



Lexmark™

# Markvision Enterprise

Version 3.3

---

## Administrator's Guide

August 2018

[www.lexmark.com](http://www.lexmark.com)

---

# Contents

- Change history..... 6**
- Overview..... 8**
- Getting started..... 9**
  - Supported languages.....10
  - Supported printer models.....10
  - Setting up the database..... 13
  - Setting up a run-as user.....13
  - Installing MVE.....14
  - Accessing MVE..... 14
  - Changing the language..... 15
  - Changing your password..... 15
- Maintaining the application..... 16**
  - Upgrading to MVE 3.3.....16
  - Backing up and restoring the database.....16
  - Updating the installer settings after installation.....18
- Setting up user access.....19**
  - Understanding user roles.....19
  - Managing users..... 20
  - Enabling LDAP server authentication..... 20
  - Installing LDAP server certificates..... 23
- Discovering printers..... 24**
  - Creating a discovery profile..... 24
  - Managing discovery profiles..... 25
- Viewing printers.....26**
  - Viewing the printer list..... 26
  - Viewing the printer information.....26
  - Exporting printer data.....27
  - Managing views..... 27
  - Changing the printer listing view..... 29

Filtering printers using the search bar.....29

Running a saved search..... 29

Creating a saved search.....29

Understanding search rules settings..... 30

Managing saved searches..... 32

Managing keywords..... 33

**Managing printers..... 34**

Restarting the printer..... 34

Viewing the printer Embedded Web Server..... 34

Auditing printers..... 34

Updating printer status..... 34

Setting the printer state..... 35

Understanding printer life cycle states.....35

Assigning configurations to printers..... 36

Unassigning configurations..... 37

Enforcing configurations.....37

Checking the printer conformance with a configuration.....37

Deploying files to printers..... 38

Updating the printer firmware.....38

Uninstalling applications from printers..... 39

Assigning events to printers.....39

Assigning keywords to printers.....40

Configuring printer certificates..... 40

**Securing printer communications..... 42**

Configuring printer security..... 42

Securing printer communications on your fleet..... 42

**Managing configurations.....43**

Creating a configuration..... 43

Creating a configuration from a printer..... 44

Understanding variable settings..... 44

Configuring the color print permissions..... 45

Creating an applications package..... 45

Importing or exporting a configuration.....46

Importing files to the resource library..... 46

---

<b>Managing printer alerts.....</b>	<b>47</b>
Creating an action.....	47
Understanding action placeholders.....	47
Managing actions.....	48
Creating an event.....	48
Understanding printer alerts.....	49
Managing events.....	53
<b>Viewing task status and history.....</b>	<b>54</b>
Viewing the task status.....	54
Stopping tasks.....	54
Viewing logs.....	54
Clearing logs.....	54
Exporting logs.....	54
<b>Scheduling tasks.....</b>	<b>55</b>
Creating a schedule.....	55
Managing scheduled tasks.....	56
<b>Performing other administrative tasks.....</b>	<b>57</b>
Configuring general settings.....	57
Configuring e-mail settings.....	57
Adding a login disclaimer.....	57
Signing the MVE certificate.....	58
<b>Frequently asked questions.....</b>	<b>59</b>
<b>Troubleshooting.....</b>	<b>62</b>
User has forgotten the password.....	62
Cannot discover a network printer.....	62
Incorrect printer information.....	63
MVE does not recognize a printer as a secured printer.....	63
<b>Appendix.....</b>	<b>64</b>
<b>Notices.....</b>	<b>67</b>

**Glossary..... 69**

**Index..... 70**

# Change history

## August 2018

- Updated information on the following:
  - Supported printer models
  - Setting up the database
  - Upgrading to MVE 3.3
  - Frequently asked questions
  - Creating an action
  - Creating a schedule
- Added information on the following:
  - Setting up a run-as domain user account
  - Exporting logs
  - Troubleshooting steps when MVE does not recognize secured printers

## July 2018

- Updated information on upgrading to MVE 3.2.

## April 2018

- Updated information on the following:
  - Supported printer models
  - Setting up the database
  - Backing up and restoring database files
  - The URL for accessing MVE
  - Understanding variable settings
- Added information on the following:
  - Configuring printer certificates
  - Stopping tasks
  - Updating printer firmware

## September 2017

- Updated information on the following:
  - System requirements
  - Communication between MVE and Lexmark Forms Printer 2580, 2581, 2590, and 2591 models
  - Manual dropping of Microsoft® SQL Server® databases
  - Backing up and restoring database files
  - Required security settings for function access controls when deploying firmware and solution files to printers
  - Support for licenses when deploying applications
  - Printer alerts and their associated actions

- Printer state automatic recovery
- Events and keywords assignment

## **June 2017**

- Initial document release for Markvision Enterprise 3.0.

# Overview

Markvision™ Enterprise (MVE) is a web-based printer management utility software designed for IT professionals.

With MVE, you can manage a large fleet of printers in an enterprise environment efficiently by doing the following:

- Find, organize, and track a fleet of printers. You can audit a printer to collect printer data such as status, settings, and supplies.
- Create configurations and assign them to printers.
- Deploy firmware, printer certificates, certificate authority (CA), and applications to the printers.
- Monitor printer events and alerts.

This document provides information on how to configure, use, and troubleshoot the application.

This document is intended for administrators.



# Getting started

MVE is installed as a web server and can be accessed from a web browser on any computer on the network. MVE also uses a database to store information about the printer fleet. The following lists are the requirements for the web server, database, and user system:

## Web server requirements

<b>Processor</b>	At least 2GHz dual core processor that uses Hyper-Threading Technology (HTT)
<b>RAM</b>	At least 4GB
<b>Hard disk drive</b>	At least 60GB

**Note:** MVE, Lexmark Document Distributor (LDD), and Device Deployment Utility (DDU) cannot be run on the same server.

### Supported servers

- Windows Server® 2016 Standard Edition
- Windows Server 2012 Standard Edition
- Windows Server 2012 R2
- Windows 10
- Windows Server 2008 R2
- Windows 7

**Note:** MVE supports only the 64-bit version of the operating systems.

## Database requirements

### Supported databases

- Firebird® database (built-in)
- Microsoft SQL Server 2016
- Microsoft SQL Server 2014
- Microsoft SQL Server 2012
- Microsoft SQL Server 2008

**Note:** The recommended minimum database size is 60GB to allocate 20MB for FRAMEWORK, and 4.5MB for MONITOR and QUARTZ. For more information, see [“Setting up the database” on page 13](#).

## User system requirements

### Supported web browsers

- Microsoft Edge™
- Internet Explorer™ 11 or later

- Mozilla Firefox (latest version)
- Google Chrome™ (latest version)
- Safari (latest version)

## Screen resolution

At least 1280 x 768 pixels

## Supported languages

- Brazilian Portuguese
- English
- French
- German
- Italian
- Simplified Chinese
- Spanish

## Supported printer models

- Dell 3330dn<sup>1</sup>, 3333dn<sup>1</sup>, 3335dn<sup>1</sup>
- Dell 5230dn<sup>1</sup>, 5350dn<sup>1</sup>, 5530dn<sup>1</sup>, 5535dn<sup>1</sup>
- Dell B2360dn, B3460dn, B3465dn
- Dell B5460dn, B5465dnf, S5830dn
- Dell S2830dn
- Dell S5840cdn
- Lexmark™ 4600, 6500
- Lexmark B2338<sup>2</sup>, B2442<sup>2</sup>, B2546<sup>2</sup>, B2650<sup>2</sup>, B2865<sup>1</sup>
- Lexmark C2132
- Lexmark C2240<sup>2</sup>, C2325<sup>2</sup>, C2425<sup>2</sup>, C2535<sup>2</sup>
- Lexmark C4150<sup>2</sup>, C6160<sup>2</sup>, C9235<sup>2</sup>
- Lexmark C520<sup>1</sup>, C522<sup>1</sup>, C524<sup>1</sup>, C530<sup>1</sup>, C532<sup>1</sup>, C534<sup>1</sup>, C540<sup>3</sup>, C543<sup>3</sup>, C544<sup>3</sup>, C546<sup>3</sup>
- Lexmark C734<sup>1</sup>, C736<sup>1</sup>, C746, C748
- Lexmark C770<sup>1</sup>, C772<sup>1</sup>, C780<sup>1</sup>, C782<sup>1</sup>, C792
- Lexmark C920<sup>1</sup>, C925<sup>1</sup>, C935<sup>1</sup>, C950
- Lexmark CS310, CS410, CS510
- Lexmark CS317, CS417, CS517
- Lexmark CS421<sup>2</sup>, CS521<sup>2</sup>, CS622<sup>2</sup>
- Lexmark CS720<sup>2</sup>, CS725<sup>2</sup>
- Lexmark CS727<sup>2</sup>, CS728<sup>2</sup>, CX727<sup>2</sup>
- Lexmark CS820<sup>2</sup>, CS827<sup>2</sup>
- Lexmark CS921<sup>2</sup>, CS923<sup>2</sup>, CS927<sup>2</sup>
- Lexmark CX310, CX410, CX510

- Lexmark CX317, CX417, CX517
- Lexmark CX421<sup>2</sup>, CX522<sup>2</sup>, CX622<sup>2</sup>, CX625<sup>2</sup>
- Lexmark CX725
- Lexmark CX820<sup>2</sup>, CX825<sup>2</sup>, CX827<sup>2</sup>, CX860<sup>2</sup>
- Lexmark CX920<sup>2</sup>, CX921<sup>2</sup>, CX922<sup>2</sup>, CX923<sup>2</sup>, CX924<sup>2</sup>, CX927<sup>2</sup>
- Lexmark E250, E260<sup>3</sup>, E352, E360<sup>3</sup>, E450, E460<sup>1</sup>, E462<sup>1</sup>
- Lexmark Forms Printer 2580<sup>4</sup>, 2581<sup>4</sup>, 2590<sup>4</sup>, 2591<sup>4</sup>
- Lexmark M1140, M1145, M3150
- Lexmark M1242<sup>2</sup>, M1246<sup>2</sup>, M3250<sup>2</sup>, M5255<sup>2</sup>, M5265<sup>2</sup>, M5270<sup>2</sup>
- Lexmark M5155, M5163, M5170
- Lexmark M5255<sup>2</sup>, M5265<sup>2</sup>, M5270<sup>2</sup>
- Lexmark MB2338<sup>2</sup>, MB2442<sup>2</sup>, MB2546<sup>2</sup>, MB2650<sup>2</sup>, MB2770<sup>2</sup>
- Lexmark MC2325<sup>2</sup>, MC2425<sup>2</sup>, MC2535<sup>2</sup>, MC2640<sup>2</sup>
- Lexmark MS310, MS312, MS315, MS410, MS415, MS510, MS610
- Lexmark MS317, MS417, MS517
- Lexmark MS321<sup>2</sup>, MS421<sup>2</sup>, MS521<sup>2</sup>, MS621<sup>2</sup>, MS622<sup>2</sup>
- Lexmark MS617, MS817, MS818
- Lexmark MS710, MS711, MS810, MS811, MS812
- Lexmark MS725<sup>2</sup>, MS821<sup>2</sup>, MS822<sup>2</sup>, MS823<sup>2</sup>, MS824<sup>2</sup>, MS825<sup>2</sup>, MS826<sup>2</sup>
- Lexmark MS911
- Lexmark MX310, MX410, MX510, MX511, MX610, MX611
- Lexmark MX317, MX417, MX517
- Lexmark MX321<sup>2</sup>, MX421<sup>2</sup>, MX521<sup>2</sup>, MX522<sup>2</sup>, MX622<sup>2</sup>
- Lexmark MX617, MX717, MX718
- Lexmark MX6500
- Lexmark MX710, MX711, MX810, MX811, MX812
- Lexmark MX721<sup>2</sup>, MX722<sup>2</sup>, MX725<sup>2</sup>, MX822<sup>2</sup>, MX824<sup>2</sup>, MX826<sup>2</sup>
- Lexmark MX910, MX911, MX912
- Lexmark T640<sup>1</sup>, T642<sup>1</sup>, T644<sup>1</sup>, T650<sup>1</sup>, T652<sup>1</sup>, T654<sup>1</sup>, T656<sup>1</sup>
- Lexmark W840<sup>1</sup>, W850<sup>1</sup>
- Lexmark X264<sup>3</sup>, X363<sup>3</sup>, X364<sup>3</sup>, X463<sup>1</sup>, X464<sup>1</sup>, X466<sup>1</sup>
- Lexmark X543<sup>3</sup>, X544<sup>3</sup>, X546<sup>3</sup>, X548
- Lexmark X642<sup>1</sup>, X644<sup>1</sup>, X646<sup>1</sup>, X651<sup>1</sup>, X652<sup>1</sup>, X654<sup>1</sup>, X656<sup>1</sup>, X658<sup>1</sup>
- Lexmark X734<sup>1</sup>, X736<sup>1</sup>, X738<sup>1</sup>, X746, X748, X792
- Lexmark X850<sup>1</sup>, X852<sup>1</sup>, X854<sup>1</sup>, X860<sup>1</sup>, X862<sup>1</sup>, X864<sup>1</sup>
- Lexmark X925, X940<sup>1</sup>, X945<sup>1</sup>, X950, X952, X954
- Lexmark XC2130, XC2132
- Lexmark XC2235<sup>2</sup>, XC2240<sup>2</sup>, XC4240<sup>2</sup>
- Lexmark XC4140<sup>2</sup>, XC4150<sup>2</sup>, XC6152<sup>2</sup>, XC8155<sup>2</sup>, XC8160<sup>2</sup>
- Lexmark XC9225<sup>2</sup>, XC9235<sup>2</sup>, XC9245<sup>2</sup>, XC9255<sup>2</sup>, XC9265<sup>2</sup>
- Lexmark XM1135, XM1140, XM1145, XM3150

