2 Click the checkbox by every cSF app.</li> <li>3 Click <b>Config Service</b>, and then click <b>Yes</b>.</li> </ol>	After uploading the solution in LMC	All printers in all device groups to which the solution is applied, or all software clients in all software client groups to which the solution is applied
Local	Solutions task on the Device Groups or Software Client Groups tab (Select a solution, and then click <b>Edit</b> .)	N/A	During deployment to a device group or assignment to a software client group	All printers in the selected device group, or all software clients in the selected software client group

## Uploading solutions and cSF apps to the Lexmark Distributed Intelligent Capture system

- 1 Click the **Solutions** or **cSF Apps** tab.
- 2 Select **All Solutions** or **All cSF Apps** from the list.
- 3 Click **Install/Upgrade**.
- 4 In the window that appears, type a path to a solution or cSF app file, or click **Browse**.
- 5 Click **Upload**.

### Notes:

- If you are upgrading an existing solution or cSF app, then it is recommended that you set all servers offline so that jobs for the solution or cSF app are not accepted during the upgrade. Servers can be set online again after policy updates for the associated device groups. For more information, see “Viewing and changing server status” on page 54.
- If you install a workflow solution that includes a component, then you may need to restart the Lexmark Solutions Application Server from the Windows Services control panel for the solution to fully function.
- Solutions or cSF apps should be removed from home screens, device groups, and software client groups before removal. For more information about removing solutions or cSF apps, see “Removing solutions or cSF apps” on page 93.
- You can upload a solution to the Lexmark Distributed Intelligent Capture system directly from Eclipse by adding it to the Lexmark Distributed Intelligent Capture System List.

## Configuring global settings

### Configuring global solution settings

- 1 Click the **Solutions** tab.
- 2 Select a solution name from the list.
- 3 Select **Configuration** from the Tasks list.
- 4 Adjust the settings for the solution as needed. For more information, see the documentation that came with the solution.

**Note:** When updating the shortcut number of a profile, make sure to match it with the shortcut number in the Home Screen settings. For more information on configuring the home screen, see “Customizing the home screen for a device group” on page 100.

- 5 Click **Apply**.

### Configuring global cSF app settings

- 1 Click the **cSF Apps** tab.
- 2 Select **All cSF Apps**, and then check the checkbox next to the cSF app that you want to configure.

- 3 Click **Config Service**, and then click **Yes**.
- 4 Adjust the settings for the cSF app as needed.

**Note:** When updating the shortcut number of a profile, make sure to match it with the shortcut number in the Home Screen settings. For more information on configuring the home screen, see “Customizing the home screen for a device group” on page 100.

## Editing local settings for a deployed or assigned solution

Local settings are configured during deployment or assignment of a solution.

- 1 Select a group:
  - a Click the **Device Groups** tab.
  - b Select a device group from the Device Groups list.

*or*

  - a Click the **Software Client Groups** tab.
  - b Select a software client group from the Software Client Groups list.
- 2 Select **Solutions** from the Tasks list.
- 3 Select a solution from the list in the main section, and then click **Edit**.
- 4 Configure the deployment settings of the solution for the current device group, and then click **Finish**.

**Note:** A policy update is required after changing settings that affect a device group. For more information see “Updating policies for device groups” on page 104.

## Configuring an eSF application associated with a solution

If a hybrid solution is installed, and an associated eSF applications includes a descriptor file, then you can edit the eSF application settings for e-Task 2+ and e-Task 3 printers using Lexmark Distributed Intelligent Capture. Each device group contains separate settings for any eSF applications, much like local solution settings. For a list of e-Task 2+ and e-Task 3 printers, see “Supported printers” on page 14.

**Note:** You must configure eSF application settings for e-Task 2 and X642 printers using the Embedded Web Server on each printer after the application is deployed. Hybrid solutions are not supported by e-Task printers. For a list of e-Task and e-Task 2 printers, see “Supported printers” on page 14.

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list.
- 3 Select **eSF Configuration** from the Tasks list.
- 4 Select an eSF application from the list in the main section.
- 5 Select the **Verify eSF application deployment and deploy these eSF settings** check box.
- 6 Configure the settings of the eSF application for the current device group, and then click **Save Settings**.

**Note:** A Policy Update is required after changing eSF application settings for a device group. For more information see “Updating policies for device groups” on page 104.

## Managing solution-related files

Some solutions may include properties files or other associated files.

Files associated with only a single solution are located in the \Lexmark\Solutions\apps\wf-ldss\solutions\*SolutionName*\WEB-INF folder where each server is installed. *SolutionName* is the name of the solution.

Files added by a solution to be shared with all solutions are located in the \Lexmark\Solutions\apps\wf-ldss\ folder where each server is installed.

For more information, contact the developer of your solution.

**Note:** If you restart the Lexmark Solutions Application Server service, then any solution-related file is reverted to the version stored with the solution package as it was initially installed or upgraded, and any manual changes are lost.

## Removing solutions or cSF apps

- 1 Remove home screen buttons for the solution on any printers where they appear:
  - a Click the **Device Groups** tab.
  - b Select a device group where a home screen button is assigned to the solution or cSF app from the Device Groups list.
  - c Select **Home Screen** from the Tasks list.
  - d Do the following for each device class that includes a button assigned to the solution or cSF app:
    - 1 Select the button.
    - 2 Select **None** or a different action from the Action list.
    - 3 Click **Apply**.
  - e Repeat these steps for any other device groups that contain a home screen button assigned to the solution or cSF app.
- 2 Delete the solution or cSF app from any device groups or software client groups where it has been deployed:
  - a Click the **Device Groups** tab.
  - b Select a device group where the solution has been deployed from the Device Groups list.
  - c Select **Solutions** or **cSF Apps** from the Tasks list.
  - d Select the solution or cSF app from the list.
  - e Click **Delete**.
  - f Repeat these steps for any other device groups where the solution or cSF app has been deployed.
- 3 Remove the solution or cSF app from the system:
  - a Click the **Solutions** or **cSF Apps** tab.
  - b Select **All Solutions** or **All cSF Apps** from the list.
  - c Select the solution from the Summary list.
  - d Click **Remove**.

If a solution has associated forms, then you are asked whether to remove the associated forms along with the solution.

### Notes:

- Forms may be shared among solutions, and removing forms that are used by any remaining solutions will stop those solutions from working correctly.

- Removing a solution automatically removes any associated scheduled tasks.

# Managing device groups and devices

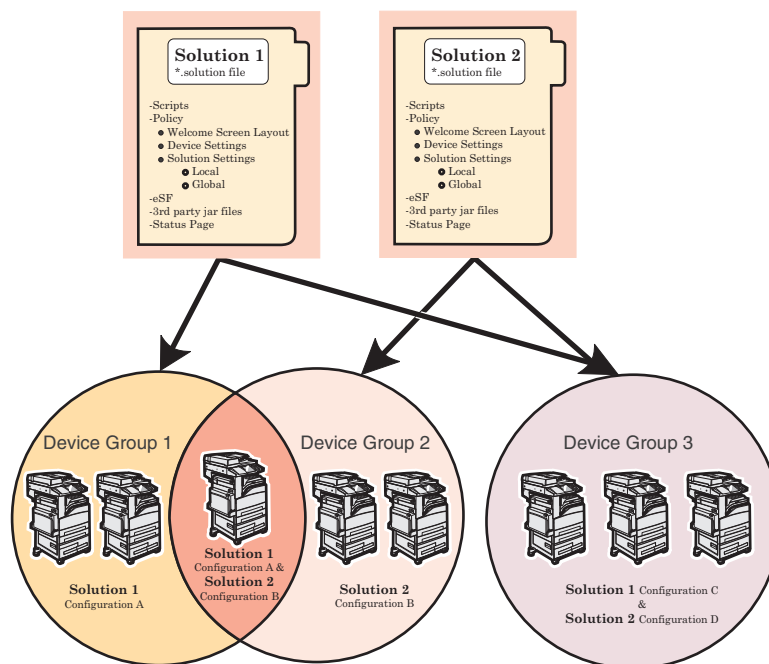
## Creating and populating device groups

### Understanding device groups

A *device group* is a collection of printers that share one or more solution deployments with the same local configuration. At least one device group must be created to deploy solutions. Multiple device groups should be created if either more than one solution is deployed to different sets of printers or one solution is deployed with different local configurations for different printers.

**Note:** Printers are known as devices in LMC.

Printers can be members of more than one device group. Solutions from each device group to which a printer belongs will be deployed to that printer.



### Creating a device group

- 1 Click the **Device Groups** tab.
- 2 Under the Device Groups list, click the **Add** button.
- 3 Type a unique name for the device group, and then click **Add**.

## Creating a device group from an existing device group

- 1 Click the **Device Groups** tab.
- 2 Under the Device Groups list, click **Add**.
- 3 Type a unique name for the new device group.
- 4 Select the existing group to copy, and then click **Add**.

The following settings are copied from the existing device group to the new device group:

- Solution associations
- Solution settings
- eSF application associations
- eSF application settings
- Home screen configurations
- Fax forwarding configurations
- Security settings

## Configuring policy updates

- 1 Click the **Services** tab.
- 2 Select **PolicyUpdate** from the Services list.
- 3 If necessary, select **Parameters** from the Tasks list.
- 4 Type a timeout period in seconds for each device during a policy update.

The timeout setting for the PolicyUpdate service determines how long the system waits for a printer to respond after it is initially connected during a policy update.

**Note:** If a large eSF application or several eSF applications are included with a hybrid solution, then you may need to increase the default timeout for policy updates in order to allow enough time for policy updates that include eSF application deployments to complete.

- 5 Select the **Overwrite all function overrides on the device** check box.

**Note:** If there are eSF applications installed on the device that can override the device function, then clear the **Overwrite all function overrides on the device** check box. Otherwise, this setting should be selected at all times.

- 6 Click **Apply**.

## Creating a new discovery profile

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list.
- 3 Select **Discovery Profiles** from the Tasks list.
- 4 Type the IP address, address range, subnet, host name, or fully qualified domain name in the Address field.



### Address format

Address format	Example
IP address	10.10.2.100
IP address range	10.10.2.1-10.10.2.127
Subnet	10.10.2.*
Host name	printer-host-name
Fully qualified domain name	printer-host-name.domain-name

- 5 Type information in the remaining fields for any optional filters.
- 6 Click **Add** in the main section to save the discovery profile.

## Importing a list of printers to a device group

A list of printers can be imported from an XML, TXT, or CSV file exported from MarkVision or other systems.

- 1 Click the **Device Groups** tab
- 2 Select a device group from the Device Groups list.
- 3 Select **Discovery Profiles** from the Tasks list.
- 4 Click **Import**.
- 5 Type the path of the file, or click **Browse**, and then locate the file.
- 6 Click **Upload**.

The entries in the file are added to the list of discovery profiles. Perform a device discovery to search for the imported printers.

In a TXT file, each line contains the host name or IP address for a single printer.

In a CSV file, each line contains the record for a single printer. Each line may contain a single IP address or fully qualified domain name, or the following fields may be used:

*IP address or fully qualified domain name, SNMP read name, SNMP write name, device class, device model, serial number, contact name, contact location, property tag*

As with any CSV file, you must still include a comma for a blank field followed by populated fields.

An XML file is structured like the following example:

```
<?xml version="1.0" encoding="UTF-8" ?>
<filters>
  <filter>
    <addressRange>10.10.2.200</addressRange>
    <snmpRead>public</snmpRead>
    <snmpWrite>public</snmpWrite>
    <contactName>John Doe</contactName>
    <contactLocation>Office 1A</contactLocation>
    <serialNumber>0123456789</serialNumber>
    <propertyTag>XYZ123</propertyTag>
    <deviceClass>All</deviceClass>
  </filter>
</filters>
```

```
<addressRange>10.10.2.150</addressRange>
<snmpRead>public</snmpRead>
<snmpWrite>public</snmpWrite>
<contactName>Don Joseph</contactName>
<contactLocation>Office 2B</contactLocation>
<serialNumber>1234567890</serialNumber>
<propertyTag>ABC789</propertyTag>
<deviceClass>All</deviceClass>
</filter>
</filters>
```

## Discovering printers

Before a solution can be deployed to a printer, the printer must be discovered as part of a device group. Printers may be manually discovered or automatically discovered on a schedule. This section covers manual discovery, which is used during initial setup of the system. For more information about scheduled discovery, see “Scheduling a discovery task” on page 99.

- 1 Click the **Device Groups** tab.
- 2 If necessary, create a new discovery profile.
- 3 Select a device group from the Device Groups list, or select **All Device Groups** to discover printers in multiple device groups.
- 4 Select **Discovery** from the Tasks list.
- 5 If you are discovering printers in a device group or groups where you have previously discovered printers, and you want to skip any IP address where a printer has been discovered (including currently missing devices), then select **Discover new devices only**. This results in a faster discovery when adding subsequent discovery profiles.

If you are discovering printers from multiple device groups, then select the device groups for the discovery task in the main section. The list does not appear if a specific device group is selected in the Device Groups list.

- 6 If necessary, click **Edit** to edit the discovery configuration.

**Note:** For more information about adjusting timeout periods for device discovery, see “Configuring NPA device communication” on page 65.

- 7 Click **Discover**.

After device discovery, the system reports the number of printers discovered. To see the discovered printers, select the **Discovered Devices** task.

### Notes:

- If you stop the discovery process, then it may take a few minutes for the discovery task to completely stop.
- After a printer has been discovered, removing the related device group or discovery profile does not remove the printer from the system. For information about removing printers from the system, see “Removing devices from the system” on page 108.
- After the discovery process, the number of missing devices appears, if applicable. Click **Missing Devices Count** to launch the Missing Devices task. For more information, see “Discovering missing printers” on page 99.

## Discovering missing printers

If a printer is offline during a discovery, then it will be identified as missing.

