Micro Focus iPrint Appliance 2.1
Administration Guide

December 2016

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Contents

About This Guide

This guide describes how to install, configure, and customize Micro Focus iPrint Appliance on your network.

Audience

This guide is intended for Micro Focus iPrint Appliance administrators.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation.

Documentation Updates

For the most recent version of the *Micro Focus iPrint Appliance 2.1 Administration Guide*, and other documentation for this product, visit the Micro Focus iPrint Appliance 2.1 Documentation Web site.

For information about configuring and using the mobile app, see the **Help** section of the app.

1 iPrint Overview

Organizations want to reduce the complexity of managing printers by IT and allow end users to easily locate and install printers.

That's where Micro Focus iPrint comes in. Micro Focus iPrint offers a single, scalable solution for managing all of your printing across multiple office locations from any device. It lets the users print quickly, easily, and more securely.

- ◆ "Understanding Micro Focus iPrint" on page 11
- ◆ "Benefits of iPrint" on page 15
- ◆ "Challenges in Print Environment" on page 16

Understanding Micro Focus iPrint

- ◆ "iPrint Components" on page 12

Micro Focus iPrint provides secured enterprise print services for your desktops, laptops, and mobile devices. Micro Focus's iPrint solution integrates with your existing corporate printers, regardless of the printing vendor or brand allowing you to deliver self-service printer provisioning to your device users.

iPrint Components
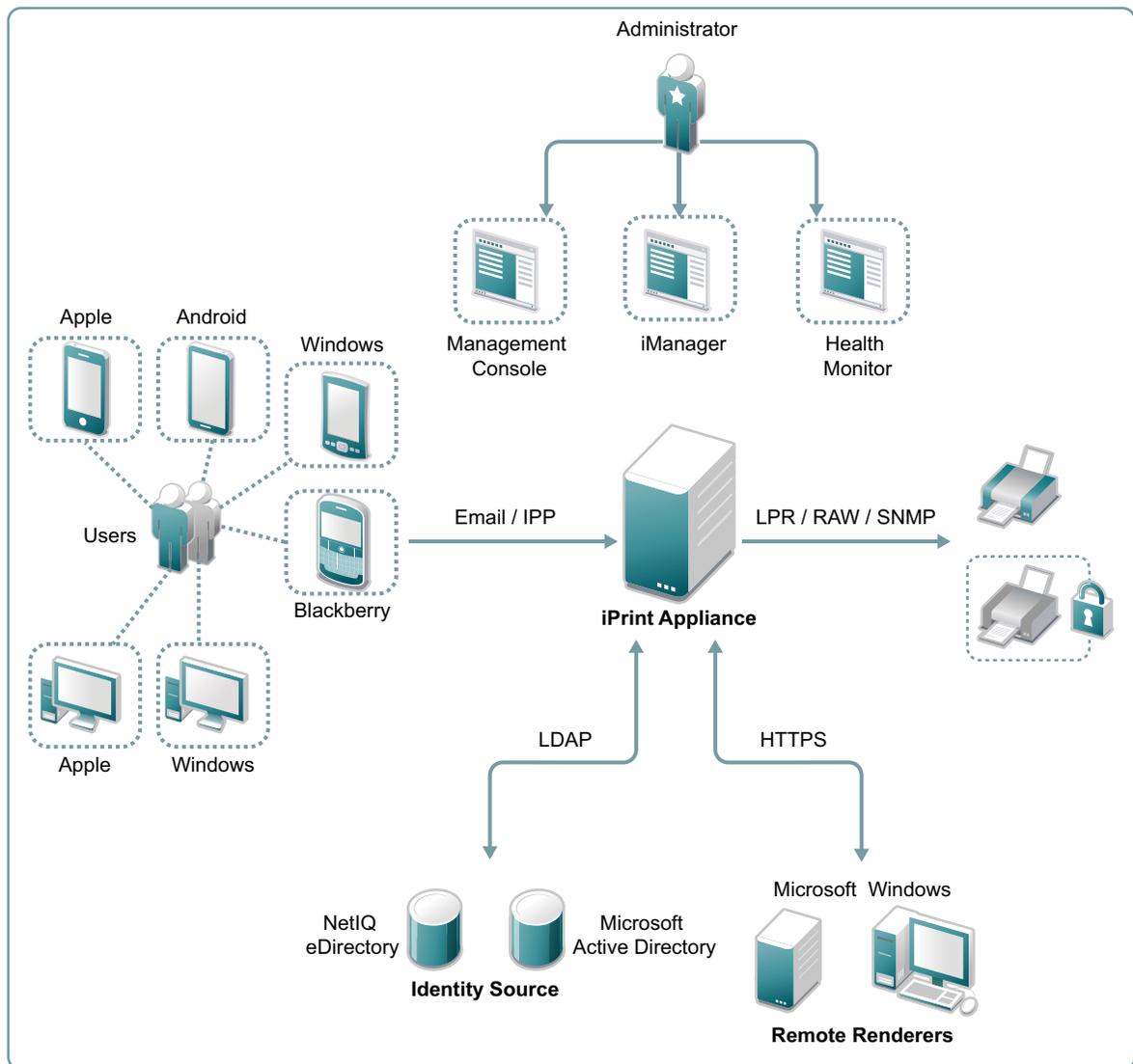
- ◆ "Users" on page 13
- ◆ "Devices" on page 13
- ◆ "Protocols" on page 13
- ◆ "Administration" on page 13
- ◆ "Accounting With iPrint" on page 14
- ◆ "Identity Source" on page 14
- ◆ "iPrint Appliance" on page 14
- ◆ "Renderers" on page 14
- ◆ "Printers" on page 14