- Lexmark XM1242<sup>2</sup>, XM1246<sup>2</sup>, XM3250<sup>2</sup>
- Lexmark XM5163, XM5170, XM5263, XM5270
- Lexmark XM5365<sup>2</sup>, XM5370<sup>2</sup>
- Lexmark XM7155, XM7163, XM7170, XM7263, XM7270
- Lexmark XM7355<sup>2</sup>, MX7365<sup>2</sup>, MX7370<sup>2</sup>
- Lexmark XM9145, XM9155, XM9165
- Pantum CM7105DN
- Pantum CM7000
- Pantum CP2300DN
- Pantum CP2500
- Pantum CP2500DN Plus
- Pantum M7600
- Pantum M7650DN
- Pantum P4000
- Pantum P4200DN
- Pantum P5000
- Pantum P5500DN
- Source Technologies ST9530<sup>1</sup>
- Source Technologies ST9620<sup>1</sup>, ST9630<sup>1</sup>
- Source Technologies ST9712, ST9715, ST9717, ST9720, ST9722, ST9730
- Toshiba e-Studio 305CP
- Toshiba e-Studio 388CP<sup>2</sup>
- Toshiba e-Studio 305CS, 306CS
- Toshiba e-Studio 338CS<sup>2</sup>, 388CS<sup>2</sup>, 389CS<sup>2</sup>, 479CS<sup>2</sup>
- Toshiba e-Studio 385P, 470P
- Toshiba e-Studio 385S, 425S
- Toshiba e-Studio 408P<sup>2</sup>, 478P<sup>2</sup>
- Toshiba e-Studio 408S<sup>2</sup>, 448S<sup>2</sup>, 478S<sup>2</sup>
- Toshiba e-Studio 520P, 525P
- Toshiba e-Studio 528P<sup>2</sup>

<sup>1</sup> A printer certificate update is required. In this release, the Java platform security and performance update removes support for some certificate-signing algorithms, such as MD5 and SHA1. This change prevents MVE from working with some printers. For more information, see the [help information documentation](#).

<sup>2</sup> SNMPv3 support is required.

<sup>3</sup> If an advanced security password is set on the printer, then MVE cannot support the printer.

<sup>4</sup> MVE cannot communicate with Lexmark Forms Printer 2580, 2581, 2590, and 2591 models that are in the Not Ready state. The communication works only when MVE has previously communicated with the printer in the Ready state. The printer can be in the Not Ready state when there are errors or warnings, such as empty supplies. To change the state, resolve the error or warning, and then press **Ready**.

## Setting up the database

You can use either Firebird or Microsoft SQL Server as the back-end database. The following table can help you decide on what database to use.

	Firebird	Microsoft SQL Server
<b>Server installation</b>	Must be installed on the same server as MVE.	Can be run from any server.
<b>Communication</b>	Locked down to only localhost.	Communicates over a static port or a dynamic named instance.
<b>Performance</b>	Shows performance issues with large fleets.	Shows the best performance for large fleets.
<b>Database size</b>	Default database sizes are 6MB for FRAMEWORK, and 1MB for MONITOR and QUARTZ. The FRAMEWORK table grows at 1KB for each printer record that is added.	Default database sizes are 20MB for FRAMEWORK, and 4.5MB for MONITOR and QUARTZ. The FRAMEWORK table grows at 1KB for each printer record that is added.
<b>Configuration</b>	Configured automatically during installation.	Requires preinstallation setup.

If you are using Firebird, then the MVE installer installs and configures Firebird with no other configuration required.

If you are using Microsoft SQL Server, then before installing MVE, do the following:

- Allow the application to run automatically.
- Set the network libraries to use TCP/IP sockets.
- Create the following databases:
  - FRAMEWORK
  - MONITOR
  - QUARTZ
- If you are using a named instance, then set the Microsoft SQL Server Browser service to start automatically. Otherwise, set a static port on the TCP/IP sockets.
- Create a user account with dbowner rights to all three databases that MVE uses to connect to and set up the database. If the user is a Microsoft SQL Server account, then make sure to enable the Microsoft SQL Server and the Windows Authentication mode on the Microsoft SQL Server.

**Note:** Uninstalling MVE that is configured to use Microsoft SQL Server does not drop the created tables or databases. After uninstalling, the FRAMEWORK, MONITOR, and QUARTZ databases must be dropped manually.

## Setting up a run-as user

During installation, you can specify MVE to execute either as a local system account or as a domain user account. Executing MVE as a run-as domain user account provides a more secure installation. The domain user account has limited privileges compared to a local system account.

	Run-as domain user account	Run-as local system
<b>Local system permissions</b>	<ul style="list-style-type: none"> <li>• File write access to the following:               <ul style="list-style-type: none"> <li>– \$MVE_INSTALL/tomcat/logs</li> <li>– \$MVE_INSTALL/tomcat/temp</li> <li>– \$MVE_INSTALL/tomcat/work</li> <li>– \$MVE_INSTALL/apps/library</li> <li>– \$MVE_INSTALL/apps/dm-mve/picture</li> <li>– \$MVE_INSTALL/./mve_truststore*</li> <li>– \$MVE_INSTALL/jre/lib/security/cacerts</li> <li>– \$MVE_INSTALL/apps/dm-mve/WEB-INF/ldap</li> <li>– \$MVE_INSTALL/apps/dm-mve/download</li> </ul>               Where \$MVE_INSTALL is the installation directory.             </li> <li>• Windows privilege: LOGON_AS_A_SERVICE</li> </ul>	Administrator permissions
<b>Database connection authentication</b>	<ul style="list-style-type: none"> <li>• Windows Authentication with Microsoft SQL Server</li> <li>• SQL Authentication</li> </ul>	SQL Authentication
<b>Configuration</b>	A domain user must be configured before installation.	Configured automatically during installation

If you set up MVE as a run-as domain user account, then make sure to create the user on the same domain as the MVE server.

## Installing MVE

- 1 Download the executable file into a path that does not contain any spaces.
- 2 Run the file as an administrator, and then follow the instructions on the computer screen.

### Notes:

- Passwords are hashed and stored securely. Make sure that you remember your passwords, or store them in a secure location because passwords cannot be decrypted once stored.
- If you are connecting to the Microsoft SQL Server using Windows Authentication, then no connection verification occurs during installation. Make sure that the user designated to execute the MVE windows service has a corresponding account in the Microsoft SQL Server instance. The designated user must have dbowner rights to the FRAMEWORK, MONITOR, and QUARTZ databases.

## Accessing MVE

To access MVE, use the login credentials that you created during installation. You can also set up other login methods, such as LDAP, Kerberos, or other local accounts. For more information, see [“Setting up user access” on page 19](#).

- 1 Open a web browser, and then type **https://MVE\_SERVER/mve/**, where **MVE\_SERVER** is the host name or IP address of the server hosting MVE.
- 2 If necessary, accept the disclaimer.

- 3 Enter your credentials.
- 4 Click **Log In**.

**Notes:**

- After logging in, make sure that you change the default administrator password that was used during installation. For more information, see [“Changing your password” on page 15](#).
- If MVE is idle for more than 30 minutes, then the user is logged out automatically.

## Changing the language

- 1 Open a web browser, and then type **https://MVE\_SERVER/mve/**, where **MVE\_SERVER** is the host name or IP address of the server hosting MVE.
- 2 If necessary, accept the disclaimer.
- 3 On the upper-right corner of the page, select a language.

## Changing your password

- 1 Open a web browser, and then type **https://MVE\_SERVER/mve/**, where **MVE\_SERVER** is the host name or IP address of the server hosting MVE.
- 2 If necessary, accept the disclaimer.
- 3 Enter your credentials.
- 4 Click **Log In**.
- 5 On the upper-right corner of the page, click your user name, and then click **Change password**.
- 6 Change the password.

# Maintaining the application

## Upgrading to MVE 3.3

If you are upgrading from version 1.x to version 3.3, then you must first upgrade to version 2.0 before upgrading to the later versions. The policy migration process is performed only when upgrading to MVE 2.0.

Valid upgrade path	<b>1.6.x to 2.0 to 3.2</b> <b>2.0 to 3.3</b>
Invalid upgrade path	<b>1.6.x to 3.3</b>

### 1 Back up your database.

If the upgrade fails, then you can use this backup to revert the application to its previous state.

**Warning—Potential Damage:** When you upgrade MVE, the database is changed. Do not restore a database backup that was created from a previous version.

**Note:** For more information, see [“Backing up and restoring the database” on page 16](#).

### 2 Download the executable file into a temporary location.

### 3 Run the file, and then follow the instructions on the computer screen.

#### Notes:

- When you upgrade to MVE 2.0, policies that are assigned to printers are migrated into a single configuration for each printer model. For example, if fax, copy, paper, and print policies are assigned to an X792 printer, then those policies are consolidated into an X792 configuration. This process does not apply to policies that are not assigned to printers. MVE generates a log file confirming that the policies are migrated to a configuration successfully. For more information, see [“Where can I find the log files?” on page 59](#).
- After upgrading, make sure to clear the browser cache before accessing the application again.

## Backing up and restoring the database

### Backing up the database

We recommended that you back up your database regularly.

#### 1 Stop the Firebird service and the Markvision Enterprise service.

- Open the Run dialog box, and then type **services.msc**.
- Right-click **Firebird Guardian - DefaultInstance**, and then click **Stop**.
- Right-click **Markvision Enterprise**, and then click **Stop**.

#### 2 Browse to the folder where Markvision Enterprise is installed.

For example, **C:\Program Files\**

#### 3 Copy the following files to a safe repository:

- Lexmark\mve\_encryption.jceks
- Lexmark\mve\_truststore.p12



- Lexmark\Markvision Enterprise\apps\dm-mve\WEB-INF\classes\database.properties
- Lexmark\Markvision Enterprise\apps\dm-mve\WEB-INF\classes\encryption.properties
- Lexmark\Markvision Enterprise\apps\dm-mve\WEB-INF\classes\platform.properties
- Lexmark\Markvision Enterprise\apps\library
- Lexmark\Markvision Enterprise\apps\mve-data-service\WEB-INF\classes\database.properties
- Lexmark\Markvision Enterprise\apps\mve-data-service\WEB-INF\classes\encryption.properties
- Lexmark\Markvision Enterprise\apps\mve-data-service\WEB-INF\classes\userInit.properties
- Lexmark\Markvision Enterprise\tomcat\server.xml

**4** Do either of the following:

- If you are using a Firebird database, then copy the Lexmark\Markvision Enterprise\firebird\data\QUARTZ.FDB, Lexmark\Markvision Enterprise\firebird\data\MONITOR.FDB, and Lexmark\Markvision Enterprise\firebird\data\FRAMEWORK.FDB files to a safe repository. These files must be backed up regularly to avoid data loss.
- If you are using Microsoft SQL Server, then contact your Microsoft SQL Server administrator.

**5** Restart the Firebird service and the Markvision Enterprise service.

- a Open the Run dialog box, and then type **services.msc**.
- b Right-click **Firebird Guardian - DefaultInstance**, and then click **Restart**.
- c Right-click **Markvision Enterprise**, and then click **Restart**.

## Restoring the database

**Warning—Potential Damage:** When you upgrade MVE, the database may be changed. Do not restore a database backup that was created from a previous version.

**1** Stop the Markvision Enterprise service.

For more information, see [step 1 of “Backing up the database” on page 16](#).

**2** Browse to the folder where Markvision Enterprise is installed.

For example, **C:\Program Files\**

**3** Replace the following files with the files that you saved during the backup process:

- Lexmark\mve\_encryption.jceks
- Lexmark\mve\_truststore.p12
- Lexmark\Markvision Enterprise\apps\dm-mve\WEB-INF\classes\database.properties
- Lexmark\Markvision Enterprise\apps\dm-mve\WEB-INF\classes\encryption.properties
- Lexmark\Markvision Enterprise\apps\dm-mve\WEB-INF\classes\platform.properties
- Lexmark\Markvision Enterprise\apps\library
- Lexmark\Markvision Enterprise\apps\mve-data-service\WEB-INF\classes\database.properties
- Lexmark\Markvision Enterprise\apps\mve-data-service\WEB-INF\classes\encryption.properties
- Lexmark\Markvision Enterprise\apps\mve-data-service\WEB-INF\classes\userInit.properties
- Lexmark\Markvision Enterprise\tomcat\server.xml

**Note:** You can restore a database backup to a new MVE installation only if the new MVE installation is the same version.

**4** Do either of the following:

- If you are using a Firebird database, then replace the Lexmark\Markvision Enterprise\firebird\data\QUARTZ.FDB, Lexmark\Markvision Enterprise\firebird\data\MONITOR.FDB, and Lexmark\Markvision Enterprise\firebird\data\FRAMEWORK.FDB files that you saved during the backup process.
- If you are using Microsoft SQL Server, then contact your Microsoft SQL Server administrator.

**5** Restart the Markvision Enterprise service.

For more information, see [step 5](#) of “[Backing up the database](#)” on page 16.