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list, or select **All Device Groups** to discover missing printers in multiple device groups.
- 3 Select **Missing Devices** from the Tasks list.
- 4 If you are discovering missing printers in multiple device groups, then select the device groups for the discovery task in the main section. The list does not appear if a specific device group is selected in the Device Groups list.
- 5 If necessary, edit the discovery parameters.
- 6 Click **Discover**.

## Viewing all printers with outdated policies

- 1 Click the **Device Groups** tab.
- 2 Select **All Device Groups** from the Device Groups list.
- 3 Select **Out of Policy Devices** from the Tasks list.

## Scheduling a discovery task

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list, or select **All Device Groups** to discover devices in multiple device groups.  
**Note:** Make sure discovery profiles exist for device groups to be included in the operation.
- 3 Select **Schedule** from the Tasks list.
- 4 Click **Add > Discovery**.
- 5 Type a description for the task, and then click **Next**.
- 6 If you are discovering devices from multiple device groups, then select the device groups for the discovery task, and then click **Next**. The list does not appear if a specific device group is selected in the Device Groups list.
- 7 Enter a start date and a start time.
- 8 Configure the frequency of the scheduled event, and then click **Finish**.

## Deploying solutions to a device group

Deploying a solution to a device group creates profiles on the printers in the group that allow users to execute jobs using the solution.

**Note:** It is recommended to set servers offline before deploying solutions to device groups to prevent execution of associated profiles before you have completed configuration. For more information, see “Viewing and changing server status” on page 54.

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list.
- 3 Select **Solutions** from the Tasks list.
- 4 In the main section, click **Add**.
- 5 Select the solution from the list, and then click **Next**.
- 6 Configure the deployment settings of the solution for the current device group, and then click **Finish**.

**Note:** A policy update is required to complete the deployment of the solution. For more information see “Updating policies for device groups” on page 104.

## Customizing the home screen for a device group

To place buttons for deployed solutions on the home screens of printers in a device group (or in the menus of single-function printers without touch screens), you can configure custom home screens. A custom home screen is not a requirement to deploy a solution. However, if the default home screen is used, then solutions must be accessed through the Held Jobs menu on the printer.

Because different device classes have different capabilities, a separate custom home screen must be configured for each device class.

### Notes:

- On e-Task 2+ and e-Task 3 printers, actions included in a custom home screen must be enabled in the printer settings to appear on the home screen. To adjust these settings, type the printer IP address in the address field of your Web browser to access the printer Embedded Web Server, and then click **Settings > General Settings > Home screen customization**. For a list of e-Task 2+ and e-Task 3 printers, see “Supported printers” on page 14.
- If a printer is assigned to more than one device group with a custom home screen configured, then the last policy update determines which home screen is used. If multiple device group membership is necessary, then it is not recommended to configure a home screen for more than one of the device groups to which the printer belongs.

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list.
- 3 Select **Home Screen** from the Tasks list.
- 4 Click the tab for the class of printers that you want to configure.
- 5 Select the **Use this home screen as part of the device group's policy** check box.

**6** Configure a button on the home screen:

- For touch screen printers:
  - a** Select the number of buttons to include from the Layout menu.
  - b** If necessary, click a page, and then click the button to configure.
  - c** Select an action for the button:

**Notes:**

- Make sure to select an action for all the buttons that you want to appear on the home screen. Buttons with no actions will not appear on the home screen.
- If you have customized the home screen in your previous sessions, then you may need to set the actions of the buttons on all pages again before applying the new settings. Standard functions such as copy, fax, and e-mail do not automatically appear on the home screen. You need to assign an action for these functions to appear on the home screen.

Functions	Available selections <sup>1</sup>
Execute a standard MFP function	<ul style="list-style-type: none"> <li>– Change Language</li> <li>– Copy</li> <li>– Copy Shortcuts</li> <li>– Fax</li> <li>– Fax Shortcuts</li> <li>– Email</li> <li>– Email Shortcuts</li> <li>– Ftp</li> <li>– Ftp Shortcuts</li> <li>– Search Held Jobs</li> <li>– Held Jobs</li> <li>– Held Faxes</li> <li>– Usb Drive</li> <li>– Bookmarks</li> <li>– Jobs by user</li> <li>– Lock Device</li> <li>– Printer Panel</li> </ul>
Show a list of profiles	Profiles
Execute a specific profile	Single Profile

<sup>1</sup> Not all selections are available for all models.

<sup>2</sup> When a standard function is configured with a profile, this overrides the standard function itself. For example, Copy + Profile executes the same function as Copy.

<sup>3</sup> LMC cannot access eSF application icons directly. Use placeholders to provide locations for eSF application icons in the default order. Use App Reservation to designate a location for the icon of a specific eSF application identified by name, and then set the profile name of the application. For example, the profile name for the Scan to Network application is **scnTtoNet**. If no placeholders or App Reservations are provided, then any installed eSF applications appear on the first page after the pages defined in the custom home screen.

Functions	Available selections <sup>1</sup>
Override a standard function with a profile <sup>2</sup>	<ul style="list-style-type: none"> <li>– Copy + Profile</li> <li>– Fax + Profile</li> <li>– Email + Profile</li> <li>– Ftp + Profile</li> </ul>
Execute a printer shortcut	Shortcut
Provide a placeholder for an eSF application icon <sup>3</sup>	<ul style="list-style-type: none"> <li>– App Reservation</li> <li>– Placeholder</li> </ul>
Leave a blank space	none

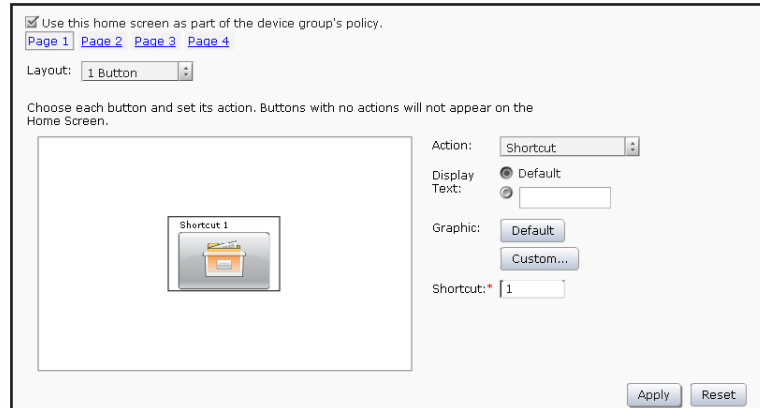
<sup>1</sup> Not all selections are available for all models.

<sup>2</sup> When a standard function is configured with a profile, this overrides the standard function itself. For example, Copy + Profile executes the same function as Copy.

<sup>3</sup> LMC cannot access eSF application icons directly. Use placeholders to provide locations for eSF application icons in the default order. Use App Reservation to designate a location for the icon of a specific eSF application identified by name, and then set the profile name of the application. For example, the profile name for the Scan to Network application is **scanToNet**. If no placeholders or App Reservations are provided, then any installed eSF applications appear on the first page after the pages defined in the custom home screen.

**d** If necessary, specify the details of the action:

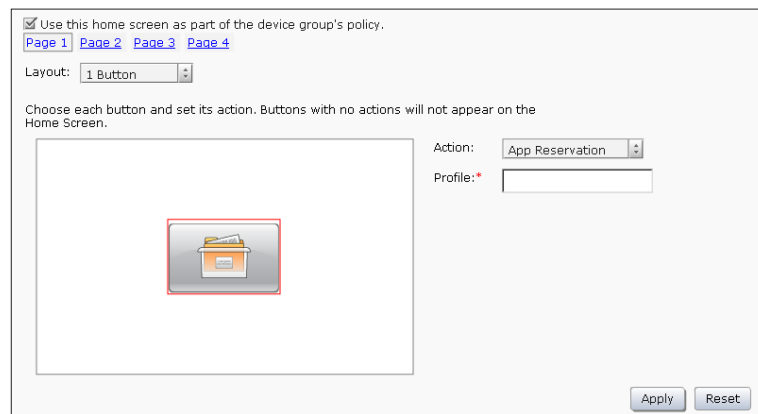
- If you selected **Shortcut**, then enter the number of the shortcut.



**Notes:**

- Shortcuts added in the LMC refer to device-class shortcuts, and not eSF application-specific shortcuts.
  - When updating the shortcut number of a profile in the Solution settings, make sure to match it with the shortcut number in the Home Screen settings.
- If you selected **Single Profile** or if you are overriding a standard function with a profile, then select a profile.

- If you selected **App Reservation**, then type the profile name of the eSF application that will use the button.



- e The graphic that appears on the button is the default graphic of the action. If you want to select a custom graphic for any action except Placeholder or App Reservation, then do the following:
  - 1 Click **Custom**.
  - 2 Click **Change**, and then select a JPEG, GIF, or PNG file for the Up and Down icons.
  - 3 Click **Apply**.

**Note:** If you want to revert to the default graphic, then click **Default**.

Images selected will be resized to the following dimensions for each device class. For best results, resize or crop source images to the correct size before use.

- **e-Task**—120 x 80 pixels
- **e-Task 2, e-Task 2+, and SFP e-Task 2+**—120 x 75 pixels
- **e-Task 3**—172 x 254 pixels
- **X642**—120 x 55 pixels

**Note:** For a list of supported printers in each device class, see “Supported printers” on page 14.

- f To apply custom text to any button except a Placeholder or App Reservation, select the **Text** option, and then type your custom text. You can also select the Text option and leave it blank to display only the icon.
- For non-touch screen printers:
  - a Select **Custom** from the Layout menu.
  - b Click **Add** below the list of buttons.

**Notes:**

- The only action available is Single Profile. You cannot modify other menu items on a printer without a touch screen.
- To remove a button, select it in the list, and then click **Remove**.
- c To apply custom text to the button, select the option for the custom text field beside Display Text, and then type your custom text.
- d Select a profile to associate with the button.

**7** Configure the rest of the buttons on the home screen.

**8** Click **Apply** to save changes.

**Note:** Before changing tabs during configuration, make sure to click **Apply** on each tab to apply the settings specified on that tab.

## Updating policies for device groups

When solutions are deployed, home screens are configured, or settings are changed for a device group, the printers in the group are marked as “Out of Policy,” and a policy update is required to apply the changes to the printers. Changes are not automatically pushed to printers, so you can schedule policy updates during times of off-peak usage to avoid negatively affecting system performance.

Additionally, because the system cannot monitor changes that occur outside of the system that affect the policy conformance of a printer, it is a good idea to schedule policy updates after a system is set up. For more information, see “Scheduling policy updates” on page 104.

Policy updates include deployment of eSF applications to e-Task 2 printers when necessary. This includes deployment of the Advanced Prompting Bundle the first time policies are updated on e-Task 2 printers, first-time deployment of eSF applications associated with hybrid solutions, and any policy updates immediately after the Advanced Prompting Bundle or other eSF applications are updated. Validation that occurs during deployment of eSF applications causes policy updates that include eSF deployments to take significantly longer than those that do not.

If a large eSF application or several eSF applications are included with a hybrid solution, then you may need to increase the default timeout for policy updates using the PolicyUpdate service on the Services tab in order to allow enough time for the policy update to complete. If you do not want to validate eSF application deployment on each printer, then see “Disabling validation of eSF application deployment” on page 105.

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list, or select **All Device Groups** to update policies for printers in multiple device groups.
- 3 Select **Policy Update** from the Tasks list.

**Note:** The Policy Update task can also be accessed from the Policy Update link in the reminder shown when working with the Solutions and Home Screen tasks.

- 4 Select the update method:
  - To update only out-of-policy printers, select the **Only update those devices which are Out Of Policy** check box.
  - To update all printers, regardless of current policy conformance, clear the **Only update those devices which are Out Of Policy** check box.
- 5 If you are updating policies for printers in multiple device groups, then select the device groups for the policy update task in the main section. The list does not appear if a specific device group is selected in the Device Groups list.
- 6 Click **Update Policy** to deploy the solutions to the printers in the device group.

**Note:** After updating policies, the Policy Update status appears showing the number of devices that failed to update, if applicable. Click **Failed Devices Count** to view the error logs for this task. To view the full set of logs for this task, clear the Message filter.

## Scheduling policy updates

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list, or select **All Device Groups** to update policies for printers in multiple device groups.
- 3 Select **Schedule** from the Tasks list.
- 4 Click **Add > Policy Update**.



- 5 Type a description for the task, and then click **Next**.
- 6 If you are updating policies for printers in multiple device groups, then select the device groups for the policy update task in the main section. The list does not appear if a specific device group is selected in the Device Groups list.
- 7 Enter a start date and a start time.
- 8 Configure the frequency of the scheduled event, and then click **Finish**.

## Enabling secure communication between servers and printers in a device group

**Note:** Secure communication between printers and servers is required when using a solution with Kerberos authentication.

- 1 Click the **Device Groups** tab.
- 2 Select a device group from the Device Groups list.
- 3 Select **Security** from the Tasks list.
- 4 Enable secure communication, and then click **Apply**:
  - To secure only the credentials such as user name and password of the session, select the **Enabled for Credentials** option.  
This option is faster than a communication that is set to “Enabled for Session.”
  - To completely secure the session, select the **Enabled for Session** option.

## Disabling validation of eSF application deployment

Validation that occurs during deployment of eSF applications causes policy updates that include eSF deployments to take significantly longer than those that do not. If you do not want to validate eSF application deployment on each printer, then do the following:

**Note:** eSF settings configured using the eSF configuration task are not deployed when validation of eSF application deployment is disabled.

- 1 Click the **Device Groups** tab.
- 2 Select an appropriate device group from the list.
- 3 Select the **eSF Configuration** task.
- 4 Clear the **Verify eSF application deployment and deploy these eSF settings** check box, and then click **Save Settings**.
- 5 Repeat steps 2 through 4 for any other appropriate device groups.

## Using the Devices tab

The Devices tab is generally used for specialized maintenance and troubleshooting, rather than the setup and ordinary maintenance that are managed through device groups.