Users

Users can submit print jobs through iPrint from their desktops, laptops, or mobile devices to both new and legacy printers from all the major print vendors, without worrying about print drivers. You can either import users from an existing LDAP source or create new users on the iPrint Appliance.

Devices

iPrint supports printing from desktops, laptops, or mobile devices.

Desktops and laptops: Clients for Windows and Mac workstations.

Mobile Devices: Apps for iOS, Android, Windows, Amazon Kindle, and BlackBerry devices.

Protocols

IPP/ Email: The devices and app uses IPP (Internet Printing Protocol) or email to submit the print job. If a direct network connection to iPrint Appliance is unavailable, the device switches to email printing, and uses the email client configured on the device.

LDAP: LDAP is used for communication between iPrint Appliance and identity stores (eDirectory and Active Directory).

HTTPS: HTTPS protocol is used for secure communication between iPrint Appliance and remote renderers.

LPR/RAW/SNMP: iPrint Appliance supports printer communications using the Line Printer Remote (LPR), RAW, or SNMP protocols.

Administration

Using Micro Focus iPrint Appliance Management Console, you can add and manage printers, check the printer status, create printer maps, and monitor the appliance.

iPrint Configuration: Use for initial iPrint configuration and setup. You can configure items such as mobile printing, LDAP user/group sources, renderers for enhanced document conversion, and so on.

Appliance Configuration: : Use this tool to reconfigure the system's network settings, time, SSL certificates, and passwords. Network Settings should not be changed once iPrint Appliance Configuration has been initiated.

iPrint Printer Configuration (iManager): iManager is a web-based tool that allows you to set up and manage your print environment. You can create printers, printer drivers, profiles, and users.

iPrint Health Monitor: Monitors your iPrint environment. You can view status of print jobs and manage jobs, and generate audit reports that show details of who printed and how much.

iPrint Migration Utility: You can migrate printers, drivers, driver profile, and printer configuration details from your existing NetWare or OES environment.

iPrint Map Designer: Use this tool to create map displaying the location of printers. Users can identify and install printers that are nearest to their location.

Ganglia: You can access various real-time monitoring statistics for all of the Ganglia-enabled machines on your network segment.

Accounting With iPrint

Print Accounting: Micro Focus iPrint integrates with third-party print accounting solutions to provide full support for accounting the print jobs including tracking all the print jobs and keeping a tab on the paper consumption. The print accounting feature enables the print administrator to have a clear understanding of who is printing what and when, and apply charge back capabilities if required.

Direct Print Accounting: A printer that is enabled for iPrint Direct sends print jobs directly to the printer instead of sending the job to the print server first. The print job is sent to the printer in LPR or raw 9100 format, depending on the setting in the gateway autoload command for the printer. Although this greatly reduces server communication, the ability to audit print jobs is lost. However, if you are running a third-party print accounting solution, Micro Focus iPrint client can integrate with the third-party print accounting solution to provide support for accounting print jobs to direct printers.

To install and configure third-party print accounting solution, refer to their documentation.

Identity Source

It works with LDAP directories such as Active Directory and eDirectory. Micro Focus iPrint makes secure printing easy by integrating its data store with your identity directory.

iPrint Appliance

Print and mobile server are the main components of appliance which handle all print jobs and all print infrastructure.

Renderers

Local Renderer

iPrint Appliance is bundled with an in-built document renderer (local renderer). The local renderer converts documents to the PDF format, then converts them to the print ready format using CUPS. The renderer supports Open Office, Microsoft Office and image formats, and also has a multithreading feature.