## Updating the installer settings after installation

The Markvision Enterprise Password Utility lets you update the Microsoft SQL Server settings that have been configured during installation without reinstalling MVE. The utility also lets you update the run-as user domain account credentials, such as user name and password.

**1** Browse to the folder where Markvision Enterprise is installed.

For example, **C:\Program Files\**

**2** Launch the **mvepwdutility-windows.exe** file in the Lexmark\Markvision Enterprise\ directory.**3** Select a language, and then click **OK > Next**.**4** Follow the instructions on the computer screen.

# Setting up user access

MVE lets you add internal users directly to the MVE server or use the user accounts registered in an LDAP server. For more information on adding internal users, see [“Managing users” on page 20](#). For more information on using LDAP user accounts, see [“Enabling LDAP server authentication” on page 20](#).

When adding users, roles must be assigned. For more information, see [“Understanding user roles” on page 19](#).

During authentication, the system checks the user credentials of the internal users present in the MVE server. If MVE cannot authenticate the user, then it tries to authenticate the user in the LDAP server. If the user name exists in both the MVE server and the LDAP server, then the password in the MVE server is used.

## Understanding user roles


MVE users can be assigned to one or more roles. Depending on the role, users can perform the following tasks:

- **Admin**—Access and perform tasks in all menus. They also have administrative privileges, such as adding users to the system or configuring the system settings. Only users with an Admin role can stop any running task no matter what user type started it.
- **Printers**
  - Manage discovery profiles.
  - Set the printer states.
  - Perform an audit.
  - Manage categories and keywords.
  - Schedule an audit, data export, and printer discovery.
- **Configurations**
  - Manage configurations, including importing and exporting configuration files.
  - Upload files to the resource library.
  - Assign and enforce configurations to printers.
  - Schedule a conformance check and configurations enforcement.
  - Deploy files to printers.
  - Update the printer firmware.
  - Generate printer certificate signing requests.
  - Download printer certificate signing requests.
- **Event Manager**
  - Manage actions and events.
  - Assign events to printers.
  - Test actions.
- **Service Desk**
  - Update the printer status.
  - Reboot printers.
  - Run a conformance check.
  - Enforce configurations to printers.

**Notes:**

- All users in MVE can view the printer information page, and manage saved searches and views.
- For more information on assigning user roles, see [“Managing users” on page 20](#).

## Managing users

- 1 Click  on the upper-right corner of the page.
- 2 Click **User**, and then do any of the following:

### Add a user

- a Click **Create**.
- b Type the user name, user ID, and password.
- c Select the roles.

**Note:** For more information, see [“Understanding user roles” on page 19](#).

- d Click **Create User**.

### Edit a user

- a Select a user ID.
- b Configure the settings.
- c Click **Save Changes**.

### Delete users

- a Select one or more users.
- b Click **Delete**, and then confirm deletion.


**Note:** A user account is locked out after three consecutive failed login attempts. Only an Admin user can reactivate the user account. If the Admin user is locked out, then the system reactivates it automatically after five minutes.

## Enabling LDAP server authentication

LDAP is a standards-based, cross-platform, extensible protocol that runs directly on top of TCP/IP. It is used to access specialized databases called directories.

To avoid maintaining multiple user credentials, you can use the company LDAP server to authenticate user IDs and passwords.

As a prerequisite, the LDAP server must contain user groups that correspond to the required user roles. For more information, see [“Understanding user roles” on page 19](#).

- 1 Click  on the upper-right corner of the page.
- 2 Click **LDAP**, and then select **Enable LDAP for authentication**.

**3** From the Authentication Information section, configure the settings.

- **LDAP server hostname**—The IP address or the host name of the LDAP server where the authentication occurs. If you want to use encrypted communication between the MVE server and the LDAP server, then use the fully qualified domain name (FQDN).
- **Server port**—The port number that the local computer uses to communicate with the LDAP community server. MVE uses the port number to determine what type of encryption to use. The default port number is 389. If the default port number is used, then MVE begins its connection unencrypted. Otherwise, MVE begins its connection using SSL encryption.
- **Root distinguished name**—The base distinguished name (DN) of the root node. In the LDAP community server hierarchy, this node must be the ancestor of the user node and group node. For example, **dc=mvptest, dc=com**.

**Note:** When specifying the root DN, make sure that only **dc** and **o** are part of the root DN. If **ou** or **cn** is the ancestor of the user and group nodes, then use **ou** or **cn** in the user and group search bases.

- **User search base**—The node in the LDAP community server where the user object exists. This node is under the root DN where all the user nodes are listed. For example, **ou=people**.
- **User search filter**—The parameter for locating a user object in the LDAP community server. For example, **(uid={0})**.

**Examples of allowed multiple conditions and complex expressions**

Log in using	In the “User search filter” field, type
Common name	<b>(CN={0})</b>
Login name	<b>(sAMAccountName={0})</b>
User principal name	<b>(userPrincipalName={0})</b>
Telephone number	<b>(telephoneNumber={0})</b>
Login name or common name	<b>(   (sAMAccountName={0}) (CN={0}) )</b>

**Note:** The only valid pattern is **{0}**, which means that MVE searches for the MVE user login name.

- **Allow nested user search**—The system searches all the nodes under the user search base.
- **Group search base**—The node in the LDAP community server where the user groups that correspond to the MVE roles exist. This node is under the root DN where all the group nodes are listed. For example, **ou=group**.
- **Group search filter**—The parameter for locating a user within a group that corresponds to a role in MVE.

**Note:** Only the **{0}** and **{1}** patterns can be used. If **{0}** is used, then MVE searches for the LDAP user DN. If **{1}** is used, then MVE searches for the MVE user login name.

- **Group role attribute**—The attribute that contains the full name of the group. For example, **cn**.
- **Allow nested group search**—The system searches all the nodes under the group search base.

**4** From the Binding Information section, select a binding type.

- **Anonymous**—This option is selected by default. The MVE server does not produce its identity or credentials to the LDAP server to use the LDAP server lookup facility. The follow-up LDAP lookup session uses only unencrypted communication.
- **Simple**—The MVE server produces the specified credentials to the LDAP server to use the LDAP server lookup facility. If the server port is set to 389, then the communication with the LDAP server is unencrypted. If the port is set to any other value, then the communication is encrypted.
  - a** In the “Bind distinguished name” field, type the bind DN.
  - b** Type the bind password, and then confirm the password.
- **TLS**—The system uses Start TLS encrypted communication between the MVE server and the LDAP server. The MVE server fully authenticates itself to the LDAP server using the MVE server identity (bind DN) and credentials (bind password). TLS works only when using port 389.
  - a** In the “Bind distinguished name” field, type the bind DN.
  - b** Type the bind password, and then confirm the password.
- **Kerberos**—To configure the settings, do the following:
  - a** Click **Choose File**, and then browse to the krb5.conf file.
  - b** In the “Encryption method” menu, select whether to use SSL encryption.
  - c** Select the authentication type.

If the authentication type is set to **KDC name/password**, then configure the settings.

- 1** Type the Key Distribution Center (KDC) name.
- 2** Type the KDC password, and then confirm the password.

**Note:** If you want clients to log in using Windows Authentication, then use Kerberos authentication. A service principal name (SPN) and a keytab file must be created on the LDAP server. After the authentication method is set up, clients not on the localhost are authorized to use MVE based on their client account. To change the LDAP settings without a valid client account, access MVE from the localhost using a local administrator account. When using Kerberos authentication, the Test LDAP feature does not validate if the SPN or keytab files are properly set up, and the authentication may fail.

**Note:** For Simple, TLS, and Kerberos binding, MVE must trust the LDAP server certificate. For more information, see [“Installing LDAP server certificates” on page 23](#).


**5** From the “LDAP Groups to MVE Role Mapping” section, enter the names of the LDAP groups that correspond to the MVE roles.**Notes:**

- For more information, see [“Understanding user roles” on page 19](#).
- You can assign one LDAP group to multiple MVE roles, and you can also type more than one LDAP group in a role field.
- When typing multiple LDAP groups in the role fields, use the vertical bar character (|) to separate multiple LDAP groups. For example, if you want to include the **admin** and the **assets** groups for the Admin role, then type **admin|assets** in the “LDAP groups for Admin role” field.
- If you want to use only the Admin role and not the other MVE roles, then leave the fields blank.

**6** Click **Save Changes**.

## Installing LDAP server certificates

To establish an encrypted communication between the MVE server and the LDAP server, MVE must trust the LDAP server certificate. In the MVE architecture, when MVE is authenticating with an LDAP server, MVE is the client and the LDAP server is the peer.

- 1 Click  on the upper-right corner of the page.
- 2 Click **LDAP**, and then configure the LDAP settings. For more information, see [“Enabling LDAP server authentication” on page 20](#).
- 3 Click **Test LDAP**.
- 4 Enter a valid LDAP user name and password, and then click **Start Test**.
- 5 Examine the certificate for validity, and then accept it.

# Discovering printers

## Creating a discovery profile

Use a discovery profile to find printers in your network and add them to the system. In a discovery profile, you can include or exclude a list or range of IP addresses or host names by doing either of the following:

- Adding entries one at a time
- Importing entries using a text file

You can also assign and enforce a configuration automatically to a compatible printer model. A configuration may contain printer settings, applications, licenses, firmware, and CA certificates that can be deployed to the printers.

- 1 From the Printers menu, click **Discovery Profiles > Create**.
- 2 From the General section, type a unique name and description for the discovery profile, and then configure the following:
  - **Timeout**—The duration the system waits for a printer to respond.
  - **Retries**—The number of times the system attempts to communicate with a printer.
  - **Automatically manage discovered printers**—Newly discovered printers are set to a Managed state automatically, and the New state is skipped during discovery.
- 3 From the Addresses section, do either of the following:

### Add the addresses

a Select **Include** or **Exclude**.

b Type the IP address, host name, subnet, or IP address range.

Add only one entry at a time. Use the following formats for the addresses:

- **10.195.10.1** (single IPv4 address)
- **myprinter.example.com** (single host name)
- **10.195.10.3-10.195.10.255** (IPv4 address range)
- **10.195.\*.\*** (wildcards)
- **10.195.10.1/22** (IPv4 Classless Inter-Domain Routing or CIDR notation)
- **2001:db8:0:0:0:0:2:1** (full IPv6 address)
- **2001:db8::2:1** (collapsed IPv6 address)

**Note:** If separate discovery profiles are created for the IPv6 address and the IPv4 address for the same printer, then the last discovered address is shown. For example, if a printer is discovered using IPv6, and is discovered again using IPv4, then only the IPv4 address is shown in the printer list.

c Click **Add**.

### Import the addresses

a Click **Import**.

b Select whether to include or exclude IP addresses during the discovery.



- c Browse to the text file that contains a list of addresses. Each address entry must be placed on a separate line.

Sample text file

```
10.195.10.1
myprinter.example.com
10.195.10.3-10.195.10.255
10.195.*.*
10.195.10.1/22
2001:db8:0:0:0:0:2:1
2001:db8::2:1
```

- d Click **Import**.

- 4 From the SNMP section, select **Version 1, 2c** or **Version 3**, and then set the access permissions.

**Note:** To discover printers using SNMP version 3, create a user name and password in the printer Embedded Web Server, and then restart the printer. For more information, see the *Embedded Web Server—Security Administrator's Guide* for the printer.

- 5 If necessary, from the Assign Configurations section, associate a configuration to a printer model. For information on creating a configuration, see [“Creating a configuration” on page 43](#).

- 6 Click **Save Profile** or **Save and Run Profile**.

**Note:** A discovery can be scheduled to occur regularly. For more information, see [“Creating a schedule” on page 55](#).

## Managing discovery profiles

- 1 From the Printers menu, click **Discovery Profiles**.
- 2 Do any of the following:

### Edit a profile

- a Select a profile, and then click **Edit**.
- b Configure the settings.
- c Click **Save Profile** or **Save and Run Profile**.

### Copy a profile

- a Select a profile, and then click **Copy**.
- b Configure the settings.
- c Add the IP addresses. For more information, see [“Add the addresses” on page 24](#).
- d Click **Save Profile** or **Save and Run Profile**.

### Delete a profile

- a Select one or more profiles.
- b Click **Delete**, and then confirm deletion.

### Run a profile

- a Select one or more profiles.
- b Click **Run**. Check the discovery status from the Tasks menu.

# Viewing printers

## Viewing the printer list

The Printer Listing page is the default landing page when you access MVE. The table shows the list of the printers that are added in MVE.

**1** From the Printers menu, click **Printer Listing**.

**2** From the Printer Listing page, do any of the following:

- To search for specific printers, do any of the following:
  - Use the search box to search for an IP address, host name, system name, or serial number.
  - Use the filters.
  - Run a saved search. For more information, see [“Running a saved search” on page 29](#).
  - Change the printer listing view. For more information, see [“Changing the printer listing view” on page 29](#).

**Note:** If you are using the search box, then the application searches all the printers in the system. The selected filters and saved searches are ignored. If you run a saved search, then the criteria specified in the saved search are used. The selected filters and the IP address or host name typed in the search box are ignored. You can also use the filters to narrow down the current search results.

- To sort the printers, from the printer list table, click any column header. The printers are sorted according to the selected column header.
- To view more information about the printers, resize the columns. Place your cursor over the vertical border of the column header, and then drag the border to the left or to the right.

## Viewing the printer information

To see the complete list of information, make sure that an audit is performed on the printer. For more information, see [“Auditing printers” on page 34](#).