### Searching for devices

Before performing device-specific tasks, previously discovered devices must be selected by searching for matching values of certain criteria, selected from the following:

- Address
- Hostname
- Device Model
- Serial Number
- Contact Name
- Contact Location
- Property Tag

- 1** Click the **Devices** tab.
- 2** Select a search criterion.
- 3** Enter a value to search.
- 4** Click **Search**.

**Note:** Using the asterisk wildcard character (\*) to represent the sections at the end of the IP address will return all devices in that subnet. For example, type `10.10.*.*` to find all devices that have been discovered within the range 10.10.0.1–10.10.255.255. Also, a range of IP addresses can be used as a search criterion by entering the first and last addresses, separated by a hyphen.

## Editing the home screen layout on specific devices

The Home Screen task on the Devices tab accesses the home screen and available profiles of selected printers directly, unlike the corresponding task on the Device Groups tab, which lets you configure a common home screen to be deployed during a policy update and only provides access to Lexmark Distributed Intelligent Capture profiles.

Accessing the home screen configuration for specific devices may be helpful for the following tasks:

- Troubleshooting home screen issues on specific devices
- Configuring home screens on specific devices for which custom home screens are not configured within a device group
- Configuring home screens that include non-Lexmark Distributed Intelligent Capture profiles
- Removing orphan buttons from the home screen

### Notes:

- If a custom home screen is configured for a device group that contains the printer, then any changes made will be overwritten during the next policy update.
- LMC cannot access eSF application icons directly. Use placeholders to provide locations for eSF application icons in the default order, and then use App Reservation to designate a location for the icon of a specific eSF application identified by name. If no placeholders or App Reservations are provided, then any installed eSF applications appear on the first page after the pages defined in the custom home screen.

**1** Click the **Devices** tab.

**2** Search for printers.

**3** Select device names in the Devices list.

**4** Select **Home Screen** from the Tasks list.

**5** To edit an individual home screen, click **Edit**.

Make any necessary changes to the layout of the home screen, and then click **Apply**. To cancel editing, click **Reset**.

**6** If multiple devices are selected, click **Next** to view the home screen of the next device on the list.

## Viewing device profiles

**1** Click the **Devices** tab.

**2** Search for device(s).

**3** Select the device name(s) in the Devices list.

**4** Select **Profiles** from the Tasks list.

**5** Select a profile name from the list to view the profile settings.

**6** If multiple devices are selected, then click **Next** to view the next device on the list.

## Updating device policies

**1** Click the **Devices** tab.

**2** Search for the device or devices.

- 3 Select the device names in the Devices list.
- 4 Select **Policy Update** from the Tasks list.
- 5 Click **Update Policy**.

**Note:** After policies are updated, the Policy Update status appears and shows the number of devices that failed to update, if applicable. Click **Failed Devices Count** to view the logs, and then select the task ID in the Jobs page to view the details.

## Removing devices from the system

- 1 Click the **Devices** tab.
- 2 Search for one or more devices.
- 3 Select one or more device names in the Devices list.
- 4 Click **Remove from System > Yes**.

### Notes:

- Removing a device from the system does not remove profiles that have been deployed to the device, reverse any home screen modifications, or remove eSF applications installed with any solution.
- If a removed device is still included in a discovery profile, then it will be rediscovered during the next discovery task using that discovery profile.

# Managing software clients

## Understanding software clients and software client groups

There are two types of client software:

- **Select'N'Send**—This is a Windows application, including both a command line utility and a GUI version, that allows users to send files directly to Lexmark Distributed Intelligent Capture and select Lexmark Distributed Intelligent Capture profiles to use in processing the sent files. Selected files are submitted to the system in their current formats.

**Note:** Select'N'Send does not support prompting from an Lexmark Distributed Intelligent Capture server system profile.

- **Lexmark Document Server Printer Port**—This is a port monitor that allows users to submit documents to Lexmark Distributed Intelligent Capture by printing from any Windows application to a print queue assigned to the port. Printed documents are submitted to the system in the format determined by the print driver used with the print queue.

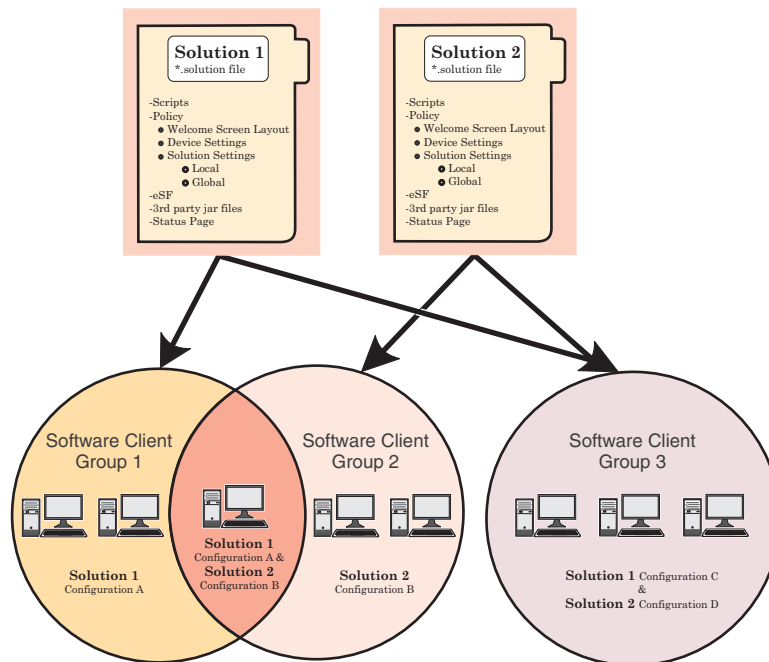
A Lexmark Distributed Intelligent Capture printer port can now be assigned to an Lexmark Distributed Intelligent Capture server system profile that prompts for user input at the time of printing. The prompting is controlled by the profile or script running on the Lexmark Distributed Intelligent Capture server system that the printer port is assigned to. For Lexmark Distributed Intelligent Capture printer port prompting, the port monitor software must be installed on the computer. The Lexmark Distributed Intelligent Capture printer port must be created and assigned to a profile that prompts to an existing print queue.

**Notes:**

- Lexmark Distributed Intelligent Capture printer port prompting is *not* supported on print servers. Do *not* configure a Lexmark Distributed Intelligent Capture port on a print server to use a profile that prompts; otherwise, the spooler will stop responding and possibly crash when print jobs start going into the print server. You can still use Lexmark Distributed Intelligent Capture ports on print servers, but you can only assign them to profiles that do not prompt
- Configure the nonprompting profiles in the SDK with a property in the SDK that specifies that the profile does not prompt. This helps improve the performance of an Lexmark Distributed Intelligent Capture port assigned to a nonprompting profile.

A software client is a computer that has been configured to use Select'N'Send or a Lexmark Document Server Printer Port to access solutions directly. A software client group is a collection of these software clients that share one or more solutions with the same local configuration. At least one software client group must be created for solutions used with Select'N'Send or Lexmark Document Server Printer Ports. Multiple software client groups should be created if more than one solution is assigned to different sets of software clients or if one solution is assigned to different software clients with different local configurations.

Software clients can be members of more than one software client group. Solutions from each software client group to which a software client belongs will be available to that software client.



Although software client groups are similar to device groups, there are a few differences:

- Only solutions developed specifically for use with software clients may be made available to software clients.
- Software clients are not discovered. Adding a software client to a software client group simply enables access to the solutions in that group when the software client accesses the system.
- Similarly, policy updates are not used with software clients.
- Lexmark Document Server Printer Port supports dynamic prompting.
- The Solution Status Page cannot be associated with a software client group.

**Note:** Separate client licenses are required for using software clients in Lexmark Distributed Intelligent Capture. For more information about adding licenses to an existing system, see “Adding an MFP, e-forms virtual printer, or software client license to an existing server” on page 69.

## Understanding dynamic prompting support

When a profile is selected, solutions usually either prompt you for information or start a job. Many solutions involve submitting jobs with related information (such as account numbers, passwords, or processing options) that is obtained through prompting. Where possible, prompting should occur before submitting the job. This gives you the opportunity to cancel jobs when prompted for information they don't have at the moment.

The Job Submission Web Service provides prompting capability to Lexmark Document Server Printer Port clients. From the port monitor, the following prompts are supported:

- **MessagePrompt**
- **BooleanPrompt**
- **IntegerPrompt**
- **ListPrompt**
- **ArrayPrompt**

- **PasswordPrompt**
- **ScanPrompt**
- **MessagePrompt**
- **EndPrompt**

When the prompt wizard appears on the client screen, you can respond to the prompt within 30 seconds before it times out. Prompting depends on whether or not there are any more required information or documents to process. If there are more, then the end user is asked whether to continue or not. When the user reaches the last prompt, a summary dialog of the answers appears. The user can then choose to send or cancel the job.

You can cancel the job at any time, although cancelling the job cannot undo the job application processing that has already taken place.

**Note:** LDD 4.6.3.x printer ports on a clustered print server is not supported.

## Understanding software client setup

Preparing software clients for use with Lexmark Distributed Intelligent Capture solutions requires a slightly different process than setup and solution deployment for printers.

Do the following after installing other Lexmark Distributed Intelligent Capture system components:

- 1 Upload a solution to Lexmark Distributed Intelligent Capture. For more information, see “Uploading solutions and cSF apps to the Lexmark Distributed Intelligent Capture system” on page 91.
- 2 If necessary, install client software licenses on the Lexmark Distributed Intelligent Capture system. For more information, see “Adding an MFP, e-forms virtual printer, or software client license to an existing server” on page 69.
- 3 Create a software client group to contain software clients to which a particular solution should be available.
- 4 Add IP addresses to the software client group for the computers where client software are to be installed, and to which a particular solution should be available.
- 5 Add the solution to the new software client group.  
**Note:** Only solutions developed for use with client software (instead of, or in addition to, printers) may be made available to software client groups.
- 6 Install client software on each of the client computers.  
**Note:** Servers must be set online to successfully install client software.
- 7 Run Windows Update to make sure the latest updates for the .NET framework are installed.
- 8 When using Lexmark Document Server Ports, add print queues assigned to the appropriate Lexmark Document Server Port on each client computer or print server.  
**Note:** Lexmark Distributed Intelligent Capture does *not* configure a Lexmark Distributed Intelligent Capture port on a print server to use a profile or script that prompts.
- 9 Test all print queues that use Lexmark Document Server Ports. For more information, see “Using Lexmark Distributed Intelligent Capture print queues” on page 119.
- 10 Use test jobs to complete setup of Select'N'Send from each client. For more information, see “Using the Select'N'Send GUI” on page 119.

## Creating and populating software client groups

### Creating a software client group

- 1 Click the **Software Client Groups** tab.
- 2 Click **Add** from the Software Client Groups list.
- 3 Type a unique name for the new software client group, and then click **Add**.

### Adding software clients to a software client group

- 1 Click the **Software Client Groups** tab.
- 2 Select a software client group from the Software Client Groups list.
- 3 Select **Client Profiles** from the Tasks list.
- 4 Type an IP address, address range, subnet, or fully qualified domain name in the Address field.

Address format	Example
IP address	10.10.2.100
IP address range	10.10.2.1-10.10.2.127
Subnet	10.10.2.*
Fully qualified domain name	client-hostname.domain-name

- 5 Click **Add**.

#### Notes:

- Software client groups manage software clients by IP address and do not require discovery.
- When adding a software client that will be installed on a Microsoft Cluster Server, add the IP address of the logical host, as well as the IP addresses of all physical nodes in the cluster.

### Importing software clients to a software client group

Software clients can be imported from a from an XML, TXT, or CSV file.

- 1 Click the **Software Client Groups** tab.
- 2 Select a software client group from the Software Client Groups list.
- 3 Select **Client Profiles** from the Tasks list.
- 4 Click **Import**.
- 5 Type the path of the file, or click **Browse**, and then locate the file.
- 6 Click **Upload**.

The entries in the file are added to the list of software clients.



In a CSV and TXT file, each line must contain a single IP address of a software client. An XML file is structured like the following example:

```
<?xml version="1.0" encoding="UTF-8" ?>
<filters>
  <filter>
    <address>10.10.2.200</address>
  </filter>
  <filter>
    <address>10.10.2.150</address>
  </filter>
</filters>
```

## Assigning solutions to a software client group

Assigning a solution to a software client group grants the software clients in the group access to the solution on the server, which allows users of these software clients to execute jobs using the solution.

- 1 Click the **Software Client Groups** tab.
- 2 Select a software client group from the Software Client Groups list.
- 3 Select **Solutions** from the Tasks list.
- 4 In the main section, click **Add**.
- 5 Select the solution from the list, and then click **Next**.
- 6 Configure the local settings of the solution for the current software client group, and then click **Finish**.

## Installing client software

Do the following on a client computer or print server:

- 1 From the installation package, run **Setup.exe**.
- 2 Click **Install Enterprise System > Install Client Software**.
- 3 Click **Agree** to accept the license agreement.
- 4 Make sure **Client Software** is selected and highlighted. If necessary, specify a location for the installation.
- 5 To include Select'N'Send in the installation, select **Select'N'Send** from the list.  
**Note:** Do not install Select'N'Send on a print server.
- 6 To include the Lexmark Document Server Port in the installation, select the **Lexmark Document Server Printer Port** check box.
- 7 Click **Finish**, and then allow the installation to complete.
- 8 If prompted, select **Yes** to restart the computer. Otherwise, click **Done** to finish the installation.
- 9 Run Windows Update to make sure the latest updates for the .NET framework are installed.

## Installing client software on a Microsoft Cluster Server

**Note:** For more information on the latest Lexmark Distributed Intelligent Capture port monitor support, see the *Readme* file.

- 1 Set any online Print Spooler resource offline to avoid initiating a failover during installation.
- 2 Install *only* the Lexmark Document Server Printer Port on each physical node in the cluster.
- 3 Run Windows Update on each node to make sure the latest updates for the .NET framework are installed.
- 4 If necessary, configure the spooler resource and the Lexmark Distributed Intelligent Capture Client Service for the cluster.