Remote Renderer

iPrint Appliance ships with a remote renderer. For desktop-quality printing, it is highly recommended that you install the remote renderer. You can download the remote renderer from the iPrint Appliance Management Console.

The remote renderer provides high quality rendering for Microsoft Office and PDF document formats.

Printers

Users can send print jobs through iPrint to both new and legacy printers from all the major print vendors.

Benefits of iPrint

Self-service printing: Users can print from their desktops, laptops, or mobile devices without waiting for the helpdesk to set-up a printer.

From desktops or laptops, users can print by selecting printers on a map using a web browser.

From mobile devices, users can print to any organizational printer using an iPrint app, email, or via AirPrint™.

WalkUp printing: Print jobs sent by the users are put on hold and can be released to a desirable printer.

Mobile device printing: Users of iOS, Android, Windows, and Blackberry mobile devices can download apps that allow them to print from their mobile devices directly to any of your organization's printers.

Micro Focus iPrint provides all of the necessary document rendering and conversion.

Expand your horizons: Users can print any time, from anywhere, using almost any device. Click to send a print job to any printer irrespective of the location of the printer.

Works with everything: iPrint provisions print services for nearly every device you have, including desktops, laptops, smartphones, and tablets. It works whether users are printing from Mac or Windows. It works on iOS, Android, Windows Mobile, and BlackBerry.

Simplified enterprise printing: Micro Focus iPrint connects all your organization's workstations and mobile devices to your current printers. iPrint scales exceptionally well, reducing the server infrastructure you need to maintain hundreds or thousands of printers and thus lowering your network bandwidth costs.

AirPrint Integration: Makes wireless, proximity-based printing a possibility across your organization. Allows iOS users to use the AirPrint capabilities with the iPrint printer.

Samsung KNOX certified: Enhanced security for Android devices while maintaining user-friendly, secure mobile printing in your corporate environment.

QR Code Support: Scan a QR code to quickly connect your mobile device to a specific printer.

Email print jobs to any iPrint printer: Any email-enabled device can print to any iPrint printer by sending the print job in the body of the email or as an attachment.

Secure printing: You can secure your data before it goes to the printer, provisioning print services based on user, group and container membership.

Works in heterogeneous environments: Saves IT time and money by significantly reducing the management burden required for mixed fleets of Mac or Windows desktops. It works across the major mobile platforms as well, meaning IT only has to manage a single print solution for all your organization's endpoints.

Leverages your current directory service: Micro Focus iPrint makes secure printing easy by integrating its data store with your identity directory. It works with lightweight directory access protocol (LDAP) directories such as Active Directory and Micro Focus eDirectory.

Works with legacy printers: Mobilize your existing fleet of printers rather than buying new. It works with what you have now and what you may want going forward.

Challenges in Print Environment

End users:

- Printing from mobile devices (BYOD)
- Ease of installing printers and printer drivers
- Updating printer specific drivers

Administrators:

- Complexity of managing printers and printer drivers
- Auditing and accounting of print jobs
- Health-monitoring of a printer
- Secure printing
- Printing in heterogeneous environments - Windows and Mac platforms

2 What's New in iPrint Appliance

This section describes enhancements and changes to Micro Focus iPrint Appliance.

Highlights

- "Apple® AirPrint™ Certified" on page 17
- "Support for Driver Package on Mac" on page 17
- "Desktop Printing" on page 17
- "Printing from Chromebook" on page 18
- "iPrint App for iOS" on page 18
- "iPrint App for Android" on page 18
- "Email Printing" on page 18
- "Managing with ZENworks Mobile Management 3.2.x" on page 18
- "Improved Appliance Migration" on page 19
- "Data Collection for Product Improvement" on page 19

Apple® AirPrint™ Certified

Print from any Mac or iOS device without installing additional software to all Apple certified AirPrint printers.

Support for Driver Package on Mac

A new option is added to associate driver packages for Mac operating system. Using iManager, you can now associate driver package to a selected driver. The associated package will be automatically installed on the workstation when a user installs the printer. For more information, see the Uploading Drivers to the Driver Store.

This option is available with iPrint Appliance 2.1 and iPrint Mac client 6.04.

Desktop Printing

Micro Focus iPrint connects all your organization's workstations to your current printers. It allows IT to set up a self-service printing environment in which employees can print on demand instead of calling IT with print-provisioning needs.

iPrint Client 6.06 for Windows

The iPrint Client is upgraded to version 6.06.This client is also available on Windows 10, Windows 8.x, Windows 7, Windows Vista, Windows Server 2008 R2, and Windows Server 2012 R2. For more information, see Installing the iPrint Client.

iPrint Client 6.06 for Mac

The iPrint Client is upgraded to version 6.06. This client is also available on macOS Sierra (10.12), OS X El Capitan, 10.8 or later versions. For more information, see Installing the iPrint Client.