**1** From the Printers menu, click **Printer Listing**.

**2** Click the IP address of the printer.

**3** View the following information:

- **Status**—The status of the printer.
- **Supplies**—The supply details and remaining supply percentage.
- **Identification**—The printer network identification information.
- **Dates**—The date the printer is added to the system, the discovery date, and the most recent audit date.
- **Firmware**—The printer firmware properties and code levels.
- **Capabilities**—The printer features.
- **Memory Options**—The hard disk size and user flash free space.
- **Input Options**—The settings for the available trays.
- **Output Options**—The settings for the available bins.

- **eSF Applications**—The information about the installed Embedded Solutions Framework (eSF) applications on the printer.
- **Printer Statistics**—The specific values for each of the printer properties.
- **Change Details**—The information about the changes in the printer.

**Note:** This information is available only in printers that are in a Managed (Changed) state. For more information, see [“Understanding printer life cycle states” on page 35](#).

- **Printer Credentials**—The credentials used in the configuration assigned to the printer.
- **Configuration Properties**—The properties of the configuration assigned to the printer.
- **Active Alerts**—The printer alerts that are waiting to be cleared.
- **Assigned Events**—The events assigned to the printer.

## Exporting printer data

MVE lets you export the printer information that is available in your current view.

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Printer > Export data**.

### Notes:

- The exported data is saved in a CSV file.
- Exporting data can be scheduled to occur regularly. For more information, see [“Creating a schedule” on page 55](#).

## Managing views

The Views feature lets you customize the information that is shown in the printer listing page.

- 1 From the Printers menu, click **Views**.
- 2 Do any of the following:

### Create a view

- a Click **Create**.
- b Type a unique name for the view and its description.
- c From the View Columns section, in the Column 1 menu, select the identifier column.
- d From the “Possible columns” section, expand a category, select the information that you want to show as a column, and then click >.
  - **Capabilities**—Shows whether the selected features are supported on the printer.
  - **Configuration Information**—Shows configuration-related printer information, such as conformance, configuration name, and state.
  - **Dates**—Shows the last audit, last conformance check, last discovery, and added to system date.
  - **Events**—Shows event-related printer information.
  - **Firmware**—Shows firmware-related information, such as the firmware version.

- **Identification**—Shows information about the printer, such as the IP address, host name, and serial number.
- **Input Options**—Shows information about the input options, such as the tray size and media type.
- **Options**—Shows information about the printer options, such as hard disk and flash drive.
- **Printer Statistics**—Shows information about the printer usage, such as the number of printed or scanned pages, and total number of faxed jobs.
- **Solutions**—Shows the eSF applications installed on the printer, and their version numbers.
- **Status**—Show the printer and supplies status.
- **Supplies**—Shows supplies-related information.

e Click **Create View**.

### **Edit a view**

- a Select a view.
- b Click **Edit**, and then edit the settings.
- c Click **Save Changes**.

**Note:** You cannot edit system-generated views.

### **Copy a view**

- a Select a view.
- b Click **Copy**, and then configure the settings.
- c Click **Create View**.

### **Delete views**

- a Select one or more views.
- b Click **Delete**, and then confirm deletion.

**Note:** You cannot delete system-generated views.

### **Set a default view**

- a Select a view.
- b Click **Set As Default**.

The following views are system-generated, and cannot be edited or deleted:

- Configuration
- Printer List
- Event
- Security
- Service Desk
- Standard

## Changing the printer listing view

For more information, see [“Managing views” on page 27](#).

- 1 From the Printers menu, click **Printer Listing**.
- 2 Click **Views**, and then select a view.

## Filtering printers using the search bar

Note the following when using the search bar to search for printers.

- To search for an IP address, make sure to type the complete IP address or range.

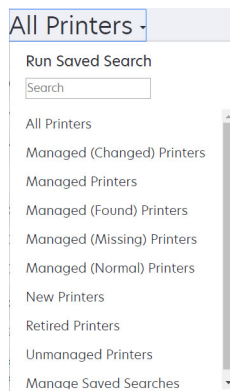
For example:

- 10.195.10.1
- 10.195.10.3–10.195.10.255
- 10.195.\*.\*
- 2001:db8:0:0:0:0:2:1

- If the search string is not a full IP address, then the printers are searched according to their host name, system name, or serial number.
- The underscore character ( \_ ) can be used as a wildcard character.

## Running a saved search

- 1 From the Printers menu, click **Printer Listing**.
- 2 In the drop-down menu, select a saved search.



## Creating a saved search

### Using filters

- 1 From the Printers menu, click **Printer Listing**.
- 2 On the left side of the page, select the filters.

**Note:** The selected filters are listed above the search results header.

**3** Click **Save**, and then type a unique name for your saved search and its description.

**4** Click **Create Saved Search**.

## Using the Saved Search page

**1** From the Printers menu, click **Saved Searches > Create**.

**2** From the General section, type a unique name for your saved search and its description.

**3** From the “Rules and Rule Groups” section, in the Match menu, specify whether the search results must match all or any of the rules.

**4** Do either of the following:

### Add a rule

**a** Click **Add Rule**.

**b** Specify the parameter, operation, and value for your search rule. For more information, see [“Understanding search rules settings” on page 30](#).

### Add a rule group

A rule group may contain a combination of rules. If the Match menu is set to **ANY rules and rule groups**, then the system searches for printers that match all the rules in the rule group. If the Match menu is set to **ALL rules and rule groups**, then the system searches for printers that match any of the rules in the rule group.

**a** Click **Add Rule Group**.

**b** Specify the parameter, operation, and value for your search rule. For more information, see [“Understanding search rules settings” on page 30](#).

**c** To add another rule, click **Add Rule**.

**5** Click **Create Saved Search** or **Create and Run Saved Search**.

## Understanding search rules settings

Search for printers using one or more of the following parameters:

Parameter	Description
<b>Asset Tag</b>	The value of the asset tag setting on the printer.
<b>Color Capability</b>	The printer prints in color or black and white.
<b>Configuration</b>	The configuration name assigned to the printer.
<b>Contact Location</b>	The value of the contact location setting on the printer.
<b>Contact Name</b>	The value of the contact name setting on the printer.
<b>Copy</b>	The printer supports the copy function.
<b>Disk Encryption</b>	The printer is configured for disk encryption.
<b>Disk Wiping</b>	The printer is configured for disk wiping.
<b>Duplex</b>	The printer supports two-sided printing.

Parameter	Description
<b>eSF Capability</b>	The printer supports managing eSF applications.
<b>eSF Information</b>	The information about the eSF application installed on the printer, such as name, state, and version.
<b>Event Name</b>	The name of the assigned events.
<b>Fax Name</b>	The value of the fax name setting on the printer.
<b>Fax Number</b>	The value of the fax number setting on the printer.
<b>Fax Receive</b>	The printer supports receiving fax.
<b>Firmware Information</b>	The information about the firmware installed on the printer, such as the base version, engine version, and kernel version.
<b>Firmware Version</b>	The printer firmware version.
<b>Hostname</b>	The printer host name.
<b>IP Address</b>	The printer IP address. <b>Note:</b> You can use an asterisk in the last three octets to search for multiple entries. For example, <b>123.123.123.*</b> , <b>123.123.*.*</b> , <b>123.*.*.*</b> , <b>2001:db8::2:1</b> , and <b>2001:db8:0:0:0:0:2:1</b> .
<b>Keyword</b>	The assigned keywords.
<b>Lifetime Page Count</b>	The lifetime page count value of the printer.
<b>MAC Address</b>	The printer MAC address.
<b>Maintenance Counter</b>	The value of the printer maintenance counter.
<b>Manufacturer</b>	The printer manufacturer name.
<b>Marking Technology</b>	The marking technology that the printer supports.
<b>MFP Capability</b>	The printer is a multifunction product (MFP).
<b>Model</b>	The printer model name.
<b>Printer Status</b>	The printer status. For example, <b>Ready</b> , <b>Paper Jam</b> , <b>Tray 1 Missing</b> .
<b>Printer Status Severity</b>	The value of the most severe status present on the printer. For example, <b>Unknown</b> , <b>Ready</b> , <b>Warning</b> , or <b>Error</b> .
<b>Profile</b>	The printer supports profiles.
<b>Scan to E-mail</b>	The printer supports Scan to E-mail.
<b>Scan to Fax</b>	The printer supports Scan to Fax.
<b>Scan to Network</b>	The printer supports Scan to Network.
<b>Secure Communication State</b>	The printer security or authentication state.
<b>Serial Number</b>	The printer serial number.
<b>State</b>	The current printer state in the database.
<b>Supply Status</b>	The printer supplies status.
<b>Supply Status Severity</b>	The value of the most severe supply status present on the printer. For example, <b>Unknown</b> , <b>OK</b> , <b>Warning</b> , or <b>Error</b> .

Parameter	Description
<b>System Name</b>	The printer system name.
<b>TLI</b>	The value of the TLI setting on the printer.

Use the following operators when searching for printers:

- **Exactly Matches**—A parameter is equivalent to a specified value.
- **Is Not**—A parameter is not equivalent to a specified value.
- **Contains**—A parameter contains a specified value.
- **Does Not Contain**—A parameter does not contain a specified value.
- **Begins With**—A parameter begins with a specified value.
- **Ends With**—A parameter ends with a specified value.

**Note:** To search for printers whose parameters have empty values, use `_EMPTY_OR_NULL_`. For example, to search for printers that have empty Fax Name, in the Value field, type `_EMPTY_OR_NULL_`.

## Managing saved searches

- 1 From the Printers menu, click **Saved Searches**.
- 2 Do any of the following:

### Edit a saved search

- a Select a saved search, and then click **Edit**.

**Note:** System-generated saved searches cannot be edited. For more information, see [“Understanding printer life cycle states” on page 35](#).

- b Configure the settings.
- c Click **Save Changes** or **Save and Run**.

### Copy a saved search

- a Select a saved search, and then click **Copy**.
- b Configure the settings.
- c Click **Create Saved Search** or **Create and Run Saved Search**.

### Delete saved searches

- a Select one or more saved searches.

**Note:** System-generated saved searches cannot be deleted. For more information, see [“Understanding printer life cycle states” on page 35](#).

- b Click **Delete**, and then confirm deletion.



## Managing keywords

Keywords let you create custom tags and assign them to printers.

**1** From the Printers menu, click **Manage Keywords**.

**2** Do either of the following:

- Add, edit, or delete a category.

**Note:** Categories group keywords together.

- Add, edit, or delete a keyword.

For information on assigning keywords to printers, see [“Assigning keywords to printers” on page 40](#).

# Managing printers

## Restarting the printer

- 1 From the Printers menu, click **Printer Listing**.
- 2 Click the IP address of the printer.
- 3 Click **Restart Printer**.

## Viewing the printer Embedded Web Server

The Embedded Web Server is a software built into the printer that provides a control panel for configuring the printer from any web browser.

- 1 From the Printers menu, click **Printer Listing**.
- 2 Click the IP address of the printer.
- 3 Click **Open Embedded Web Server**.

## Auditing printers

An audit collects information from any printers in the Managed state, and then stores the information in the system. To make sure that the information in the system is current, perform an audit regularly.

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Printer > Audit**.

**Note:** An audit can be scheduled to occur regularly. For more information, see [“Creating a schedule” on page 55](#).

## Updating printer status

The Update Status feature lets you update the printer status and supplies information.

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Printer > Update status**.

**Note:** A status update can be scheduled to occur regularly. For more information, see [“Creating a schedule” on page 55](#).

## Setting the printer state

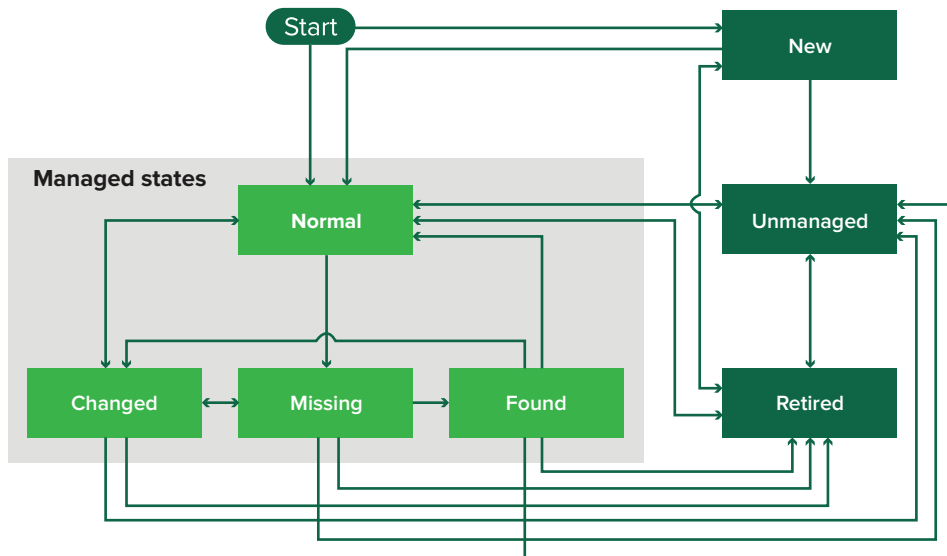
For more information on the printer states, see [“Understanding printer life cycle states” on page 35](#).

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Printer**, and then select one of the following:
  - **Set state to managed**—The printer is included in all activities that can be performed in the system.
  - **Set state to unmanaged**—The printer is excluded in all activities that can be performed in the system.
  - **Set state to retired**—The printer is removed from the network. The system retains the printer information, but does not expect to see the printer on the network again.