**Note:** Make sure the spooler resource and the Lexmark Distributed Intelligent Capture Client Service are in the same cluster resource pool so that failover is initiated together.

- 5 Create print queues on the cluster, selecting **Lexmark Document Server Port - Enterprise** as the port.

**Note:** For more information on creating print queues, see “Configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2” on page 116.

## Adding Lexmark Distributed Intelligent Capture printers on a client workstation or print server

After installing the client software, you must create a separate Lexmark Document Server Printer Port for each profile you want to use on a Lexmark Distributed Intelligent Capture server, and you must create a print queue assigned to that port.

- 1 Make sure you have installed the print driver that will be used with the Lexmark Document Server Printer Port.

**Note:** If you do not have a specific print driver that you plan to use with the Lexmark Document Server Printer port, then you can use the PCL or PostScript Lexmark Universal Driver appropriate for your operating system, available at <http://support.lexmark.com>.

- 2 Make sure at least one server is online using the System Status task from the System tab in LMC.
- 3 Using the Printers or Devices control panel in Windows, add a new printer.

**Note:** For more information on adding a new printer, see “Configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2” on page 116.

- 4 When prompted, select a local printer and do not allow Windows to search for plug-and-play printers.
- 5 When prompted to select a printer port, create a new port of Lexmark Document Server Port - Enterprise type.
- 6 Type a name for the new port, and then click **Next**. The port name must be 75 characters or fewer.
- 7 Select a Lexmark Document Server.

If the client software is newly installed, then the list is empty.

Do the following to add a new server:

- a Click **Manage List**.
- b From the Server Setup dialog, click **Add**.
- c Type the fully qualified domain name or IP address of the load balancer, and then click **OK**.

- d Click **OK** to exit the Server Setup dialog.
- e Select the new server from the list.

**8** Click **Next**.

**9** Select a profile on the server to use with the new port, and then click **Next**.

**Notes:**

- Do *not* configure a Lexmark Distributed Intelligent Capture port on a print server to use a profile that prompts. Prompting profiles should be used only on client computers.
- Only profiles associated with solutions created for software clients are available.
- Profiles used with the Lexmark Document Server Port must have a name with 14 characters or fewer.
- If the server is currently running a large number of jobs, then profiles on the server may not appear on the list. Wait until the server is not as busy, and then try adding the port again.

**10** Click **Finish** to add the new port.

**11** Select an existing print driver, and then click **Next**. For more information, see the documentation that came with the printer or print driver.

**12** If you are asked whether to keep the existing driver, then select **Keep existing driver (recommended)**, and then click **Next**.

**13** Type a printer name that describes the profile used with the new printer.  
Select whether to use the new print queue as the default, and then click **Next**.

**14** Select whether to share the new print queue. If you are installing the print queue on a server, then select **Share name**, and then type a name to use for the print queue on the network.

**15** Click **Next**.

**16** Select **No** to skip printing a test page.

**17** Confirm the settings for the new printer, and then click **Finish**.

**18** After the printer has been added, right-click it in the Printers control panel, and then click **Properties**.

**19** Click the **Advanced** tab.

**20** Select the **Spool print documents so program finishes printing faster** and the **Start printing after last page is spooled** check boxes.

**Note:** These settings are required in order to report an accurate page count to the Lexmark Distributed Intelligent Capture system, which may be used by some solutions. Additionally, if a large job needs significant time to spool, smaller jobs can still complete while the large job is spooling.

**21** Click **OK**.

## Configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2

### Creating a new print queue using the Lexmark Document Server port

- 1 In the Printers folder, right-click **Add Printer**, and then click **Run as administrator**.

**Note:** If you are using Windows 7 or Windows Servers 2008 R2, then click **Add Printer**.

- 2 Follow the instructions on the computer screen, clicking **Continue** for any User Account Control prompts. For more information, see “Adding Lexmark Distributed Intelligent Capture printers on a client workstation or print server” on page 114.

### Configuring or adding a Lexmark Document Server port in an existing print queue in Windows 7 or Windows Server 2008 R2

**Note:** You must be logged in as an administrator.

- 1 In the Devices and Printers folder, right-click the print queue.
- 2 Configure or add a Lexmark Document Server port:

#### In Windows 7

Right-click the print queue, and then click **Print Properties** > **Ports** tab.

#### In Windows Server 2008 R2

Click **Print Server Properties** > **Ports** tab > **Change Port Settings**.

- 3 Click **Configure Port** to configure an existing port, or click **Add** to add a new port.
- 4 If the Printer Ports dialog is still open, then click **Close**.

### Configuring or adding a Lexmark Document Server port in an existing print queue in Windows Vista or Windows Server 2008

**Note:** You must be logged in as an administrator.

- 1 In the Printers folder, right-click the print queue.
- 2 Click **Run as administrator** > **Properties** > **Continue** > **Ports** tab.
- 3 Click **Configure Port** to configure an existing port, or click **Add** to add a new port.

## Increasing Lexmark Distributed Intelligent Capture print queue availability using printer pooling

You can use printer pooling for a Lexmark Distributed Intelligent Capture print queue on a print server in order to efficiently provide a single print queue to several users and avoid backups when large jobs are submitted.

- 1 In the printers control panel in Windows, right-click a Lexmark Distributed Intelligent Capture print queue, and then click **Properties**.

**Note:** For more information on accessing the properties for the Lexmark Document Server port, see “Configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2” on page 116.

- 2 Click the **Ports** tab > **Enable printer pooling** > **Add Port** > **Lexmark Document Server Port - Enterprise** > **New Port**.
- 3 Type a name for the new port, and then click **Next**.

**Note:** The port name must be 75 characters or fewer.

- 4 Select the same Lexmark Document Server used for the initial port created for the selected Lexmark Distributed Intelligent Capture printer, and then click **Next**.
- 5 Select the same profile used for the initial port created for the selected Lexmark Distributed Intelligent Capture printer, and then click **Next**.

**Notes:**

- Do *not* configure a Lexmark Distributed Intelligent Capture port on a print server to use a profile that prompts. Prompting profiles should be used only on client computers.
- If the server is currently running a large number of jobs, then profiles on the server may not appear in the list. Wait until the server is not as busy, and then try adding the port again.

- 6 Click **Finish**, and then click **Close** to close the Printer Ports window.

The new port appears and is selected in the port list in the printer properties window.

- 7 Repeat steps 4 through 9 to create additional Lexmark Document Server Printer Ports, assigning each port to the same profile.
- 8 Make sure all the newly created ports are selected in the ports list.
- 9 Click **Apply**, and then click **Close**.

# Testing and using Intelligent Capture solutions

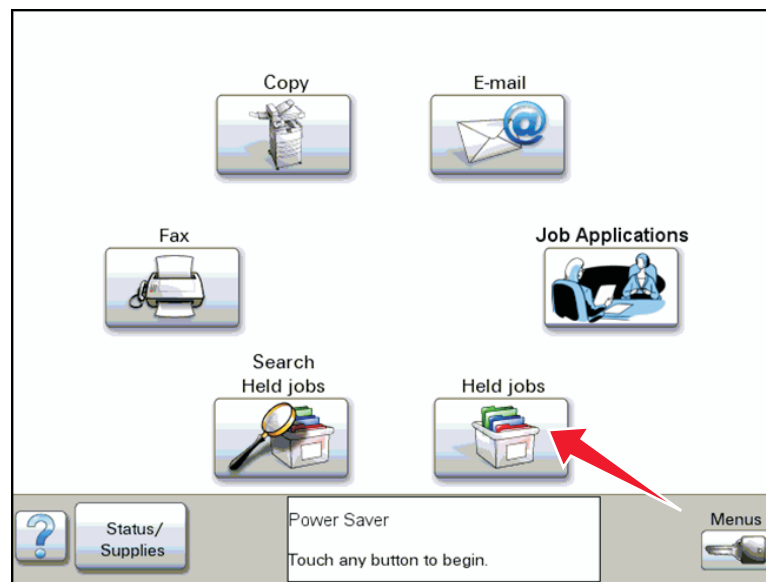
## Using a solution from a printer

After a solution is deployed to a printer, a profile is available on the printer that allows users to access the solution.

If the profile that you want appears on the home screen, then touch the icon for the profile.

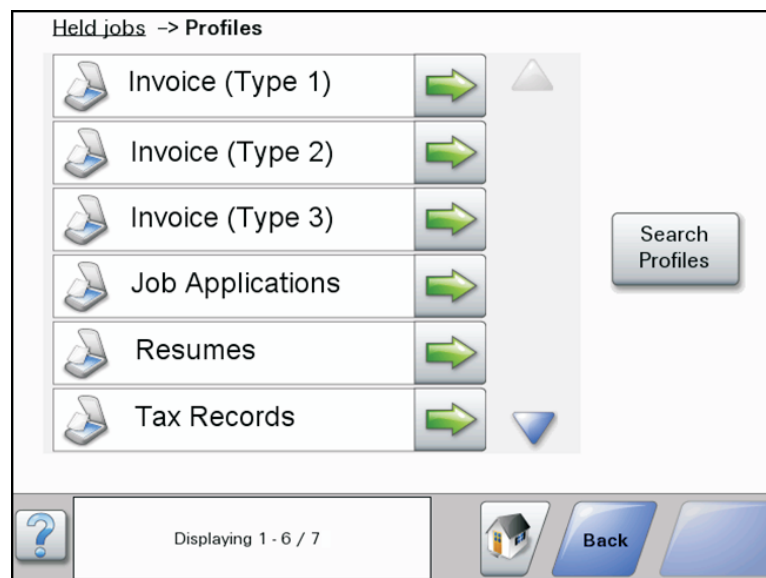
If the profile that you want does not appear on the home screen, then do the following:

- 1 Touch **Held Jobs**.



- 2 Touch **Profiles**.

- 3 Touch the profile that you want to appear on the home screen.



The profile launches the associated script on the server. Documents are scanned as necessary, and any prompts included in the script are presented to the user.

**Note:** When using a solution that reads a bar code, scan at 300 dpi for best results. Depending on the documents being scanned, using a higher setting for Darkness may also provide better results.

## Using Lexmark Distributed Intelligent Capture print queues

- 1 With a document open in Windows, click **File > Print**.
- 2 Select the printer associated with the Lexmark Document Server port and the profile you want to use.
- 3 To configure print options, click **Properties, Preferences, Options, or Setup**.

See the documentation that came with the printer or print driver for more information about print options.

**Note:** When using a solution that reads a bar code, print at 300 dpi, with the any other quality settings at the highest levels for best results.

- 4 Click **OK** to close any printer software dialogs.
- 5 Click **OK** or **Print**.

The document is sent to the Lexmark Distributed Intelligent Capture system using the profile specified in the configuration of the Lexmark Document Server port associated with the selected printer. The file type is determined by the output of the print driver, and each solution determines the accepted file types.

## Using Select'N'Send

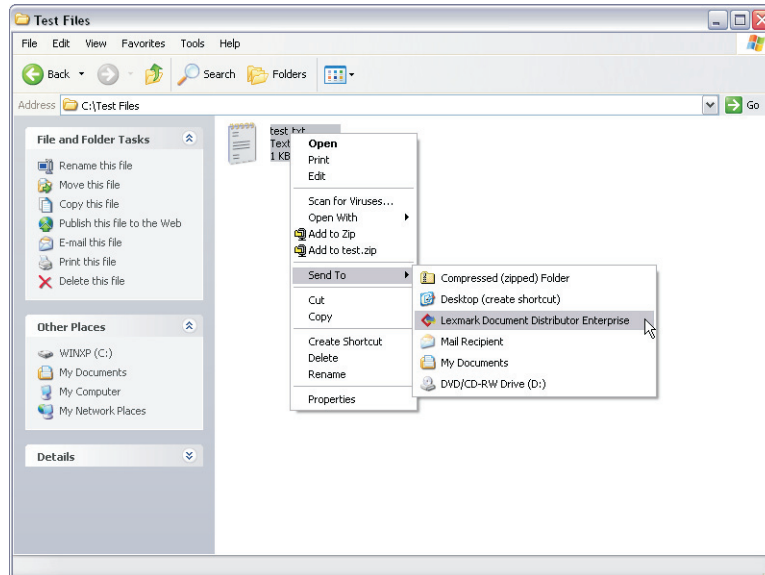
### Using the Select'N'Send GUI

The GUI version of Select 'N' Send is useful for providing users access to a selection of Lexmark Distributed Intelligent Capture profiles and allowing users to submit a variety of documents and document types to the Lexmark Distributed Intelligent Capture system. Selected files are submitted to the system in their current formats. Each solution script determines which file types are acceptable. For more information, contact the developer of your solution.

- 1 Launch the Select'N'Send GUI:

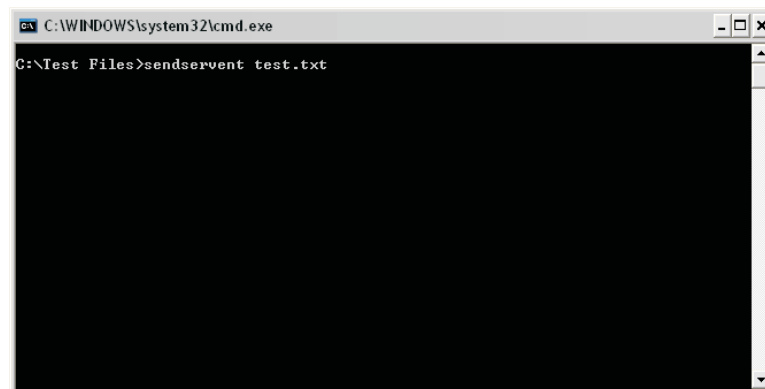
Do one of the following:

- From a Windows Explorer window, right-click the file you want to submit to Lexmark Distributed Intelligent Capture, and then click **Send To > Lexmark Document Distributor Enterprise**.



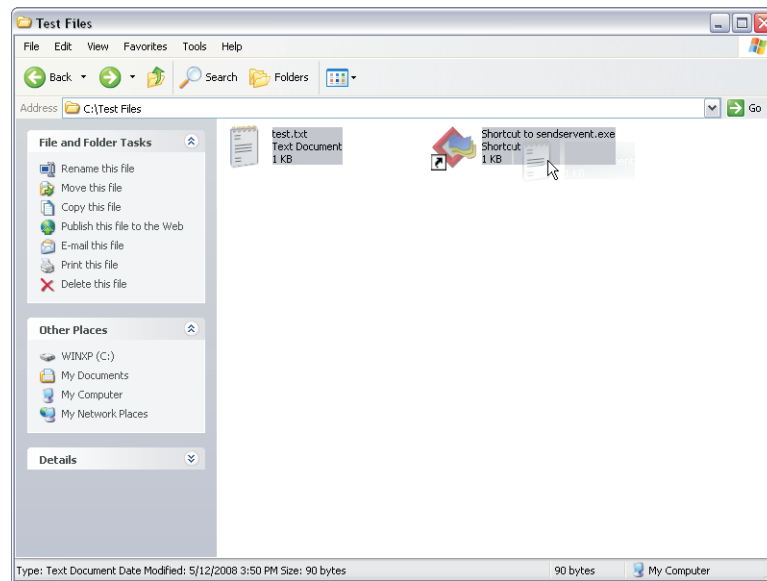
- From the command line, type **sendservernt filename**, where **filename** is the file you want to submit to Lexmark Distributed Intelligent Capture, and then press **Enter**.

**Note:** The Select 'N'Send program folder is added to the system path during installation so that Select 'N'Send may be accessed from any folder at the command line.

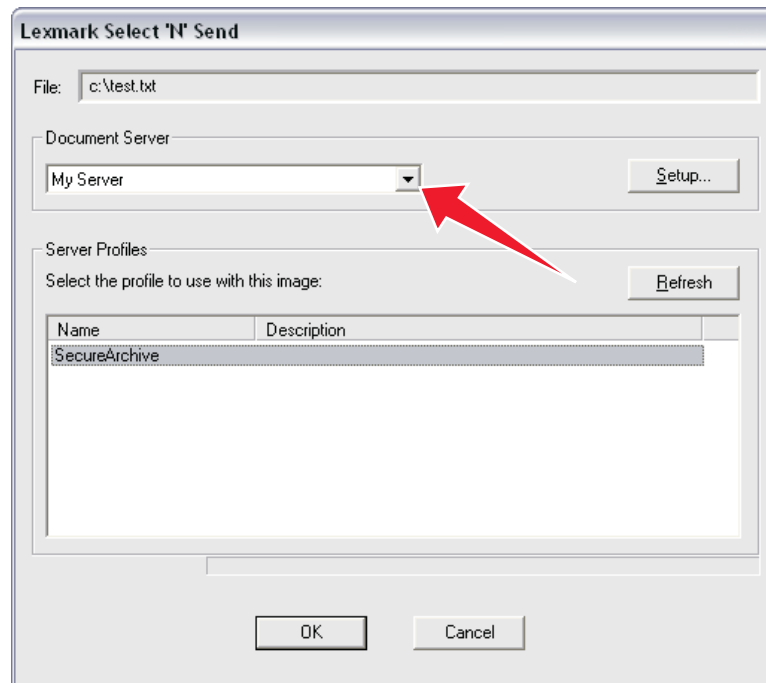




- Drag the file you want to submit to Lexmark Distributed Intelligent Capture onto the file sendserver.exe or to a shortcut pointing to that file.



- 2 From the Lexmark Select 'N' Send window, select a Lexmark Document Server.



If the client software is newly installed, then the list is empty.

Do the following to add a new server:

- a Click **Setup**.
- b From the Server Setup window, click **Add**.
- c Type the fully qualified domain name or IP address of the server, and then click **OK**.

- d Click **OK** to exit the Server Setup dialog.
  - e If necessary, select the new server from the list.
- 3 Select a profile from the Server Profiles list, and then click **OK**.

## Using Select'N'Send from the command line

The command line version of Select'N'Send is useful for automated processes and accessing Lexmark Distributed Intelligent Capture profiles from other software, such as Windows Small Business Server, or for creating batch files that help users submit specific files using specific profiles.

Use this command to run the command line version of Select'N'Send:

```
sendservernt -s server -p profile -f filename [-u userdatafile -t timeout -i interval]
```

### Options

**server**—This is the IP address or fully qualified domain name of the load balancer Lexmark Distributed Intelligent Capture system.

**profile**—This is the profile to run on the Lexmark Distributed Intelligent Capture server.

**filename**—This is the path and file name of the file to be submitted to the Lexmark Distributed Intelligent Capture system.

**Note:** The specified file is submitted to the system in its current format. Each solution script determines which file types are acceptable. For more information, contact the developer of your solution.

**userdatafile**—This is the path and file name of a file containing user information for the job. This is optional.

**Note:** Though a user data file is optional, a script that expects user data fails if no user data file is specified or if expected data is missing from a specified file.

**timeout**—This is the time in seconds to wait for confirmation from the Lexmark Distributed Intelligent Capture system before aborting the operation with an error. This is optional. The default is 0, which specifies no timeout.

**interval**—This is the time in seconds to wait between each instance of polling the Lexmark Distributed Intelligent Capture system for confirmation. This is optional. The default is 0 . 5.

**Note:** Any option that contains a space should be enclosed in double quotation marks ("").

## Scheduling scripts

Some solutions include scripts that can be set to run on a schedule. Additionally, some scripts can be associated with a device group or software client group in order to use local settings associated with that group.

- 1 Click the **System** tab.
- 2 Select **Schedule** from the System list.
- 3 Click **Add > Script**.
- 4 Type a description for the task, and then click **Next**.
- 5 Select whether to associate the scheduled script with a device group or software client group:
  - To associate the script with a device group:
    - a Click **DeviceGroup**, and then click **Next**.
    - b Select the device group to associate the script with, and then click **Next**.

- To associate the script with a software client group:
    - a** Click **SftClientGroup**, and then click **Next**.
    - b** Select the software client group to associate the script with, and then click **Next**.
  - To schedule the script without associating it with a device group or software client group, click **None**, and then click **Next**.

A script that is not associated with a device group or software client group can access only global solution settings.
- 6** Select a solution, and then select a script.
  - 7** If the script applies to individual servers rather than the system as a whole, such as a script that deletes certain files from a server, or a script that runs a report with server-specific information, then click **Run on All Servers**.
  - 8** If the script uses information supplied in the Additional Options field, then type the necessary information. For more information, contact the developer of the solution.
  - 9** Click **Next**.
  - 10** Enter a start date and a start time.
  - 11** Configure the frequency of the scheduled event, and then click **Finish**.

# Viewing logs

## Viewing installation logs

When the cause of an installation problem is not obvious, you can view the logs created during installation to help determine the cause. The logs can also help Lexmark Customer Support in assisting to solve your problem.

- 1 Click **Start**, and then click **Run**.
- 2 Type "%ALLUSERSPROFILE%\Lexmark\LDD4x", and then click **OK**.
- 3 Open any of the following log files in a text editor, or send them to Customer Support as necessary:
  - Idd\_InstallUninstall.log
  - Idd\_installhelper.log
  - LxProxy.log
  - AbbyyMsiLog.txt

Additionally, other logs may be available, depending on the steps taken during installation. Other files that have names beginning with "Idd" are also logs related to the installation processes.

## Viewing the server log

All server activity at the selected message priority is recorded in the file `Isas.log` in the folder `Lexmark\Solutions\tomcat\logs` where the server is installed. Open the file in a text editor to view the log.

The default message severity for recording is **warn**. When troubleshooting a problem, the message priority can be changed to **debug** to capture all available messages:

- 1 Click the **System** tab in LMC.
- 2 Set the server for which you are changing the message priority offline. Make sure the server is offline before proceeding. Click **Refresh**, and then make sure **offline** is reported in the Status column for the server.
- 3 In a text editor, open the file `log4j-Isas.xml` from the folder `Lexmark\Solutions\apps\wf-Idss\WEB-INF\classes` where the server is installed.
- 4 In the following lines, change "**warn**" to "**debug**":

```
<!-- Root Logger. -->
<root>
  <priority value="warn" />
```

- 5 Save and close the file.
- 6 From the Windows Services control panel on the server computer, restart the Lexmark Solutions Application Server service.
- 7 From the System tab, set the server online. For more information, see "Viewing and changing server status" on page 54.

**Note:** After recording the necessary data, the message priority should be changed back to **warn** to save disk space.

## Viewing the Embedded Solutions Diagnostic Log

All activity for solutions and eSF applications is recorded in the Embedded Solutions Diagnostic Log on each printer.

- 1 In the address field of your Web browser, type `http://printer-IP/se`, where *printer-IP* is the printer IP address or host name.
- 2 Click **Embedded Solutions > Log File**.

By default, debugging messages are not recorded. When troubleshooting a problem, you can enable debugging entries in the log to capture all available messages:

- 1 In the address field of your Web browser, type `http://printer-IP/se`, where *printer-IP* is the printer IP address or host name.
- 2 Click **Embedded Solutions > Set Logging Level > Set Logging Level > Yes > Submit**.

**Note:** After recording the necessary data, you must change the logging level back to **Default** to avoid excessive log entries.

# Troubleshooting

## Solving problems with LMC

### The browser displays a 5yy error when accessing LMC

When services are starting on the system or the system is under a heavy processing load, your browser may display a 5yy error, such as "500 Internal Server Error" or "503 Service Unavailable," when you try to access LMC.

- 1 Make sure the system has been running long enough for all services to start. It may take several minutes to start all services when the system is first booted. If the system is recently booted, or the load balancer is overloaded, then wait a few minutes, and then try again.
- 2 If the load balancer is under a heavy processing load, then try again when the system is processing fewer jobs.
- 3 Determine whether a problematic server installation is causing LMC to be inaccessible through the load balancer:
  - a Access LMC directly on each server using the URL `http://server:9788/lmc`, where *server* is the computer where the server is installed.
  - b If you can successfully access LMC directly on a server, then use the System Status task on the System tab to determine whether any of the servers in the system are not communicating.
  - c If any server is not communicating, then uninstall it from the computer where it is installed.

**Note:** If this is not possible, or if the entry remains after uninstalling, then select the non-communicating server or servers in LMC, and then click **Remove Server(s)**.
  - d Access LMC using the load balancer address.
- 4 If the issue is still not resolved, then uninstall and reinstall all components, making sure to enter correct addresses for the database and load balancer where applicable.

### LMC responds very slowly

Several servers that are not communicating may cause LMC to respond very slowly.

Determine whether non-communicating servers appear in LMC:

- 1 Access LMC directly on an active server using the URL `http://server:9788/lmc`, where *server* is the computer where the server is installed.
- 2 Use the System Status task on the System tab to determine whether any of the servers in the system are not communicating.
- 3 If any servers are not communicating, then select them from the list, and then click **Remove Server(s)**.
- 4 Access LMC using the load balancer address.

## LMC does not finish loading or data is missing

If cookies are not enabled, then LMC may continue to display **Loading** for an extended period after logging in, or data may be missing or incorrect on some screens.

Try one or more of the following:

- Make sure cookies are allowed for the address where you access LMC. Cookies must be enabled on your Web browser in order to use LMC.
- Make sure you have Adobe Flash Player 10 or later installed. If your Web browser settings do not allow ActiveX controls to run, then you must upgrade manually by visiting the Adobe Web site.

## An error occurs when uploading a formset

Make sure you have Adobe Flash Player 10 or later installed. If your Web browser settings do not allow ActiveX controls to run, then you must upgrade manually on the Adobe Web site.

## Reports are not displayed when run

- 1 Make sure pop-ups are allowed for LMC in your Web browser.
- 2 If you are running a PDF report, then make sure Adobe Reader is installed.

## User cannot access some tasks in LMC

Check with the administrator if the group to which the user belongs has limited access to that task.

## User can still access tasks even after privileges are removed

Check the Privileges settings of all the groups to which the user belongs. For more information, see “Assigning privileges to groups” on page 44.

## The Solutions tab and the eSF Configuration task for device groups do not function

A descriptor file for an eSF application included with a solution may have contained tag names that included colons. Multiple errors may have occurred while uploading the solution.

- 1 Contact Lexmark Professional Services for assistance in manually removing the solution that caused the problem.
- 2 Contact the developer of the solution to have colons removed from descriptor files for associated eSF applications.
- 3 Reinstall the solution.

## Jobs do not respond after an error occurred

If an error occurred while a job is being processed, then stop the specific job. This terminates the job that is no longer responding but is still marked as running in LMC.

- 1 Click the **System** tab.
- 2 Select **Jobs** from the System list.

- 3 Select the tasks that do not respond, and then click **Stop Task**.

## Solving problems with discovery

### Discovery and policy updates running slowly

- 1 Check your proxy, firewall, and other network settings on system components to make sure all necessary communication is allowed.
- 2 Make sure other network traffic is not reducing bandwidth during discoveries and policy updates.
- 3 If you have three or more servers in your system, then try reducing the chunk size using the **General** service on the **Services** tab. A value as low as 2 may improve performance.
- 4 To reduce the time waiting for non-responsive printers during policy updates, reduce the timeout per device using the **PolicyUpdate** service on the **Services** tab.  
**Note:** If you are deploying solutions that include large eSF applications or several eSF applications, then a lower setting may not allow enough time to successfully validate eSF application deployment.
- 5 If you are discovering printers for subsequently added discovery profiles in a device group or groups in which you have previously discovered printers, then select **Discover new devices only** to skip any IP address where a printer has been discovered.

### Discoveries frequently time out

- 1 Check your proxy, firewall, and other network settings on system components to make sure all necessary communication is allowed.
- 2 Make sure other network traffic is not reducing bandwidth during discoveries and policy updates.
- 3 If you have three or more servers in your system, then try increasing the initial timeout and retry times using the **NPA** service on the **Services** tab. Type a timeout period in milliseconds for each retry in sequence, separating each by a space in the NPANT Timeout field.