## Understanding printer life cycle states

System-generated saved searches show the printers in the following printer life cycle states:

- **All Printers**—All printers in the system.
- **Managed Printers**—Printers that appear can be in any of the following states:
  - Managed (Normal)
  - Managed (Changed)
  - Managed (Missing)
  - Managed (Found)
- **Managed (Changed) Printers**—Printers in the system whose following properties were changed at the last audit:
  - Property tag
  - Host name
  - Contact name
  - Contact location
  - Memory size
  - Duplex
  - Supplies (excluding levels)
  - Input options
  - Output options
  - eSF applications
- **Managed (Found) Printers**—Printers that were reported as missing, but have now been found.
- **Managed (Missing) Printers**—Printers that the system was unable to communicate with.
- **Managed (Normal) Printers**—Printers in the system whose properties have remained the same since the last audit.
- **New Printers**—Printers that are newly discovered and are not set to a Managed state automatically.
- **Retired Printers**—Printers marked as no longer active in the system.
- **Unmanaged Printers**—Printers marked for exclusion from activities performed in the system.



Beginning state	Ending state	Transition
Start	Normal	Discovered. <sup>1</sup>
Start	New	Discovered. <sup>2</sup>
Any	Normal, Unmanaged, or Retired	Manual (Missing does not change to Normal).
Retired	Normal	Discovered. <sup>1</sup>
Retired	New	Discovered. <sup>2</sup>
Normal, Missing, or Found	Changed	New address when discovered.
Normal	Changed	Audit properties do not match the database properties.
Normal, Changed, or Found	Missing	Not found on audit or update status.
Changed	Normal	Audit properties match the database properties.
Missing	Found	Discovered, audit, or update status.
Found	Normal	Discovered, audit, or update status.

<sup>1</sup> The "Automatically manage discovered printers" setting is enabled in the discovery profile.  
<sup>2</sup> The "Automatically manage discovered printers" setting is disabled in the discovery profile.

## Assigning configurations to printers

Before you begin, make sure that a configuration for the printer is created. Assigning a configuration to a printer allows the system to run conformance checks and enforcements. For more information, see ["Creating a configuration" on page 43](#).

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Configure > Assign configurations**.

- 4 From the Configuration section, select a configuration.
- 5 Click **Assign Configurations**.

## Unassigning configurations

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Configure > Unassign configurations**.
- 4 Click **Unassign Configurations**.

## Enforcing configurations

MVE runs a conformance check against the printer. If some settings are out of conformance, then MVE changes those settings on the printer. MVE runs a final conformance check after changing the settings. Updates that require the printer to reboot, such as firmware updates, may require a second enforcement to complete.

Before you begin, make sure that a configuration is assigned to the printer. For more information, see [“Assigning configurations to printers” on page 36](#).

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Configure > Enforce configurations**.

### Notes:

- If the printer is in an error state, then some settings may not be updated.
- For MVE to deploy firmware and solution files to a printer, the Firmware Updates function access control must be set to **No Security**. If security is applied, then the Firmware Updates function access control must use the same security template as the Remote Management function access control. For more information, see [“Deploying files to printers” on page 38](#).
- An enforcement can be scheduled to occur regularly. For more information, see [“Creating a schedule” on page 55](#).

## Checking the printer conformance with a configuration

During a conformance check, MVE checks the printer settings, and verifies whether they match the assigned configuration. MVE does not make changes to the printer during this operation.

Before you begin, make sure that a configuration is assigned to the printer. For more information, see [“Assigning configurations to printers” on page 36](#).

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Configure > Check conformance**.

**Notes:**

- You can view the results in the task status page.
- A conformance check can be scheduled to occur regularly. For more information, see [“Creating a schedule” on page 55](#).

## Deploying files to printers

You can deploy the following files to the printer:

- **CA Certificates**—**.cer** or **.pem** files that are added to the printer trust store.
- **Configuration bundle**—**.zip** files that are exported from a supported printer or obtained directly from Lexmark.
- **Firmware update**—An **.fls** file that is flashed to the printer.
- **Generic file**—Any file that you want to send to the printer.
  - **Raw socket**—Sent over port 9100. The printer treats it like any other print data.
  - **FTP**—Send file over FTP. This deployment method is not supported on secured printers.
- **Printer certificate**—A signed certificate that is installed on the printer as the default certificate.
- **Universal Configuration File (UCF)**—A configuration file exported from a printer.
  - **Web service**—The HTTPS web service is used when the printer model supports it. Otherwise, the printer uses the HTTP web service.
  - **FTP**—Send file over FTP. This deployment method is not supported on secured printers.

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Configure > Deploy file to printers**.
- 4 Click **Choose File**, and then browse to the file.
- 5 Select a file type, and then select a deployment method.
- 6 Click **Deploy File**.

**Notes:**

- For MVE to deploy firmware and solution files to a printer, the Firmware Updates function access control must be set to **No Security**. If security is applied, then the Firmware Updates function access control must use the same security template as the Remote Management function access control.
- A file deployment can be scheduled to occur regularly. For more information, see [“Creating a schedule” on page 55](#).

## Updating the printer firmware

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Configure > Update firmware to printers**.
- 4 Click **Choose File**, and then browse to the firmware file.

- 5 If necessary, to schedule the update, select **Define update window**, and then select the start time and the pause time.

**Note:** The firmware is sent to the printers within the specified start time and pause time. The task is paused after the pause time, and then resumes at the next start time until it is completed.

- 6 Click **Update Firmware**.

**Note:** For MVE to update the printer firmware, the Firmware Updates function access control must be set to **No Security**. If security is applied, then the Firmware Updates function access control must use the same security template as the Remote Management function access control.

## Uninstalling applications from printers

MVE can uninstall only applications that have been added to the system. For more information on uploading applications to the system, see [“Importing files to the resource library” on page 46](#).

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Configure > Uninstall Apps from printers**.
- 4 Select the applications.
- 5 Click **Uninstall Apps**.

## Assigning events to printers

Assigning events to printers lets MVE perform the associated action whenever one of the associated alerts occurs on the assigned printer. For more information on creating events, see [“Managing printer alerts” on page 47](#).

**Note:** Events can be assigned only to unsecured printers.

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Assign > Events**.
- 4 Select one or more events.

**Note:** If some of the selected printers already have the event assigned to them, then a dash in the check box appears. If you leave it as a dash, then the event does not change. If you select the check box, then the event is assigned to all the selected printers. If you clear the check box, then the event is unassigned from the printers it was previously assigned to.

- 5 Click **Assign Events**.

## Assigning keywords to printers

Assigning keywords to printers lets you organize your printers. For more information on creating keywords, see [“Managing keywords” on page 33](#).

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select one or more printers.
- 3 Click **Assign > Keywords**.
- 4 If necessary, in the View menu, select a category.
- 5 Select one or more keywords.

**Note:** Keywords are listed following a category. If some of the selected printers already have the keyword assigned to them, then a dash in the check box appears. If you leave it as a dash, then the keyword is not assigned or unassigned to the selected printers. If you select the check box, then the keyword is assigned to all the selected printers. If you clear the check box, then the keyword is unassigned from the printers it was previously assigned to.

- 6 Click **Assign Keywords**.

## Configuring printer certificates

MVE can help facilitate the process of signing the default printer certificate on a fleet of printers. MVE gathers the certificate signing requests from the fleet, and then deploys the signed certificates to the proper printers after they are signed.

- 1 Generate the printer certificate signing requests.
  - a From the Printers menu, click **Printer Listing**.
  - b Select one or more printers.
  - c Click **Security > Generate printer certificate signing requests**.

**Note:** This process lets only one printer certificate signing request to exist on the server at a time. If another request is generated, then the previous request is overwritten. Make sure to download the existing request before generating a new one.

- 2 Wait for the task to finish, and then download the printer certificate signing requests.
  - a From the Printers menu, click **Printer Listing**.
  - b Click **Security > Download printer certificate signing requests**.

- 3 Use a trusted CA to sign the certificate signing requests.
- 4 Save the signed certificates in a ZIP file.

**Note:** All the signed certificates must be in the root location of the ZIP file. Otherwise, MVE cannot parse the file.

- 5 From the Printers menu, click **Printer Listing**.
- 6 Select one or more printers.
- 7 Click **Configure > Deploy file to printers**.
- 8 Click **Choose File**, and then browse to the ZIP file.



**9** In the “File type” menu, select **Printer Certificates**.

**10** Click **Deploy File**.

# Securing printer communications


By default, in MVE, communication with printers is unencrypted. In order to set up MVE to use encrypted communication, first set up the security on one printer. Rediscover that printer, create a configuration in MVE from it, and then edit the configuration to make it assignable. Lastly, assign the configuration to your fleet, and then enforce it.

## Configuring printer security

- 1 From the Printers menu, click **Printer Listing**.
- 2 Click the IP address of the printer, and then click **Open Embedded Web Server**.
- 3 Click **Settings** or **Configuration**.
- 4 Depending on your printer model, do either of the following:
  - Click **Security > Login Methods**, and then do the following:
    - a From the Security section, create a login method.
    - b Click **Manage Group/Permissions** or **Manage Permissions** beside the login method.
    - c Expand **Administrative Menus**, and then select **Security Menu**.
    - d Expand **Device Management**, and then select **Remote Management**.
    - e Click **Save**.
    - f From the Public section, click **Manage Permissions**.
    - g Expand **Administrative Menus**, and then clear **Security Menu**.
    - h Expand **Device Management**, and then clear **Remote Management**.
    - i Click **Save**.
  - Click **Security > Security Setup** or **Edit Security Setup**, and then do the following:
    - a From the Advanced Security Setup section, create a building block and a security template.
    - b Click **Access Controls**, and then if necessary, expand **Management**.
    - c In the Remote Management menu, select the security template.
    - d Click **Submit**.

## Securing printer communications on your fleet

- 1 Discover a secured printer. For more information, see [“Discovering printers” on page 24](#).

**Note:** A printer is secured when a  appears next to it.
- 2 Create a configuration from a printer. For more information, see [“Creating a configuration from a printer” on page 44](#).
- 3 Assign the configuration to your fleet. For more information, see [“Assigning configurations to printers” on page 36](#).
- 4 Enforce the configuration. For more information, see [“Enforcing configurations” on page 37](#). A padlock symbol appears next to the secured printer.

# Managing configurations

MVE uses configurations to manage the printers in your fleet.

You can create a configuration that is composed of the following:

- Basic printer settings
- Advanced security settings
- Printer firmware
- Applications
- CA certificates

Using configurations, you can do the following to manage the printers:

- Assign a configuration to printers of the same model. Configurations are model specific, and only one configuration can be assigned per printer.
- Enforce the configuration to the printers. The settings that are specified in the configuration are applied to the printers, and the firmware, applications, and CA certificates are installed.
- Check if the printer is in conformance against a configuration. If a printer is out of conformance, then the configuration can be enforced to the printer.

**Note:** Configuration enforcement and conformance checking can be scheduled to occur regularly.

## Creating a configuration

- 1 From the Configurations menu, click **All Configurations > Create**.
- 2 Select a printer model, and then click **Continue**.
- 3 Type a unique name for the configuration and its description.
- 4 Do one or more of the following:
  - From the Basic tab, in the Settings list, select one or more settings, and then specify the values. If the value is a variable setting, then enclose the header with `${}`. For example, `${Contact_Name}`. To use a variable setting file, select the file from the “Use variable setting data file” menu, or import the file. For more information, see [“Understanding variable settings” on page 44](#).
  - From the Color Print Permissions tab, configure the settings. For more information, see [“Configuring the color print permissions” on page 45](#).  
**Note:** This setting is available only in configurations for supported color printers.
  - From the Firmware tab, select a firmware file. To import a firmware file, see [“Importing files to the resource library” on page 46](#).
  - From the Apps tab, select one or more applications to deploy. For more information, see [“Creating an applications package” on page 45](#).  
**Note:** MVE does not support deploying applications with trial licenses. You can deploy only free applications or applications with production licenses.
  - From the CA Certificates tab, select one or more certificates to deploy. To import a certificate file, see [“Importing files to the resource library” on page 46](#).

**Note:** You can manage the advanced security settings only when creating a configuration from a selected printer. For more information, see [“Creating a configuration from a printer” on page 44](#).

5 Click **Create Configuration**.

## Creating a configuration from a printer

To manage the advanced security settings of a printer, you must create a configuration from a printer. MVE reads all the settings from that printer, and then creates a configuration that includes the settings.

The following components are not included:

- Printer firmware
- Applications
- Certificates
- Solutions 1-10 function access controls. For more information on the function access controls, see the *Embedded Web Server—Security Administrator's Guide* for the printer.

To add the firmware, applications, and certificates, edit the configuration in MVE.

The Solutions 1-10 function access controls cannot be added even after the configuration is created.

Before creating a configuration from a printer, make sure to set up the printer settings including the advanced security components.

- 1 From the Printers menu, click **Printer Listing**.
- 2 Select the printer, and then click **Configure > Create configuration from printer**.
- 3 Type a unique name for the configuration and its description, and then click **Create Configuration**.
- 4 From the Configurations menu, click **All Configurations**.
- 5 Select the configuration, and then click **Edit**.
- 6 By default, all settings are included in the configuration. If necessary, edit the settings.
- 7 From the Advanced Security tab, add the passwords and PINs.
- 8 Click **Save Changes**.