### Some printers on the network cannot be discovered

- 1 Check your proxy, firewall, and other network settings on system components to make sure all necessary communication is allowed.
- 2 From the Services tab, make sure the read community name and write community name for the SNMP service match the printers on the network. All printers used in the system must use the same read community name and write community name.
- 3 From the Device Groups tab, make sure the discovery profile settings of the discovery profile are correct. For more information, see “Discovering printers” on page 98.



## Solving server and printer problems

### One or more servers cannot be set online

Try one or more of the following:

- Make sure a license is installed for each server during installation. For more information about activating licenses, see “Activating Lexmark Distributed Intelligent Capture licenses” on page 20. For more information about adding licenses after installation, see “Adding an MFP, e-forms virtual printer, or software client license to an existing server” on page 69.
- Check your proxy, firewall, and other network settings across the Lexmark Distributed Intelligent Capture system to make sure communication is allowed among components.
- Uninstall and reinstall the problem server making sure to enter correct addresses for the database and load balancer. Note that when the server is installed on the same computer as the database and the load balancer, the fully qualified domain name of the computer must still be used, not localhost or the loopback address (127 . 0 . 0 . 1).
- Make sure the correct address is used for the database when installing the load balancer. Note that when the load balancer is installed on the same computer as the database, the fully qualified domain name of the computer must still be used, not localhost or the loopback address (127 . 0 . 0 . 1). If the address is specified incorrectly, then uninstall and reinstall the load balancer and all servers.

**Note:** Multiple non-communicating servers may impact system performance. If you do not expect a non-communicating server to quickly reestablish communication, then you should remove it. To remove a server that is not communicating, select the check box beside it in the table, and then click **Remove Server(s)**.

### One or more servers cannot be set offline

From the Windows Services control panel, make sure the Lexmark Solutions Apache Agent service is running.

### Error in importing a license

Try one or more of the following:

- Make sure the correct address is used for the database and load balancer when installing servers. Note that when the server is installed on the same computer as the database and the load balancer, the fully qualified domain name of the computer must still be used, not localhost or the loopback address (127 . 0 . 0 . 1). If the address is specified incorrectly, then uninstall and reinstall the applicable servers.
- Make sure the correct address is used for the database when installing the load balancer. Note that when the load balancer is installed on the same computer as the database, the fully qualified domain name of the computer must still be used, not localhost or the loopback address (127 . 0 . 0 . 1). If the address is specified incorrectly, then uninstall and reinstall the load balancer and all servers.

## LDSS Server is unavailable message appears on the printer control panel

- 1** Make sure the system has been running long enough for all services to start. It may take several minutes to start all services when the Lexmark Distributed Intelligent Capture system is first booted. If the system was recently booted, then wait a few minutes, and then try again.
- 2** Make sure the Lexmark Distributed Intelligent Capture system and all servers are online:
  - a** Log on to LMC.
  - b** Click the **System** tab.
  - c** If necessary, select **System Status** from the System list.
  - d** Look in the Status column for offline servers, and set servers online as necessary. For more information, see “Viewing and changing server status” on page 54.
- 3** Make sure the solution you are attempting to access exists in the system and has been properly deployed to a device group containing the printer:
  - a** Log on to LMC.
  - b** Click the **Solutions** tab.
  - c** Select the solution you are trying to access from the printer.

If the solution does not appear, then install the solution. For more information, see “Uploading solutions and CSF apps to the Lexmark Distributed Intelligent Capture system” on page 91.
  - d** If necessary, select the **Summary** task.
  - e** Make sure a device group that contains the printer appears beside Device Groups in the Summary section.

If no device group containing the printer appears, then make sure the printer is added to a device group, and then deploy the solution to that device group. For more information, see “Deploying solutions to a device group” on page 100.
  - f** Perform a policy update. For more information, see “Updating policies for device groups” on page 104.
- 4** If you are using an e-Task 2 printer, make sure the correct version of the Advanced Prompting Bundle (AP Bundle) is installed:
  - a** Type the printer IP address or host name in the address field of your Web browser.

**Note:** If you do not know the IP address or host name of the printer, then you can:

    - View the information on the printer control panel home screen, or in the TCP/IP section under the Networks/Ports menu.
    - Print a network setup page or menu settings page and locate the information in the TCP/IP section.
  - b** Click **Settings > Embedded Solutions**.
- 5** Review the Embedded Solutions Diagnostic Log to make sure the printer can resolve the server host name. For more information, see “Viewing the Embedded Solutions Diagnostic Log” on page 125.
- 6** Check your proxy, firewall, and other network settings on Lexmark Distributed Intelligent Capture components to make sure all necessary communication is allowed.

## The server log contains Quartz errors

Make sure to synchronize the time on all computers used in the Lexmark Distributed Intelligent Capture system before installing Lexmark Distributed Intelligent Capture components.

If the time is not synchronized, then do the following:

- 1 Uninstall all components.
- 2 Synchronize the time on all computers using an NTP server.
- 3 Reinstall all components.

## Kerberos authentication is not working

Make sure the date and time are correct and synchronized on the printer, Lexmark Distributed Intelligent Capture server, and KDC sever.

To log Kerberos debug messages from the Java Virtual Machine on each server, add the line `-Dsun.security.krb5.debug=true` to the Windows registry key `HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Procrun 2.0\Tomcat7\Parameters\Java\Options`.

For 64-bit Windows operating systems such as Windows Server 2008 R2 x64, the registry path is `HYKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Apache Software Foundation\Procrun 2.0\Tomcat7\Parameters\Java\Options`.

**Note:** Do not delete the existing contents of the registry key.

**Warning—Potential Damage:** Incorrectly editing the Windows registry may damage your Windows installation and result in an unusable system. Make sure you understand how to make the required changes. We recommend backing up the registry before making any changes.

Debug messages are logged in the file `tomcat7-stdout.yyyy-mm-dd.log` in the `\Lexmark\Solutions\tomcat\logs\` folder where the Lexmark Distributed Intelligent Capture server is installed.

## An expected icon does not appear on the home screen after solution deployment

Try one or more of the following:

- From the printer control panel, refresh the home screen by moving to another screen and then returning to the home screen.
- If the home screen has multiple pages available, then make sure the icon does not appear on other pages.
- If the missing icon represents a profile, and the profile is available in the held jobs menu on the printer, then make sure the home screen has been customized appropriately:
  - 1 Click the **Device Groups** tab.
  - 2 Select a device group from the Device Groups list.
  - 3 Select **Home Screen** from the Tasks list.
  - 4 Click the device class tab that matches the device class of the printer.  
For more information about device classes, see “Supported printers” on page 14.
  - 5 Select the **Use this home screen as part of the device group's policy** check box.
  - 6 Make sure a layout other than Default is selected, and that the profile has been assigned to a button.  
For more information about customizing the home screen, see “Customizing the home screen for a device group” on page 100.

- If the missing icon represents a profile, and the profile does not appear in the held jobs menu on the printer, then make sure device groups are set up correctly and all policies are updated:
  - 1 Make sure the solution has been properly deployed to a device group containing the printer.  
For more information, see “Deploying solutions to a device group” on page 100.
  - 2 Perform a policy update. For more information, see “Updating policies for device groups” on page 104.
- For e-Task 2+ and e-Task 3 printers, make sure the missing icon is enabled in the printer settings:

**Note:** For a list of e-Task 2+ and e-Task 3 printers, see “Supported printers” on page 14.

  - 1 Type the printer IP address or host name in the address field of your Web browser.

**Note:** If you do not know the IP address or host name of the printer, then you can:
    - View the information on the printer control panel home screen, or in the TCP/IP section under the Networks/Ports menu.
    - Print a network setup page or menu settings page and locate the information in the TCP/IP section.
  - 2 Click **Settings > General Settings > Home screen customization**.
  - 3 Select the item that corresponds to the missing icon, and then click **Submit**.
- Make sure the printer Access Controls are not preventing policy updates from working correctly:
  - 1 Type the printer IP address or host name in the address field of your Web browser.

**Note:** If you do not know the IP address or host name of the printer, then you can do the following:
    - View the information on the printer control panel home screen, or in the TCP/IP section under the Networks/Ports menu.
    - Print a network setup page or menu settings page and locate the information in the TCP/IP section.
  - 2 Click **Settings > Security > Security Setup > Access Controls**.
  - 3 Click **Management**, and then select **No Security** from the Remote Management drop-down menu.
  - 4 Click **Function Access**, and then select **No Security** from the Create Profiles drop-down menu.
  - 5 Click **Submit**.
  - 6 In LMC, perform a policy update. For more information, see “Updating policies for device groups” on page 104.
- If you are using custom icons, then use smaller files.
- Make sure your printer has the latest firmware updates. For more information, contact Lexmark Professional Services.

## Policy updates failed for a printer

If access controls on an e-Task 2+ or e-Task 3 printer that is not supported by the system are secured, then the printer remains marked “Out of Policy” after a policy update, and the system log contains the message **Policy not deployed to xxx.xxx.xxx.xxx**.

**Note:** For a list of e-Task 2+ and e-Task 3 printers, see “Supported printers” on page 14

- 1 If the printer uses basic security template with a password or PIN, then configure the device security service for the printer. For more information, see “Configuring device security” on page 65.
- 2 Make sure the printer access controls are not preventing policy updates from working correctly
  - a Type the printer IP address or host name in the address field of your Web browser.

**Note:** If you do not know the IP address or host name of the printer, then you can:

- View the information on the printer control panel home screen, or in the TCP/IP section under the Networks/Ports menu.
  - Print a network setup page or menu settings page and locate the information in the TCP/IP section.
- b** Click **Settings > Security > Security Setup > Access Controls**.
  - c** Click **Management**, and then select **No Security** from the Remote Management drop-down menu.
  - d** Click **Function Access**, and then select **No Security** from the Create Profiles drop-down menu.
  - e** Click **Submit**.
  - f** In LMC, perform a policy update. For information, see “Updating policies for device groups” on page 104.

## The printer only returns to the home screen after attempting to execute an Lexmark Distributed Intelligent Capture profile

If the Advanced Prompting Bundle is not installed or running, then the printer appears to be in policy after a policy update, but the printer may only return to the home screen when you attempt to execute an Lexmark Distributed Intelligent Capture profile.

- 1** Determine whether the Advanced Prompting Bundle (AP Bundle) is installed correctly:
  - a** Type the printer IP address or host name in the address field of your Web browser.

**Note:** If you do not know the IP address or host name of the printer, then you can:

    - View the information on the printer control panel home screen, or in the TCP/IP section under the Networks/Ports menu.
    - Print a network setup page or menu settings page and locate the information in the TCP/IP section.
  - b** Click **Settings > Embedded Solutions**.
  - c** If the AP Bundle does not appear in the list of installed solutions, then continue with the troubleshooting procedure.

**Note:** If the AP Bundle is already installed, then make sure it is in a running state. Otherwise, the problem may be with the solution itself. Contact the developer of the solution for assistance.
- 2** If the printer uses basic security template with a password or PIN, then configure the device security service for the printer. For more information, see “Configuring device security” on page 65.
- 3** Make sure the printer access controls are not preventing policy updates from working correctly:
  - a** Type the printer IP address or host name in the address field of your Web browser.

**Note:** If you do not know the IP address or host name of the printer, then you can:

    - View the information on the printer control panel home screen, or in the TCP/IP section under the Networks/Ports menu.
    - Print a network setup page or menu settings page and locate the information in the TCP/IP section.
  - b** Click **Settings > Security > Security Setup > Access Controls > Management**.
  - c** Select **No Security** from the Firmware Updates drop-down menu.
  - d** Click **Submit**.
- 4** In LMC, perform a policy update. For more information, see “Updating policies for device groups” on page 104.  
*or*

Install the Advanced Prompting Bundle manually:

- a** Type the printer IP address or host name in the address field of your Web browser.
  - Note:** If you do not know the IP address or host name of the printer, then you can:
    - View the information on the printer control panel home screen, or in the TCP/IP section under the Networks/Ports menu.
    - Print a network setup page or menu settings page and locate the information in the TCP/IP section.
- b** Click **Settings > Embedded Solutions > Install > Browse**.
- c** Locate and select the file **ap.flis** in the folder `\Lexmark\Solutions\apps\wf-ldss\firmware\` where the server is installed, and then click **Open**.
- d** Click **Start Install**.

## The solution stops responding

If the network connection is lost on some printers, then the solution may stop responding.

- 1** Make sure the network cable is plugged into the printer and into the appropriate network outlet.
- 2** Wait a few minutes to see if the network connection returns, and then access the solution.
- 3** If the solution does not continue, then do the following:
  - a** Turn off the printer.
  - b** Wait a few seconds, and then turn the printer on.
  - c** Check the printer network settings and the status of the network. For more information, see the documentation that came with the printer. For help with your local network, contact your network administrator.

## The solution cannot connect to the network

Check the local domain settings in the proxy server settings of the printer. If necessary, add the domain on the local network that will bypass the proxy server.

# Solving problems with client software

## Cannot create new Lexmark Document Server ports

- 1** Make sure at least one server is online using the System Status task on the System tab in LMC.
- 2** Make sure you have a license installed for software clients:
  - a** Click the **System** tab.
  - b** Select **Licenses**.
  - c** Make sure one of the listed licenses applies to clients, and is not expired.

For more information, see “Activating Lexmark Distributed Intelligent Capture licenses” on page 20.

- 3 Make sure the IP addresses or subnets of the computers that will access the profile and a solution have been assigned to a software client group.

For more information, see “Assigning solutions to a software client group” on page 113.

- 4 Check your proxy, firewall, and other network settings on the client computer to make sure communication is allowed with the load balancer.

## System processes terminate unexpectedly when creating a Lexmark Document Server port

If a profile assigned to Lexmark Document Server port has a name with more than 14 characters, or if the port name used has more than 75 characters, then the processes explorer.exe and spoolsv.exe may terminate unexpectedly.