## Understanding variable settings

Variable settings let you manage settings across your fleet that are unique to each printer, such as host name or asset tag. When creating or editing a configuration, you can select a CSV file to be associated with the configuration.

### Sample CSV format:

```
IP_ADDRESS,Contact_Name,Address,Disp_Info
1.2.3.4,John Doe,1600 Penn. Ave., Blue
4.3.2.1,Jane Doe,1601 Penn. Ave., Red
2.3.6.5,"Joe, Jane and Douglas",1601 Penn. Ave.,Yellow
2.3.6.7,"Joe, Jane and Douglas",1600 Penn. Ave.,He is 6'7" tall
```

In the header row of the variable file, the first column is a unique printer identifier token. The token must be one of the following:

- **HOSTNAME**
- **IP\_ADDRESS**
- **SYSTEM\_NAME**
- **SERIAL\_NUMBER**

Each subsequent column in the header row of the variable file is a user-defined replacement token. This token must be referenced within the configuration using the `#{HEADER}` format. It is replaced with the values in the subsequent rows when the configuration is enforced. Make sure that the tokens do not contain any spaces.

You can import the CSV file containing the variable settings when creating or editing a configuration. For more information, see [“Creating a configuration” on page 43](#).

## Configuring the color print permissions

MVE lets you restrict color printing for host computers and specific users.

**Note:** This setting is available only in configurations for supported color printers.

- 1 From the Configurations menu, click **All Configurations**.
- 2 Create or edit a configuration.
- 3 From the Color Print Permissions tab, do either of the following:

### Configure the color print permissions for host computers

- a In the View menu, select **Host computers**, and then select **Include color print permissions for host computers**.
- b Click **Add**, and then type the host computer name.
- c To let the host computer print in color, select **Allow color printing**.
- d To let users that log in to the host computer print in color, select **Override user permission**.
- e Click **Save and Add** or **Save**.

### Configure the color print permissions for users

- a In the View menu, select **Users**, and then select **Include color print permissions for users**.
- b Click **Add**, and then type the user name.
- c Select **Allow color printing**.
- d Click **Save and Add** or **Save**.

## Creating an applications package

- 1 Export the Printer List view from MVE using the Export Data feature.
  - a From the Printers menu, click **Views**.
  - b Select **Printer List**, and then click **Export Data**.
  - c Select a saved search.

**d** In the “Select file type for data export” menu, select **CSV**.

**e** Click **Export Data**.

**2** Access Package Builder.

**Note:** If you need access to Package Builder, then contact your Lexmark representative.

**a** Log in to Package Builder at [cdp.lexmark.com/package-builder](http://cdp.lexmark.com/package-builder).

**b** Import the printer list, and then click **Next**.

**c** Type the package description, and then type your e-mail address.

**d** In the Product menu, select the applications, and then if necessary, add licenses.

**e** Click **Next > Finish**. The package download link is sent to your e-mail.

**3** Download the package.

**Notes:**

- MVE does not support deploying applications with trial licenses. You can deploy only free applications or applications with production licenses. If you need activation codes, then contact your Lexmark representative.
- To add the applications to a configuration, import the applications package to the resource library. For more information, see [“Importing files to the resource library” on page 46](#).

## Importing or exporting a configuration

Before you begin, when importing a configuration file, make sure that it is exported from an MVE of the same version.

**1** From the Configurations menu, click **All Configurations**.

**2** Do either of the following:

- To import a configuration file, click **Import**, browse to the configuration file, and then click **Import**.
- To export a configuration file, select a configuration, and then click **Export**.

**Note:** When exporting a configuration, the passwords are excluded. After importing, manually add the passwords.

## Importing files to the resource library

The resource library is a collection of firmware files, CA certificates, and application packages that are imported to MVE. These files can be associated with one or more configurations.

**1** From the Configurations menu, click **Resource Library**.

**2** Click **Choose File**, and then browse to the file.

**Note:** Only firmware files (.fls), application packages (.zip), and CA certificates (.pem) can be imported.

**3** Click **Import Resource**.

# Managing printer alerts

Alerts are triggered when a printer requires attention. Actions let you send customized e-mails or run scripts when an alert occurs. Events define which actions are executed when specific alerts are active. To register for alerts from a printer, create actions and then associate them with an event. Assign the event to the printers that you want to monitor.

## Creating an action

An action is either an e-mail notification or an event viewer log. Actions assigned to events are triggered when a printer alert occurs.

- 1 From the Printers menu, click **Events & Actions > Actions > Create**.
- 2 Type a unique name for the action and its description.
- 3 Select an action type.

### E-mail

**Note:** Before you begin, make sure that the e-mail settings are configured. For more information, see [“Configuring e-mail settings” on page 57](#).

- a In the Type menu, select **E-mail**.
- b Type the appropriate values in the fields. You can also use the available placeholders as the entire or part of the subject title, or as part of an e-mail message. For more information, see [“Understanding action placeholders” on page 47](#).
- c Click **Create Action**.

### Log event

- a In the Type menu, select **Log event**.
- b Type the event parameters. You can also use the available placeholders in the drop-down menu. For more information, see [“Understanding action placeholders” on page 47](#).
- c Click **Create Action**.

## Understanding action placeholders

Use the available placeholders in the subject title or e-mail message. Placeholders represent variable elements, and are replaced with actual values when used.

- **\${eventHandler.timestamp}**—The date and time that MVE processed the event. For example, **Mar 14, 2017 1:42:24 PM**.
- **\${eventHandler.name}**—The name of the event.
- **\${configurationItem.name}**—The system name of the printer that triggered the alert.
- **\${configurationItem.address}**—The MAC address of the printer that triggered the alert.
- **\${configurationItem.ipAddress}**—The IP address of the printer that triggered the alert.
- **\${configurationItem.ipHostname}**—The host name of the printer that triggered the alert.

- **`\${configurationItem.model}`**—The model name of the printer that triggered the alert.
- **`\${configurationItem.serialNumber}`**—The serial number of the printer that triggered the alert.
- **`\${configurationItem.propertyTag}`**—The property tag of the printer that triggered the alert.
- **`\${configurationItem.contactName}`**—The contact name of the printer that triggered the alert.
- **`\${configurationItem.contactLocation}`**—The contact location of the printer that triggered the alert.
- **`\${configurationItem.manufacturer}`**—The manufacturer of the printer that triggered the alert.
- **`\${alert.name}`**—The name of the alert that is triggered.
- **`\${alert.state}`**—The state of the alert. It can be active or cleared.
- **`\${alert.location}`**—The location within the printer where the triggered alert occurred.
- **`\${alert.type}`**—The severity of the triggered alert, such as **Warning** or **Intervention Required**.

## Managing actions

- 1 From the Printers menu, click **Events & Actions > Actions**.
- 2 Do any of the following:

### Edit an action

- a Select an action, and then click **Edit**.
- b Configure the settings.
- c Click **Save Changes**.

### Delete actions

- a Select one or more actions.
- b Click **Delete**, and then confirm deletion.

### Test an action

- a Select an action, and then click **Test**.
- b To verify the test results, see the tasks logs.

#### Notes:

- For more information, see [“Viewing logs” on page 54](#).
- If you are testing an e-mail action, then verify if the e-mail was sent to the recipient.

## Creating an event

You can monitor alerts in your printer fleet. Create an event, and then set an action to execute when the specified alerts occur. Events are not supported in secured printers.

- 1 From the Printers menu, click **Events & Actions > Events > Create**.
- 2 Type a unique name for the event and its description.
- 3 From the Alerts section, select one or more alerts. For more information, see [“Understanding printer alerts” on page 49](#).



**4** From the Actions section, select one or more actions to execute when the selected alerts are active.

**Note:** For more information, see [“Creating an action” on page 47](#).

**5** Enable the system to execute selected actions when alerts are cleared on the printer.

**6** Set a grace period before executing any selected actions.

**Note:** If the alert is cleared during the grace period, then the action is not executed.

**7** Click **Create Event**.

## Understanding printer alerts

Alerts are triggered when a printer requires attention. The following alerts can be associated with an event in MVE:

- **Automatic Document Feeder (ADF) jam**—A paper is jammed in the ADF and must be physically removed.
  - Scanner ADF Exit Jam
  - Scanner ADF Feeder Jam
  - Scanner ADF Inverter Jam
  - Scanner ADF Paper Cleared
  - Scanner ADF Paper Missing
  - Scanner ADF PreRegistration Jam
  - Scanner ADF Registration Jam
  - Scanner Alert - Replace All Originals if Restarting Job
- **Door or cover open**—A door is open on the printer and must be closed.
  - Check Door/Cover - Mailbox
  - Door Open
  - Cover Alert
  - Cover Closed
  - Cover Open
  - Cover Open Or Cartridge Missing
  - Duplex Cover Open
  - Scanner ADF Cover Open
  - Scanner Jam Access Cover Open
- **Incorrect media size or type**—A job is printing and requires certain paper to be loaded in a tray.
  - Incorrect Envelope Size
  - Incorrect Manual Feed
  - Incorrect Media
  - Incorrect Media Size
  - Load Media
- **Memory full or error**—The printer is running low on memory and must apply changes.
  - Complex Page
  - Files Will Be Deleted
  - Insufficient Collation Memory

- Insufficient Defrag Memory
- Insufficient Fax Memory
- Insufficient Memory
- Insufficient Memory - Held Jobs May Be Lost
- Insufficient Memory For Resource Save
- Memory Full
- PS Memory Shortage
- Scanner Too Many Pages - Scan Job Canceled
- Resolution Reduction
- **Option malfunction**—An option attached to the printer is in an error state. Options include input options, output options, font cards, user flash cards, disks, and finishers.
  - Check Alignment/Connection
  - Check Duplex Connection
  - Check Finisher/Mailbox Installation
  - Check Power
  - Corrupted Option
  - Defective Option
  - Detach Device
  - Duplex Alert
  - Duplex Tray Missing
  - External Network Adapter Lost
  - Finisher Alert
  - Finisher Door Or Interlock Open
  - Finisher Paper Wall Open
  - Incompatible Duplex Device
  - Incompatible Input Device
  - Incompatible Output Device
  - Incompatible Unknown Device
  - Incorrect Option Installation
  - Input Alert
  - Input Configuration Error
  - Option Alert
  - Output Bin Full
  - Output Bin Nearly Full
  - Output Configuration Error
  - Option Full
  - Option Missing
  - Paper Feed Mechanism Missing
  - Print Jobs On Option
  - Reattach Device
  - Reattach Output Device

- Too Many Inputs Installed
- Too Many Options Installed
- Too Many Outputs Installed
- Tray Missing
- Tray Missing During Power On
- Tray Sensing Error
- Uncalibrated Input
- Unformatted Option
- Unsupported Option
- Reattach Input Device
- **Paper jam**—A paper is jammed in the printer and must be physically removed.
  - Internal Paper Jam
  - Jam Alert
  - Paper Jam
- **Scanner error**—The scanner has a problem.
  - Scanner Back Cable Unplugged
  - Scanner Carriage Locked
  - Scanner Clean Flatbed Glass/Backing Strip
  - Scanner Disabled
  - Scanner Flatbed Cover Open
  - Scanner Front Cable Unplugged
  - Scanner Invalid Scanner Registration
- **Supplies error**—A printer supply has a problem.
  - Abnormal Supply
  - Cartridge Region Mismatch
  - Defective Supply
  - Fuser Unit Or Coating Roller Missing
  - Invalid Or Missing Left Cartridge
  - Invalid Or Missing Right Cartridge
  - Invalid Supply
  - Priming Failure
  - Supply Alert
  - Supply Jam
  - Supply Missing
  - Toner Cartridge Eject Handle Pulled
  - Toner Cartridge Not Installed Correctly
  - Uncalibrated Supply
  - Unlicensed Supply
  - Unsupported Supply

- **Supplies or consumable empty**—A printer supply must be replaced.

- Input Empty
- Life Exhausted
- Printer Ready for Maintenance
- Scheduled Maintenance
- Supply Empty
- Supply Full
- Supply Full or Missing

**Note:** The printer sends the alert as an error and a warning. If one of these alerts is triggered, then its associated action occurs twice.

- **Supplies or consumable low**—A printer supply is running low.

- Early Warning
- First Low
- Input Low
- Life Warning
- Nearly Empty
- Nearly Low
- Supply Low
- Supply Nearly Full

- **Uncategorized alert or condition**

- Color Calibration Failure
- Data Transmission Error
- Engine CRC Failure
- External Alert
- Fax Connection Lost
- Fan Stall
- Hex Active
- Insert Duplex Page and Press Go
- Internal Alert
- Internal Network Adapter Needs Service
- Logical Unit Alert
- Offline
- Offline for Warning Prompt
- Operation Failed
- Operator Intervention Alert
- Page Error
- Port Alert
- Port Communication Failure
- Port Disabled
- Power Saver
- Powering Off

- PS Job Timeout
- PS Manual Timeout
- Setup Required
- SIMM Checksum Error
- Supply Calibrating
- Toner Patch Sensing Failed
- Unknown Alert Condition
- Unknown Configuration
- Unknown Scanner Alert Condition
- User(s) Locked Out
- Warning Alert

## Managing events

**1** From the Printers menu, click **Events & Actions > Events**.

**2** Do either of the following:

### **Edit an event**

- a** Select an event, and then click **Edit**.
- b** Configure the settings.
- c** Click **Save Changes**.

### **Delete events**

- a** Select one or more events.
- b** Click **Delete**, and then confirm deletion.