- 1 If a port was created before the error occurred, then delete the port using the Ports tab of the Properties dialog for the created print queue.

**Note:** For more information on accessing the properties for the Lexmark Document Server port, see “Configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2” on page 116.

- 2 If the profile used with the port has a name with more than 14 characters, then change it to one that has 14 characters or fewer. For more information, contact the person who developed the solution, or see the *Lexmark Document Distributor SDK Guide*.
- 3 Create a new port for the created print queue, using a name with 75 characters or fewer.
- 4 Restart the computer where you added the Lexmark Document Server port.

## Cannot create or configure a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2

When User Account Control is enabled in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2, the Lexmark Document Server port must be installed or configured with administrative privileges.

Do one or more of the following:

- Create a new print queue using the Lexmark Document Server port.
- Configure or add a Lexmark Document Server port in an existing print queue.

**Note:** For more information, see “Configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2” on page 116.

## Jobs are not sent to the Lexmark Distributed Intelligent Capture system

- 1 Make sure you have created a new printer Lexmark Document Server Port and assigned a print queue using an existing print driver to that port.

For more information, see “Adding Lexmark Distributed Intelligent Capture printers on a client workstation or print server” on page 114.

- 2 Make sure you have a license installed for software clients:
  - a Click the **System** tab in LMC.
  - b Select **Licenses**.

- c Make sure one of the listed licenses applies to clients and is not expired.

For more information, see “Activating Lexmark Distributed Intelligent Capture licenses” on page 20.

- 3 Make sure a solution has been properly deployed to a software client group containing the software client.  
For more information, see “Assigning solutions to a software client group” on page 113.
- 4 Run Windows Update to make sure the latest updates for the .NET framework are installed.
- 5 Check your proxy, firewall, and other network settings on the client computer to make sure communication is allowed with the Lexmark Distributed Intelligent Capture load balancer.

## Select'N'Send cannot send files to Lexmark Distributed Intelligent Capture

- 1 Make sure you have a license installed for software clients:
  - a From the System tab in LMC, select **Licenses**.
  - b Make sure one of the listed licenses applies to clients and is not expired.  
For more information, see “Activating Lexmark Distributed Intelligent Capture licenses” on page 20.
- 2 Make sure a solution has been properly deployed to a software client group containing the software client.  
For more information, see “Assigning solutions to a software client group” on page 113.
- 3 Check your proxy, firewall, and other network settings on the client computer to make sure communication is allowed with the Lexmark Distributed Intelligent Capture load balancer.

## Solutions are receiving inaccurate page counts

Try one or more of the following:

- Make sure jobs are not sent until they are finished spooling:
  - 1 From the Printers control panel in Windows, right-click the printer, and then click **Properties**.
  - 2 Click the **Advanced** tab.
  - 3 Select the **Spool print documents so program finishes printing faster** and **Start printing after last page is spooled** check boxes.
  - 4 Click **OK**.
- If you are using Microsoft Word and a solution always receives a page count of 1, see the Microsoft Knowledge Base article KB919736 *The dmCopies member always returns a value of 1 when you try to retrieve the number of copies in a print job in Word* (<http://support.microsoft.com/kb/919736>).



## Appendix

### Prompts supported by single-function printers

Single-function printers do not support all prompts supported by multifunction printers. Lists of supported prompts are included in the table below.

	Touch screen printers	Non-touch screen printers
Supported prompts	<ul style="list-style-type: none"> <li>• ArrayPrompt</li> <li>• AuthenticationPrompt<sup>1</sup></li> <li>• BooleanPrompt</li> <li>• CustomVImlPrompt</li> <li>• ImageBooleanPrompt</li> <li>• ImageListPrompt</li> <li>• ImageMessagePrompt</li> <li>• IntegerPrompt</li> <li>• ListPrompt</li> <li>• MessagePrompt</li> <li>• NumericPrompt</li> <li>• PasswordPrompt</li> <li>• StringPrompt</li> <li>• NullPrompt</li> </ul>	<ul style="list-style-type: none"> <li>• ArrayPrompt</li> <li>• AuthenticationPrompt<sup>1, 2</sup></li> <li>• BooleanPrompt</li> <li>• IntegerPrompt</li> <li>• ListPrompt</li> <li>• MessagePrompt</li> <li>• NumericPrompt</li> <li>• PasswordPrompt<sup>3</sup></li> <li>• StringPrompt<sup>2</sup></li> <li>• NullPrompt<sup>4</sup></li> </ul>
<p><sup>1</sup> Requires a supported card reader.</p> <p><sup>2</sup> Supported by T654 and W850 models only.</p> <p><sup>3</sup> Supports only numeric PINs in e-Task printers. E-Task printers include C520, C522, C524, C530, C532, C534, C732, C734, C736, C780, C782, C920, C935, E450, E460, E642, T640, T642, T644, T650, T652, W840.</p> <p><sup>4</sup> Supported by e-Task printers only.</p>		

### Double-byte character support

Not all printer models support double-byte characters. If your printer is not listed in the table below, it does not support double-byte characters.

Printer model	Simplified Chinese	Traditional Chinese	Japanese	Korean
C748	X	X	X	X
C792	X	X	X	X
C925	X	X	X	X
C950	X	X	X	X
CS510	X	X	X	X
CX410	X	X	X	X

Printer model	Simplified Chinese	Traditional Chinese	Japanese	Korean
CX510	X	X	X	X
MS610	X	X	X	X
MS810, MS812	X	X	X	X
MX410, MX510, MX511	X	X	X	X
MX610, MX611	X	X	X	X
MX710, MX711	X	X	X	X
MX810, MX811, MX812	X	X	X	X
X463, X464, X466	X	X		X
X548	X	X	X	X
X642	X			
X644, X646	X			X
X651, X652, X654, X656, X658	X	X		X
6500	X	X	X	X
X734, X736, X738	X	X		X
X746, X748	X	X	X	X
X782	X			X
X792	X	X	X	X
X850, X852, X854	X		X	X
X860, X862, X864	X	X		X
X925	X	X	X	X
X940, X945	X		X	X
X950, X952, X954	X	X	X	X

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# Index

## A

- accessing Lexmark Management Console 42
- accessing LMC
  - troubleshooting 126
- accessing the Solution Status Page 72
- accessing the System Health dashboard 61
- activating Lexmark Distributed Intelligent Capture licenses 20
- adding a report 80
- adding an e-forms virtual printer license to an existing server 69
- adding an MFP license to an existing server 69
- adding Lexmark Distributed Intelligent Capture printers on a client workstation 114
- adding Lexmark Distributed Intelligent Capture printers on a print server 114
- adding licenses to a server 76
- adding printers to a server 75
- adding servers after initial installation 56
- adding software client license to an existing server 69
- adjusting limits on concurrent jobs 62
- Advance Prompting Bundle
  - updating 60
- Advanced Prompting Bundle
  - troubleshooting 133
- antivirus policy
  - configuration 37
  - recommendation 37
- antivirus policy requirements and recommendations 37
- assigning privileges to groups 44
- assigning servers to only run LMC or process jobs 63
- assigning solutions to software client groups 113
- authentication
  - changing the administrator password 43

- changing the administrator user name 43
- enabling LDAP server
  - authentication for LMC 43
- avoiding conflicts with other software 19

## B

- backup
  - scheduling 84
- backup and restore
  - connecting existing servers during recovery 86
  - installing new servers during recovery 86
  - manually backing up databases 88
  - recovering backup data with a new installation 85
  - recreating Lexmark Distributed Intelligent Capture printer ports after an address change 87
- backup data
  - recovering with a new installation 85
- browser displays a 5yy error when accessing LMC 126
- built-in reports 79

## C

- cannot create new Lexmark Document Server ports 134
- cannot create or configure Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2 135
- capturing documents 8, 9
- changing the administrator password 43
- changing the IP address on a configuration 1 system 57
- client software
  - adding Lexmark Distributed Intelligent Capture printers 114
  - increasing print queue availability using printer pooling 117
  - installing 113

- installing on a Microsoft Cluster Server 114
- overview 11
- command line
  - using Select'N'Send 122
- command line version of Select'N'Send 122
- communication
  - ports used by Lexmark Distributed Intelligent Capture system 19
- communications
  - configuring NPA device communication 65
- components 10
  - uninstalling 59
- concurrency
  - adjusting limits on concurrent jobs 62
  - system sizing guidelines 29
- configuration 1 system
  - changing the IP address 57
- configuration type for workgroup systems 25
- configuration types 26
- configuring a Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2 116
- configuring an eSF application associated with a solution 92
- configuring connection to an SMTP server 64
- configuring default report options 81
- configuring device security 65
- configuring global settings
  - cSF apps 91
  - solutions 91
- configuring Kerberos authentication on printers 39
- configuring Lexmark Distributed Intelligent Capture servers for Kerberos authentication 41
- configuring SNMP for discovering printers 65
- configuring the confirmation page 55
- confirmation 9

- confirmation page
    - configuring 55
  - conflicting software 19
  - connecting existing servers during recovery 86
  - creating a device group 95
  - creating a device group from an existing group 96
  - creating a new discovery profile 96
  - creating custom reports
    - using special Lexmark Distributed Intelligent Capture parameters 82
  - creating software client groups 112
  - cSF app settings
    - understanding 90
  - cSF apps
    - configuring global settings 91
    - removing 93
    - understanding solution settings 90
    - understanding the deployment process 90
    - uploading to the Lexmark Distributed Intelligent Capture system 91
  - cSF Apps tab
    - tasks 49
  - cSF Apps tab tasks 49
  - custom reports
    - querying the database 82
    - using included subreports 83
    - using special Lexmark Distributed Intelligent Capture parameters 82
  - customizing columns for jobs 52
  - customizing columns for system logs 52
  - customizing the home screen for a device group 100
- D**
- data is missing in LMC 127
  - database
    - installing with clustering 33
    - installing without clustering 32
    - manual backup 88
  - default report options
    - configuring 81
  - deploying solutions to device groups 100
  - deployment process
    - understanding 90
  - device discovery
    - troubleshooting 128
  - device groups 95
    - configuring an eSF application
      - associated with a solution 92
    - creating 95, 96
    - creating a new discovery profile 96
    - customizing the home screen 100
  - deploying solutions 100
  - disabling validation of eSF application deployment 105
  - discovering missing printers 99
  - discovering printers 98
  - editing local settings for a deployed or assigned solution 92
  - enabling secure communication between servers and printers 105
  - importing a list of printers 97
  - scheduling a discovery task 99
  - scheduling policy updates 104
  - updating policies 104
  - viewing all printers with outdated policies 99
  - viewing device group profile settings 53
  - viewing software client group profiles 53
- Device Groups tab tasks 46
- device log 125
- device profiles
  - viewing 107
- device security
  - configuring 65
- devices
  - adding to a device group 96
  - editing the home screen layout 107
  - enabling secure communication between servers and printers in a device group 105
  - removing from the system 108
  - searching previously discovered devices 106
  - updating policies 107
  - viewing profiles 107
- Devices tab
  - tasks 47
- Devices tab tasks 47
- disabling validation of eSF application deployment 105
- disaster recovery 10
  - connecting existing servers during recovery 86
  - installing new servers during recovery 86
  - manually backing up databases 88
  - recovering backup data with a new installation 85
  - recreating Lexmark Distributed Intelligent Capture printer ports after an address change 87
- discoveries frequently time out 128
- discovering devices
  - scheduling a discovery task 99
- discovering missing printers 99
- discovering printers 98
  - configuring SNMP 65
- discovery
  - configuring chunk size 64
- discovery and policy updates running slowly 128
- discovery task
  - scheduling 99
- document capture 9
- document classification 8
- document extraction 8
- document processing 9
- document routing 9
- Documentum 14
- double-byte character support 137
- downloading existing licenses 66
- dynamic prompting 110
- dynamic prompting support 110
- E**
- ECM
    - supported platforms 14
  - editing local settings for assigned or deployed solutions 92
  - editing report settings 81
  - editing the home screen layout on specific devices 107
  - Embedded Solutions Diagnostic Log 125
    - viewing 125
  - enabling LDAP server authentication for LMC 43
  - enabling secure communication between servers and printers 105



- enabling secure communication between servers and the printers in a device group 105
- enterprise systems
  - installation overview 30
- error importing license 129
- error occurs when uploading a formset 127
- eSF application deployment
  - disabling 105
- eSF applications
  - configuring applications
    - associated with a solution 92
- eSF Configuration task for device groups does not function 127
- expected icon does not appear on the home screen after solution deployment 131
- explorer.exe terminates unexpectedly 135
- exporting system status information 54
- E-Forms tab
  - tasks 49
- e-forms virtual printer license
  - adding to an existing server 69
- e-mail
  - configuring connection to an SMTP server 64
- e-mail watcher
  - service 60
- e-mail watcher service 60

## F

- failed policy updates 132
- FileNet 14
- finding the host ID 20, 66
- formsets
  - troubleshooting, upload 127

## H

- health of the system
  - monitoring 61
- home screen
  - customizing for a device group 100
  - editing layout on specific devices 107
  - troubleshooting 131
- Home tab 50
- system status 51

- host ID
  - finding 66

## I

- importing a list of software clients to software client group 112
- importing list of printers to a device group 97
- improving performance
  - assigning servers to only run LMC or process jobs 63
  - configuring chunk size 64
- inaccurate page counts
  - troubleshooting 136
- increasing print queue availability using printer pooling 117
- initial setup overview 13
- installation
  - activating Lexmark Distributed Intelligent Capture licenses 20
  - adding servers after initial installation 56
  - configuration type 25
  - configuration types 26
  - overview for enterprise systems 30
  - overview for workgroup systems 25
  - system requirements 16
  - system sizing guidelines 29
  - viewing logs 124
- installation overview for enterprise systems 30
- installation types 24
- installing client software 113
- installing client software on a Microsoft Cluster Server 114
- installing database with clustering 33
- installing database without clustering 32
- installing Lexmark Distributed Intelligent Capture
  - supported ECM platforms 14
- installing Lexmark Distributed Intelligent Capture components silently 38
- installing load balancer with clustering 33
- installing load balancer without clustering 32