# Viewing task status and history

Tasks are any printer management activities performed in MVE, such as printer discovery, audit, and configurations enforcement. The Status page shows the status of all currently running tasks and the tasks run in the last 72 hours. Information of the currently running tasks are entered into the log. Tasks older than 72 hours can be viewed only as individual log entries in the Log page, and can be searched using the task IDs.

## Viewing the task status

From the Tasks menu, click **Status**.

**Note:** The task status is updated in real time.

## Stopping tasks

- 1 From the Tasks menu, click **Status**.
- 2 From the Currently Running Tasks section, select one or more tasks.
- 3 Click **Stop**.

## Viewing logs

- 1 From the Tasks menu, click **Logs**.
- 2 Select task categories, task types, or a time period.

**Notes:**

- Use the search field to search for multiple Task IDs. Use commas to separate multiple Task IDs or a hyphen to indicate a range. For example, **11, 23, 30-35**.
- To export the search results, click **Export to CSV**.

## Clearing logs

- 1 From the Tasks menu, click **Log**.
- 2 Click **Clear Log**, and then select a date.
- 3 Click **Clear Log**.

## Exporting logs

- 1 From the Tasks menu, click **Log**.
- 2 Select task categories, task types, or a time period.
- 3 Click **Export to CSV**.

# Scheduling tasks

## Creating a schedule

- 1 From the Tasks menu, click **Schedule > Create**.
- 2 From the General section, type a unique name for the scheduled tasks and its description.
- 3 From the Task section, do one of the following:

### Schedule an audit

- a Select **Audit**.
- b Select a saved search.

### Schedule a conformance check

- a Select **Conformance**.
- b Select a saved search.

### Schedule a printer status check

- a Select **Current Status**.
- b Select a saved search.
- c Select an action.

### Schedule a configuration deployment

- a Select **Deploy File**.
- b Select a saved search.
- c Browse to the file, and then select the file type.
- d If necessary, select a deployment method or protocol.

### Schedule a discovery

- a Select **Discovery**.
- b Select a discovery profile.

### Schedule a configuration enforcement

- a Select **Enforcement**.
- b Select a saved search.

### Schedule a view export

- a Select **View Export**.
- b Select a saved search.
- c Select a view template.
- d Type the list of e-mail addresses where the exported files are sent.

- 4 From the Schedule section, set the date, time, and frequency of the task.
- 5 Click **Create Scheduled Task**.

## Managing scheduled tasks

- 1 From the Tasks menu, click **Schedule**.
- 2 Do either of the following:

### Edit a scheduled task

- a Select a task, and then click **Edit**.
- b Configure the settings.
- c Click **Edit Scheduled Task**.

**Note:** The Last Run information is removed when a scheduled task is edited.


### Delete a scheduled task

- a Select a task, and then click **Delete**.
- b Click **Delete Scheduled Task**.



## Performing other administrative tasks


### Configuring general settings

- 1 Click  on the upper-right corner of the page.
- 2 Click **General**, and then select a host name source.
  - **Printer**—The system retrieves the host name from the printer.
  - **Reverse DNS Lookup**—The system retrieves the host name from the DNS table using the IP address.
- 3 Set the alert reregistration frequency.

**Note:** Printers may lose the alert registration state when changes are made, such as rebooting or updating the firmware. MVE attempts to recover the state automatically on the next interval set in the alert reregistration frequency.
- 4 Click **Save Changes**.


### Configuring e-mail settings

The SMTP configuration must be enabled to let MVE send data export files and event notifications through e-mail.

- 1 Click  on the upper-right corner of the page.
- 2 Click **E-mail**, and then select **Enable E-mail SMTP configuration**.
- 3 Type the SMTP mail server and port.
- 4 Type the e-mail address of the sender.
- 5 If a user must log in before e-mailing, then select **Login required**, and then type the user credentials.
- 6 Click **Save Changes**.

### Adding a login disclaimer


You can configure a login disclaimer to be shown when users log in with a new session. Users must accept the disclaimer before they can access MVE.

- 1 Click  on the upper-right corner of the page.
- 2 Click **Disclaimer**, and then select **Enable disclaimer prior to login**.
- 3 Type the disclaimer text.
- 4 Click **Save Changes**.

## Signing the MVE certificate


Secure Socket Layer (SSL) or Transport Layer Security (TLS) is a security protocol that uses data encryption and certificate authentication to protect the communication between a server and a client. In MVE, SSL is used to protect the sensitive information shared between the MVE server and the web browser. The protected information can be printer passwords, security policies, MVE user credentials, or printer authentication information, such as LDAP or Kerberos.

SSL enables the MVE server and the web browser to encrypt the data before sending it, and then decrypt it after it is received. SSL also requires the server to present the web browser with a certificate that proves that the server is who it claims to be. This certificate is either self-signed or signed using a trusted third-party CA. By default, MVE is configured to use a self-signed certificate.

- 1 Download the certificate signing request.
  - a Click  on the upper-right corner of the page.
  - b Click **TLS > Download**.
  - c Select **Certificate signing request**.

**Note:** The certificate signing request does not include any Subject Alternative Names (SANs). To associate the server with multiple names, include the names when signing the certificate.

- 2 Use a trusted CA to sign the certificate signing request.
- 3 Install the CA-signed certificate.

- a Click  on the upper-right corner of the page.
- b Click **TLS > Install Signed Certificate**.
- c Upload the CA-signed certificate, and then click **Install Certificate**.
- d Click **Restart MVE Service**.

**Note:** Restarting the MVE service reboots the system, and the server may be unavailable for the next few minutes. Before restarting the service, make sure that no tasks are currently running.

## Frequently asked questions

### Why can I not choose multiple printers in the supported models list when creating a configuration?

Configuration settings and commands differ between printer models.

### Can other users access my saved searches?

Yes. All users can access saved searches.

### Where can I find the log files?

You can find the `mve-*.log` and `*.isf` installation log files in the `%TEMP%` directory.

You can find the `*.log` application log files in the `installation_dir\Lexmark\Markvision Enterprise\tomcat\logs` folder, where `installation_dir` is the installation folder of MVE.

### What is the difference between host name and reverse DNS lookup?

A host name is a unique name assigned to a printer on a network. Each host name corresponds to an IP address. Reverse DNS lookup is used to determine the designated host name and domain name of a given IP address.

### Where can I find reverse DNS lookup in MVE?

Reverse DNS lookup can be found in the general settings. For more information, see [“Configuring general settings” on page 57](#).

### How do I manually add rules to the Windows firewall?

Run the command prompt as an administrator, and then type the following:

```
firewall add allowedprogram "installation_dir/Lexmark/Markvision  
Enterprise/tomcat/bin/tomcat9.exe" "MarkVision Enterprise Tomcat"  
firewall add portopening UDP 9187 "MarkVision Enterprise NPA UDP"  
firewall add portopening UDP 6100 "MarkVision Enterprise LST UDP"
```

Where `installation_dir` is the installation folder of MVE.

## How do I set up MVE to use a different port other than port 443?

- 1 Stop the Markvision Enterprise service.
  - a Open the Run dialog box, and then type **services.msc**.
  - b Right-click **Markvision Enterprise**, and then click **Stop**.
- 2 Open the **installation\_dir\Lexmark\Markvision Enterprise\tomcat\conf\server.xml** file.

Where **installation\_dir** is the installation folder of MVE.

- 3 Change the connector port.

```
<Connector port="443" protocol="org.apache.coyote.http11.Http11NioProtocol"
sslImplementationName="org.apache.tomcat.util.net.jsse.JSSEImplementation"
SSLEnabled="true" scheme="https" secure="true" clientAuth="false"
compression="on" compressableMimeType="text/html,text/xml,text/plain,text/css,
text/javascript,application/javascript,application/json" maxThreads="150"
maxHttpHeaderSize="16384" minSpareThreads="25" enableLookups="false"
acceptCount="100" connectionTimeout="120000" disableUploadTimeout="true"
URIEncoding="UTF-8" server="Apache" sslEnabledProtocols="TLSv1,TLSv1.1,TLSv1.2"
sslProtocol="TLS" keystoreFile="C:/Program Files/Lexmark/Markvision Enterprise/
../mve_truststore.p12" keystorePass="markvision" keyAlias="mve" keyPass="markvision"
keystoreType="PKCS12" ciphers="TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256,
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA,TLS_RSA_WITH_AES_128_CBC_SHA256,
TLS_RSA_WITH_AES_128_CBC_SHA"/>
```

Change the **Connector port** value to another unused port.

- 4 Change the redirect connector port.

```
<Connector port="9788" maxHttpHeaderSize="16384" maxThreads="150" minSpareThreads="25"
enableLookups="false" redirectPort="443" acceptCount="100" connectionTimeout="120000"
disableUploadTimeout="true" compression="on" compressableMimeType="text/html,text/xml,
text/plain,text/css,text/javascript,application/javascript,application/json"
URIEncoding="UTF-8" server="Apache"/>
```

Change the **redirectPort** value to the same port number used as the connector port.

- 5 Restart the Markvision Enterprise service.
  - a Open the Run dialog box, and then type **services.msc**.
  - b Right-click **Markvision Enterprise**, and then click **Restart**.
- 6 Access MVE using the new port.

For example, open a web browser, and then type **https://MVE\_SERVER:port/mve**.

Where **MVE\_SERVER** is the host name or IP address of the server hosting MVE, and **port** is the connector port number.

## How do I customize the ciphers and TLS versions that MVE uses?

- 1 Stop the Markvision Enterprise service.
  - a Open the Run dialog box, and then type **services.msc**.
  - b Right-click **Markvision Enterprise**, and then click **Stop**.
- 2 Open the *installation\_dir*\Lexmark\Markvision Enterprise\tomcat\conf\server.xml file.

Where *installation\_dir* is the installation folder of MVE.
- 3 Configure the ciphers and TLS versions.

For more information on the configuration, see the [Apache SSL configuration documentation](#).


For more information on the protocols and cipher values, see the [Apache SSL support information documentation](#).
- 4 Restart the Markvision Enterprise service.
  - a Open the Run dialog box, and then type **services.msc**.
  - b Right-click **Markvision Enterprise**, and then click **Restart**.

# Troubleshooting

## User has forgotten the password

### Reset the user password

You need administrative rights to reset the password.

- 1 Click  on the upper-right corner of the page.
- 2 Click **User**, and then select a user.
- 3 Click **Edit**, and then change the password.
- 4 Click **Save Changes**.

If you have forgotten your own password, then do either of the following:

- Contact another Admin user to reset your password.
- Contact Lexmark Customer Support Center.

## Cannot discover a network printer

Try one or more of the following:

**Make sure that the printer is turned on**

**Make sure that the power cord is securely plugged into the printer and into a properly grounded electrical outlet**

**Make sure that the printer is connected to the network**

**Restart the printer**

**Make sure that TCP/IP is enabled on the printer**

**Make sure that the ports used by MVE are open, and SNMP and mDNS are enabled**

For more information, see [“Understanding ports and protocols” on page 64](#).

**Contact your Lexmark representative**

## Incorrect printer information

### Perform an audit

For more information, see [“Auditing printers” on page 34](#).

## MVE does not recognize a printer as a secured printer

### Make sure that the printer is secured

For more information on securing printers, see the *Embedded Web Server—Security Administrator's Guide* for the printer.

### Make sure that mDNS is turned on and is not blocked

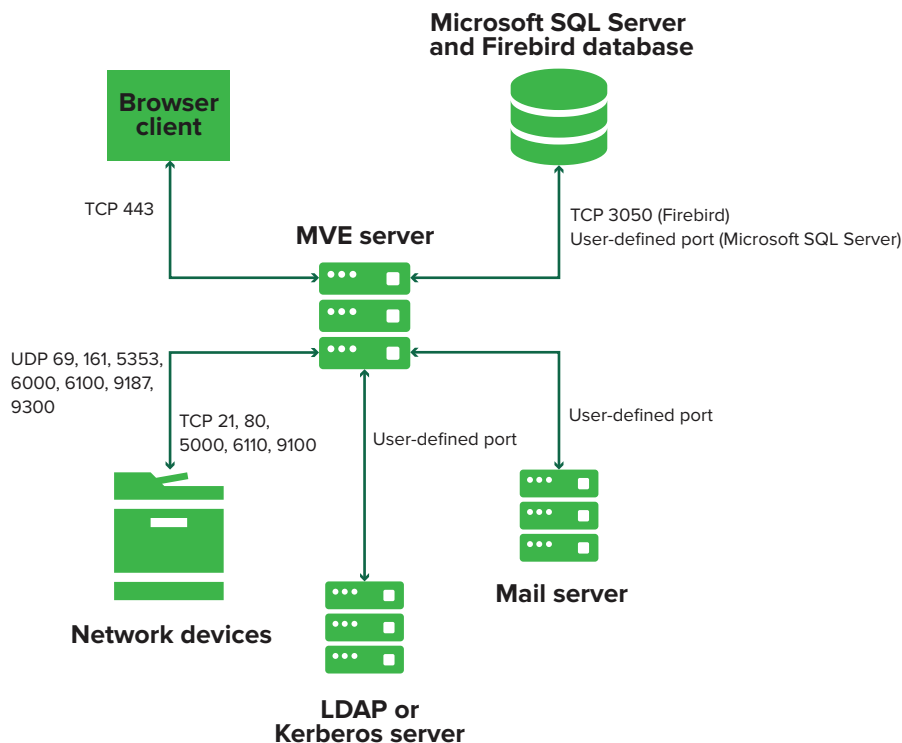
### Rerun the printer discovery

For more information, see [“Discovering printers” on page 24](#).

# Appendix

## Understanding ports and protocols

MVE uses different ports and protocols for several types of network communication, as shown in the following diagram:



**Notes:**

- The ports are bidirectional and must be open or active for MVE to function properly. Make sure that all the printer ports are enabled.
- Some communications require an ephemeral port, which is an allocated range of available ports on the server. When a client requests a temporary communication session, the server assigns a dynamic port to the client. The port is valid only for a short duration and can become available for reuse when the previous session expires.

### Server-to-printer communication

#### Ports and protocols used during communication from the MVE server to network printers

Protocol	MVE server	Printer	Used for
<b>Network Printing Alliance Protocol (NPAP)</b>	UDP 9187	UDP 9300	Communicating with Lexmark network printers.
<b>XML Network Transport (XMLNT)</b>	UDP 9187	UDP 6000	Communicating with some Lexmark network printers.



Protocol	MVE server	Printer	Used for
<b>Lexmark Secure Transport (LST)</b>	UDP 6100 Ephemeral Transmission Control Protocol (TCP) port (handshaking)	UDP 6100 TCP 6110 (handshaking)	Communicating securely with some Lexmark network printers.
<b>Multicast Domain Name System (mDNS)</b>	Ephemeral User Datagram Protocol (UDP) port	UDP 5353	Discovering Lexmark network printers and determining the security capabilities of printers. <b>Note:</b> This port is required to allow MVE to communicate with secured printers.
<b>Simple Network Management Protocol (SNMP)</b>	Ephemeral UDP port	UDP 161	Discovering and communicating with Lexmark and third-party network printers.
<b>File Transfer Protocol (FTP)</b>	Ephemeral TCP port	TCP 21 TCP 20	Deploying files.
<b>Hypertext Transfer Protocol (HTTP)</b>	Ephemeral TCP port	TCP 80	Deploying files or enforcing configurations.
		TCP 443	Deploying files or enforcing configurations.
<b>Hypertext Transfer Protocol over SSL (HTTPS)</b>	Ephemeral TCP port	TCP 161 TCP 443	Deploying files or enforcing configurations.
<b>RAW</b>	Ephemeral TCP port	TCP 9100	Deploying files or enforcing configurations.

## Printer-to-server communication

### Port and protocol used during communication from network printers to the MVE server

Protocol	Printer	MVE server	Used for
<b>NPAP</b>	UDP 9300	UDP 9187	Generating and receiving alerts

## Server-to-database communication

### Ports used during communication from the MVE server to databases

MVE server	Database	Used for
<b>Ephemeral TCP port</b>	User-defined port. The default port is TCP 1433.	Communicating with an SQL Server database.
<b>Ephemeral TCP port</b>	TCP 3050	Communicating with a Firebird database.

## Client-to-server communication

### Port and protocol used during communication from the browser client to the MVE server

Protocol	Browser Client	MVE server
Hypertext Transfer Protocol over SSL (HTTPS)	TCP port	TCP 443

## Server-to-mail-server communication

### Port and protocol used during communication from the MVE server to a mail server

Protocol	MVE server	SMTP server	Used for
Simple Mail Transfer Protocol (SMTP)	Ephemeral TCP port	User-defined port. The default port is TCP 25.	Providing the e-mail functionality used to receive alerts from printers.

## Server-to-LDAP-server communication

### Ports and protocols used during communication from the MVE server to an LDAP server involving user groups and authentication functionality

Protocol	MVE server	LDAP server	Used for
Lightweight Directory Access Protocol (LDAP)	Ephemeral TCP port	User-defined port. The default port is TCP 389.	Authenticating MVE users using an LDAP server.
Lightweight Directory Access Protocol over TLS (LDAPS)	Ephemeral TCP port	User-defined port. The default port is TCP 636.	Authenticating MVE users using an LDAP server over TLS.
Kerberos	Ephemeral UDP port	User-defined port. The default port is UDP 88.	Authenticating MVE users using Kerberos.

# Notices

## Edition notice

August 2018

**The following paragraph does not apply to any country where such provisions are inconsistent with local law:** LEXMARK INTERNATIONAL, INC., PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in later editions. Improvements or changes in the products or the programs described may be made at any time.

References in this publication to products, programs, or services do not imply that the manufacturer intends to make these available in all countries in which it operates. Any reference to a product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any existing intellectual property right may be used instead. Evaluation and verification of operation in conjunction with other products, programs, or services, except those expressly designated by the manufacturer, are the user's responsibility.

For Lexmark technical support, visit <http://support.lexmark.com>.

For information on supplies and downloads, visit [www.lexmark.com](http://www.lexmark.com).

© 2017 Lexmark International, Inc.

All rights reserved.

## Trademarks

Lexmark, the Lexmark logo, and Markvision are trademarks or registered trademarks of Lexmark International, Inc. in the United States and/or other countries.

Microsoft, Windows Server, Microsoft Edge, Internet Explorer, and SQL Server are either registered trademarks or trademarks of the Microsoft group of companies in the United States and other countries.

Firebird is a registered trademark of the Firebird Foundation.

Google Chrome is a trademark of Google Inc.

Safari is a registered trademark of Apple Inc.

Java is a registered trademark of Oracle and/or its affiliates.

All other trademarks are the property of their respective owners.

## GOVERNMENT END USERS

The Software Program and any related documentation are "Commercial Items," as that term is defined in 48 C.F.R. 2.101, "Computer Software" and "Commercial Computer Software Documentation," as such terms are used in 48 C.F.R. 12.212 or 48 C.F.R. 227.7202, as applicable. Consistent with 48 C.F.R. 12.212 or 48 C.F.R. 227.7202-1 through 227.7207-4, as applicable, the Commercial Computer Software and Commercial Software

Documentation are licensed to the U.S. Government end users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions herein.

## JmDNS License

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Arthur van Hoff

avh@strangeberry.com

Rick Blair

rickblair@mac.com

\*\* JmDNS

## Licensing notices

All licensing notices associated with this product can be viewed from the program folder.

# Glossary

<b>action</b>	An e-mail notification or a command-line operation. Actions assigned to events are triggered when a printer alert occurs.
<b>audit</b>	The task of collecting printer data such as printer status, supplies, and capabilities.
<b>configuration</b>	A collection of settings that can be assigned and enforced to a printer or a group of printers of the same model. Within a configuration, you can modify printer settings and deploy applications, licenses, firmware, and CA certificates to the printers.
<b>discovery profile</b>	A profile that contains a set of parameters used to find printers on a network. It may also contain predefined configurations that can be assigned and enforced to printers automatically during the discovery.
<b>event</b>	Defines which actions are executed when specific alerts are active.
<b>keyword</b>	A custom text assigned to printers that you can use to search for those printers within the system. When you filter a search using a keyword, only printers that are tagged with the keyword are shown.
<b>secured printer</b>	A printer that is configured to communicate through an encrypted channel, and requires authentication to access its functions or applications.
<b>token</b>	An identifier that represents printer data values for variable settings in a configuration.
<b>variable settings</b>	A set of printer settings containing dynamic values that can be integrated into a configuration.

# Index

## A

- accessing MVE 14
- action
  - placeholders 47
- action placeholders
  - understanding 47
- actions
  - creating 47
  - deleting 48
  - editing 48
  - managing 48
  - testing 48
- adding a login disclaimer 57
- AES256 encryption
  - configuring 59
- application log files
  - locating 59
- applications
  - uninstalling 39
- applications package
  - creating 45
- assigning a keyword 40
- assigning configurations to printers 36
- assigning events to printers 39
- auditing printers 34

## B

- backing up and restoring the database 16

## C

- cannot discover a network printer 62
- change history 6
- changing the installer settings after installation 18
- changing the language 15
- changing the printer listing view 29
- changing your password 15
- checking printer conformance with a configuration 37
- ciphers
  - customizing 59
- clearing logs 54

- color print permissions
  - configuring 45
- configuration
  - conformance 37
  - creating 43, 44
  - exporting 46
  - importing 46
- configurations
  - assigning 36
  - enforcing 37
  - unassigning 37
- configuring e-mail settings 57
- configuring general settings 57
- configuring printer certificates 40
- configuring printer security 42
- configuring the color print permissions 45
- conformance
  - checking 37
- copying discovery profiles 25
- copying saved searches 32
- copying views 27
- creating a configuration 43
- creating a configuration from a printer 44
- creating a custom saved search 29
- creating a schedule 55
- creating an action 47
- creating an applications package 45
- creating an event 48
- creating keywords 33
- CSV
  - variable settings 44
- custom saved search
  - creating 29

## D

- database
  - backing up 16
  - requirements 9
  - restoring 16
  - setting up 13
- database requirements 9
- deleting actions 48
- deleting discovery profiles 25

- deleting keywords 33
- deleting saved searches 32
- deleting schedules 56
- deleting views 27
- deploying files to printers 38
- discovery profiles
  - copying 25
  - deleting 25
  - editing 25
  - managing 25
  - running 25

## E

- editing actions 48
- editing discovery profiles 25
- editing keywords 33
- editing saved searches 32
- editing schedules 56
- editing views 27
- Embedded Web Server
  - viewing 34
- enabling LDAP server authentication 20
- enforcing configurations 37
- event
  - creating 48
- events
  - assigning 39
  - deleting 53
  - editing 53
  - managing 53
- exporting CSV
  - variable settings 44
- exporting logs 54
- exporting printer data 27
- e-mail action 47
- e-mail settings
  - configuring 57

## F

- files
  - deploying 38
- filtering printers using the search bar 29
- Firebird database 13

**G**

general settings  
  configuring 57

**H**

host name lookup  
  reverse lookup 59

**I**

importing CSV  
  variable settings 44  
importing files to the resource  
library 46  
importing or exporting a  
configuration 46  
incorrect printer information 63  
installation log files  
  locating 59  
installer settings  
  changing 18  
installing LDAP server  
certificates 23  
installing MVE 14

**K**

keyword  
  assigning 40  
keywords  
  creating 33  
  deleting 33  
  editing 33  
  managing 33

**L**

language  
  changing 15  
languages  
  supported 10  
LDAP server  
  enabling authentication 20  
LDAP server certificates  
  installing 23  
log event action 47  
log files  
  locating 59  
login disclaimer  
  adding 57  
logs  
  clearing 54  
  exporting 54

viewing 54

**M**

managing actions 48  
managing discovery profiles 25  
managing events 53  
managing keywords 33  
managing saved searches 32  
managing schedules 56  
managing users 20  
managing views 27  
Microsoft SQL Server 13  
MVE  
  accessing 14  
  installing 14  
  upgrading to latest version 16  
MVE certificate  
  signing 58  
MVE does not recognize a printer  
as a secured printer 63

**O**

overview 8

**P**

password  
  changing 15  
  resetting 62  
placeholders 47  
ports  
  configuring 59  
  understanding 64  
printer  
  conformance 37  
  restarting 34  
printer alerts  
  understanding 49  
printer certificates  
  configuring 40  
printer communications  
  securing 42  
printer data  
  exporting 27  
printer firmware  
  updating 38  
printer information  
  viewing 26  
printer life cycle states  
  understanding 35  
printer list  
  viewing 26

printer listing view  
  changing 29  
printer security  
  configuring 42  
printer state  
  setting 35  
printer status  
  updating 34  
printers  
  auditing 34  
  deploying files 38  
  events 39  
  filtering 29  
protocols  
  understanding 64

**R**

resource library  
  importing 46  
restarting the printer 34  
reverse DNS lookup 59  
run-as user  
  setting up 13  
running a saved search 29  
running discovery profiles 25

**S**

saved searches  
  accessing 59  
  copying 32  
  deleting 32  
  editing 32  
  managing 32  
  running 29  
schedule  
  creating 55  
schedules  
  deleting 56  
  editing 56  
  managing 56  
search bar  
  filtering printers 29  
search rules  
  operators 30  
  parameters 30  
search rules settings  
  understanding 30  
securing printer communications  
on your fleet 42  
setting a default view 27  
setting the printer state 35

- setting up MVE as a run-as user 13
- setting up the database 13
- signing the MVE certificate 58
- stopping tasks 54
- supported databases 9
- supported languages 10
- supported models
  - configuration 59
- supported operating systems 9
- supported servers 9
- supported web browsers 9

## T

- task status
  - viewing 54
- tasks
  - stopping 54
- testing actions 48
- TLS versions
  - customizing 59
- troubleshooting
  - cannot discover a network printer 62
  - incorrect printer information 63
  - MVE does not recognize a printer as a secured printer 63
  - user has forgotten the password 62

## U

- unassigning configurations 37
- understanding action placeholders 47
- understanding printer alerts 49
- understanding printer life cycle states 35
- understanding search rules settings 30
- understanding user roles 19
- uninstalling applications from printers 39
- updating printer status 34
- updating the printer firmware 38
- upgrading to the latest version of MVE 16
- user has forgotten the password 62
- user roles
  - understanding 19

- user system
  - requirements 9
- user system requirements 9
- users
  - adding 20
  - deleting 20
  - editing 20
  - managing 20

## V

- variable settings
  - understanding 44
- viewing logs 54
- viewing the printer Embedded Web Server 34
- viewing the printer information 26
- viewing the printer list 26
- viewing the task status 54
- views
  - copying 27
  - deleting 27
  - editing 27
  - managing 27

## W

- web server
  - requirements 9
- web server requirements 9
- Windows firewall
  - adding rules 59