- installing new servers during recovery 86
- installing servers 36
- installing system components in a workgroup system 25

## J

- JK Status Manager
  - assigning servers to only run LMC or process jobs 63
- jobs
  - customizing columns 52
  - viewing 52
- jobs are not sent to the Lexmark Distributed Intelligent Capture system 135
- jobs do not respond after an error occurred 127

## K

- Kerberos
  - troubleshooting 131
- Kerberos authentication
  - configuring Lexmark Distributed Intelligent Capture servers 41
  - configuring on printers 39
- Kerberos authentication is not working 131

## L

- LDAP server authentication
  - enabling for LMC 43
- LDSS Server
  - troubleshooting, server unavailable 130
- LDSS Server is unavailable 130
- Lexmark Distributed Intelligent Capture
  - overview 8
  - system administration 12
  - system components 10
- Lexmark Distributed Intelligent Capture components
  - uninstalling 59
- Lexmark Distributed Intelligent Capture elements
  - viewing information summaries 52
- Lexmark Distributed Intelligent Capture parameters, special using, for custom reports 82

- Lexmark Distributed Intelligent Capture print queues
  - using 119
- Lexmark Distributed Intelligent Capture printer ports
  - recreating after an address change 87
- Lexmark Distributed Intelligent Capture printers
  - adding on client workstation or print server 114
  - increasing print queue availability using printer pooling 117
- Lexmark Distributed Intelligent Capture system
  - rebooting 57
  - troubleshooting, jobs 135
- Lexmark Document Distributor system requirements 16
- Lexmark Document Distributor system sizing guidelines 29
- Lexmark Document Server Port
  - adding Lexmark Distributed Intelligent Capture printers on a client workstation or print server 114
  - increasing print queue availability using printer pooling 117
- Lexmark Document Server ports
  - configuring 116
  - troubleshooting 134, 135
- Lexmark Management Console
  - overview 12
- Lexmark Management Console (LMC)
  - accessing 42
- Lexmark Solutions Application Server
  - restarting 58
- license
  - re-hosting 71
- licenses
  - adding licenses to a server 76
  - troubleshooting 129
- licensing
  - activating Lexmark Distributed Intelligent Capture licenses 20
  - adding a software client license to an existing server 69
  - adding an e-forms virtual printer license to an existing server 69
  - adding an MFP license to an existing server 69

- adding licenses to a server 76
- downloading existing licenses 66
- finding the host ID 20, 66
- upgrading the license of an existing server 67
- viewing existing licenses 66

LMC

- LDAP server authentication 43
- troubleshooting 126, 127

LMC does not finish loading 127

LMC responds very slowly 126

load balancer

- adjusting limits on concurrent jobs 62
- assigning servers to only run LMC or process jobs 63
- installing with clustering 33
- installing without clustering 32
- tuning for unequal servers 63

local settings

- editing for assigned or deployed solutions 92

logs

- customizing columns 52
- Embedded Solutions Diagnostic Log 125
- installation 124
- viewing 52
- viewing server log 124

## M

- managing scheduled tasks 54
- managing solution-related files 93
- managing the e-mail watcher service 60
- manually backing up databases 88

MFP license

- adding to an existing server 69

Microsoft Cluster Server

- installing client software 114

minimum system requirements 16

sizing guidelines 29

missing printers

- discovering 99

monitoring system health 61

moving printers to a new system 71

moving the load balancer 71

multiple systems

- configuration types 26

## N

- networking
  - ports used by Lexmark Distributed Intelligent Capture system 19
- notices 139
- NPA
  - configuring device communication 65

## O

- one or more servers cannot be set offline 129
- one or more servers cannot be set online 129
- Oracle database
  - using 31
- order of installation for enterprise systems 30
- outdated policies
  - viewing printers 99
- out-of-policy printers
  - viewing for all device groups 99
- overview
  - software client setup 111
  - system setup 13

## P

- password, administrator
  - changing 43
- policies
  - scheduling policy updates 104
  - updating for device groups 104
  - updating on specific devices 107
  - viewing printers with outdated policies 99
- policies, device
  - updating 107
- policy updates
  - configuring 96
  - configuring chunk size 64
  - scheduling 104
  - troubleshooting 128, 132
- policy updates failed for a printer 132
- ports
  - used by Lexmark Distributed Intelligent Capture system 19
- ports used by Lexmark Distributed Intelligent Capture system 19
- print queues
  - using 119

- print server
  - adding Lexmark Distributed Intelligent Capture printers 114
  - increasing print queue availability using printer pooling 117
- printer only returns to the home screen after attempting to execute an Lexmark Distributed Intelligent Capture profile 133
- printer pooling
  - increasing print queue availability 117
- printers
  - adding to a server 75
  - removing using the Solution Status Page 77
- printers supported 14
- privileges setting 44
- processing documents 9
- profiles 9
  - accessing on a printer 118
  - viewing for a device group 53
  - viewing for a software client group 53
- profiles, device
  - viewing 107
- prompts
  - supported by single function printers 137

## Q

- querying the database 82
  - for custom reports 82

## R

- rebooting the Lexmark Distributed Intelligent Capture system 57
- recommended system requirements 16
- recovering backup data with a new installation 85
- recovery
  - connecting existing servers 86
  - installing new servers 86
- recreating Lexmark Distributed Intelligent Capture printer ports after an address change 87
- reliability 10
- removing a report 81
- removing devices from the system 108

- removing non-communicating servers 54
- removing printers using the Solution Status Page 77
- removing solutions or cSF apps 93
- repairing common server problems 75
- reports
  - adding 80
  - built-in 79
  - configuring default options 81
  - editing settings 81
  - querying the database 82
  - removing 81
  - running 77
  - scheduling 78
  - troubleshooting 127
  - using included subreports 83
- reports are not displayed when run 127
- restarting the Lexmark Solutions Application Server 58
- re-hosting licenses 71
- routing documents 9
- running a report 77

## S

- scalability 10
- scheduled tasks
  - managing 54
  - viewing 54
- scheduling
  - reports 78
  - scripts 122
- scheduling a discovery task 99
- scheduling a report 78
- scheduling automatic backups 84
- scheduling policy updates 104
- scheduling scripts 122
- scripts
  - scheduling 122
- searching for devices 106
- secure communication
  - enabling between servers and printers in device group 105
- security
  - overview 13
- security overview 13
- Select'N'Send
  - troubleshooting 136
  - using from the command line 122
  - using the GUI 119

- Select'N'Send cannot send files to Lexmark Distributed Intelligent Capture 136
- server log
  - viewing 124
- server log contains Quartz errors 130
- server problems, common
  - repairing 75
- servers
  - adding after initial installation 56
  - adjusting limits on concurrent jobs 62
  - assigning to only run LMC or process jobs 63
  - connecting existing servers during recovery 86
  - installing 36
  - installing during recovery 86
  - removing non-communicating servers 54
  - repairing common problems 75
  - setting online or offline 54
  - troubleshooting 129
  - tuning the load balancer for unequal servers 63
  - upgrading licenses 67
  - viewing and changing status 54
- servers cannot be set offline 129
- servers cannot be set online 129
- servers, Lexmark Distributed Intelligent Capture
  - configuring for Kerberos authentication 41
- services
  - configuring chunk size 64
  - configuring connection to an SMTP server 64
  - configuring NPA device communication 65
  - configuring policy updates 96
  - configuring the confirmation page 55
  - e-mail watcher 60
- Services tab tasks 49
- setting server status 54
- setting up software clients, overview 111
- SharePoint 14
- silent installation 38
- SMTP server
  - configuring connection to 64

- SNMP
    - configuring for discovering printers 65
  - software client group
    - importing a list of software clients 112
  - software client groups 109
    - adding software clients 112
    - assigning solutions to software client groups 113
    - creating 112
    - understanding 109
  - Software Client Groups tab
    - tasks 47, 49
  - software client license
    - adding to an existing server 69
  - software client setup
    - understanding 111
  - software clients 109
    - adding to a software client group 112
    - importing 112
    - understanding 109
    - understanding setup 111
  - solution cannot connect to the network 134
  - solution settings
    - understanding 90
  - Solution Status Page
    - accessing 72
    - adding licenses 76
    - adding printers 75
    - removing printers 77
    - understanding status information 72
  - solution stops responding 134
  - solutions
    - assigning to software client groups 113
    - configuring an eSF application associated with a solution 92
    - configuring global settings 91
    - deployed, editing settings 92
    - deploying to device groups 100
    - disabling validation of eSF application deployment 105
    - editing settings 92
    - removing 93
    - troubleshooting 131
    - understanding solution settings 90
    - understanding the deployment process 90
    - uploading to the Lexmark Distributed Intelligent Capture system 91
    - using from a printer 118
    - viewing forms 53
    - workflow 11
  - solutions are receiving inaccurate page counts 136
  - solutions deployment
    - troubleshooting 131
  - Solutions tab
    - tasks 48
  - Solutions tab does not function 127
  - Solutions tab tasks 48
  - solution-related files
    - managing 93
  - some printers on the network cannot be discovered 128
  - spoolsv.exe terminates unexpectedly 135
  - status bar 51
    - system status 51
  - status information
    - understanding 72
  - subreports
    - using 83
  - supported ECM platforms 14
  - supported printers 14
  - system administration
    - Lexmark Management Console 12
  - system components 10
  - system health
    - monitoring 61
  - System Health dashboard
    - accessing 61
    - adjusting limits on concurrent jobs 62
    - tuning the load balancer for unequal servers 63
  - system log
    - customizing columns 52
  - system logs
    - viewing 52
  - system overview
    - client software 11
    - Lexmark Management Console 12
    - system components 10
  - system processes terminate unexpectedly when creating a Lexmark Document Server port 135
  - system requirements 16
    - avoiding conflicts with other software 19
    - sizing guidelines 29
  - system setup overview 13
  - system sizing guidelines 29
  - system status 51
  - System tab
    - changing the administrator user name 43
    - managing scheduled tasks 54
    - viewing and changing server status 54
  - System tab tasks 50
- T**
- tasks
    - System tab 50
  - timeout
    - configuring policy updates 96
  - troubleshooting
    - 500 Internal Server Error 126
    - 503 Service Unavailable 126
    - access controls 133
    - browser displays 5yy error when accessing LMC 126
    - cannot create new Lexmark Document Server ports 134
    - cannot create or configure Lexmark Document Server port in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2 135
    - data is missing in LMC 127
    - device discoveries frequently time out 128
    - device discovery 128
    - discovery and policy updates running slowly 128
    - error in importing a license 129
    - error occurs when uploading a formset 127
    - eSF Configuration task for device groups does not function 127
    - expected icon does not appear on the home screen after solution deployment 131
    - explorer.exe terminates unexpectedly 135
    - formsets fail to upload 127
    - home screen 131

- jobs are not sent to the Lexmark Distributed Intelligent Capture system 135
  - jobs do not respond after an error occurred 127
  - Kerberos authentication is not working 131
  - LDSS Server is unavailable 130
  - Lexmark Document Server port cannot be created or edited in Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2008 R2 135
  - licenses 129
  - LMC 126, 127
  - LMC does not finish loading 127
  - LMC responds very slowly 126
  - one or more servers cannot be set offline 129
  - one or more servers cannot be set online 129
  - policy updates failed for a printer 132
  - printer only returns to the home screen after attempting to execute an Lexmark Distributed Intelligent Capture profile 133
  - reports are not displayed when run 127
  - Select'N'Send 136
  - Select'N'Send cannot send files to Lexmark Distributed Intelligent Capture 136
  - server log contains Quartz errors 130
  - servers 129
  - slow device discovery 128
  - slow policy updates 128
  - solution cannot connect to the network 134
  - solution stops responding 134
  - solutions 131
  - solutions are receiving inaccurate page counts 136
  - solutions deployment 131
  - Solutions tab does not function 127
  - some printers on the network cannot be discovered 128
  - spoolsv.exe terminates unexpectedly 135
  - system processes terminate unexpectedly when creating a Lexmark Document Server port 135
  - user can still access tasks even after removing privileges 127
  - user cannot access some tasks in LMC 127
  - tuning the load balancer for unequal servers 63
- ## U
- understanding cSF app settings 90
  - understanding deployment process 90
  - understanding installation types 24
  - understanding software client groups 109
  - understanding software client setup 111
  - understanding software clients 109
  - understanding solution settings 90
  - understanding status information 72
  - unequal servers
    - tuning the load balancer 63
  - uninstalling Lexmark Distributed Intelligent Capture components 59
  - updating device policies 107
  - updating policies for device groups 104
  - updating the Advanced Prompting Bundle 60
  - upgrading the license of an existing server 67
  - uploading cSF apps to the Lexmark Distributed Intelligent Capture system 91
  - uploading solutions to the Lexmark Distributed Intelligent Capture system 91
  - user can still access tasks even after removing privileges 127
  - user cannot access some tasks in LMC 127
  - user name
    - changing the administrator user name 43
  - using a solution from a printer 118
  - using built-in reports 79
  - using included subreports 83
- ## V
- version information 53
  - viewing and changing server status 54
  - viewing device profiles 107
  - viewing existing licenses 66
  - viewing forms associated with a solution 53
  - viewing information summaries for Lexmark Distributed Intelligent Capture elements 52
  - viewing installation logs 124
  - viewing jobs 52
  - viewing printers with outdated policies 99
  - viewing scheduled tasks 54
  - viewing system logs 52
  - viewing the Embedded Solutions Diagnostic Log 125
  - viewing the server log 124
  - viewing version information 53
  - virtual printer license
    - adding to an existing server 69
- ## W
- workflow solutions 11
  - workgroup system
    - installing system components 25
  - workgroup systems
    - installation overview 25
  - WorkSite 14