Printing from Chromebook

iPrint now provides secure enterprise print services for Chromebook users. The highlights of the extension are:

- Prints documents to any iPrint-enabled printers, anywhere and anytime.
- Supports on-premises deployment. Data never travels through the cloud.
- You no longer need any cloud service for printing.
- Available on iPrint Appliance 2.1 or later.

The extension is available in the Chrome Web Store for download.

iPrint App for iOS

iPrint provides secure enterprise print services for your iPhone and iPad users. The new enhancements are:

- Release WalkUp jobs securely from your desired printer
- Supports printing using the iPrint App extension
- Simplified and intuitive GUI

iPrint App for Android

Micro Focus iPrint provides secure enterprise print services for Android and Amazon users. The new enhancements are:

- Simplified and intuitive GUI
- Flexibility to print WalkUp jobs when you are near the printer
- Share document from any application and print using the iPrint app
- Print from any application that supports native Android printing

Email Printing

Users can print from any email-enabled device by sending an email to iPrint. You can set up a single email address for the organization's printing, or one for each printer.

iprintmobile.conf: Two options (incoming_mail_server_port and outgoing_mail_server_port) are added to overwrite the default port information configured by Appliance for IMAP, POP, and SMTP mail protocols to communicate with the mail servers.

Managing with ZENworks Mobile Management 3.2.x

The Micro Focus iPrint App available in the Google Play Store is enabled for ZMM. You can now manage the Micro Focus iPrint app using ZMM solution.

Improved Appliance Migration

 - Improved experience to perform migration from 1.1 to 2.1.
 - From iPrint Appliance 2.0 onwards, you must include a secondary disk that stores the appliance configuration details to facilitate seamless migration.

For more information, see Migrate Existing iPrint Appliance.

Data Collection for Product Improvement

Enables iPrint server to collect statistical data about your usage of iPrint service. This data will enable us to ensure that you have the best possible experience with iPrint. For more information, see the Product Improvement.

3 Planning Your Print Environment

This section describes the requirements for installing iPrint Appliance.

Server Requirements

iPrint Appliance works with any virtualization software that can run the `.ovf`, `.vhd`, or `.xen` file formats.

- Virtualization software. For support matrix, see "iPrint Appliance Server and Client Support" on page 218.
- Directory service:
  - NetIQ eDirectory 8.8 or later
  - Active Directory configured on Windows Server 2012 R2 Standard Edition
  - Active Directory configured on Windows Server 2008 R2 Enterprise Edition
- NTP server details:
  - IP address or hostname
- IP address details for iPrint Appliance, including:
  - Static IP address
  - Network mask
  - Gateway IP address
  - Host name associated with the IP address
  - IP address of a DNS server
- The IP address assigned to the iPrint Appliance and remote renderer must have DNS host entry in the DNS server. Ensure that the DNS entries are in the same domain.

  If you do not have a DNS server to resolve the hostnames, you can use the `hosts` file to resolve the same as follows:
  - Ensure that the `hosts` file is updated with the iPrint Appliance and remote renderer details (IP and hostname) in both the iPrint Appliance and the remote renderer machine. The `hosts` file is located at:

    iPrint Appliance: `/etc/hosts`

    Remote renderer in the Windows machine: `C:\Windows\System32\drivers\etc`
- If you are using a third party certificate, ensure that the hostname of the iPrint Appliance and remote renderer are configured with the domain name against which the certificate is issued. For example, appliance.xyz.com and remoterenderer.xyz.com.

- If the iPrint Appliance and remote renderer, requires same IP address to resolve two different host names, then during the appliance configuration, do one of the following:
  - Ensure that the `/etc/hosts` file of iPrint Appliance is updated with the IP address and hostname (domain name against which the certificate is issued) of the iPrint Appliance and remote renderer.
  - If you have a DNS server, then ensure that the PTR record entry for hostname matches the domain name of the used certificate. Ensure to remove all the other hostnames from the `hosts` file.
- **Memory:** 4 GB RAM or higher is recommended.
- **Primary Hard Disk:** 40 GB. This disk stores the Operating System and all the binaries.
- **Secondary Hard Disk:** 40 GB. This disk stores the configuration details of the appliance. All the WalkUp jobs are also stored on the secondary disk. Depending on the usage of the print service, decide the space required on the secondary disk.

Ports Requirements

Figure 3-1 *iPrint Appliance Ports Map*
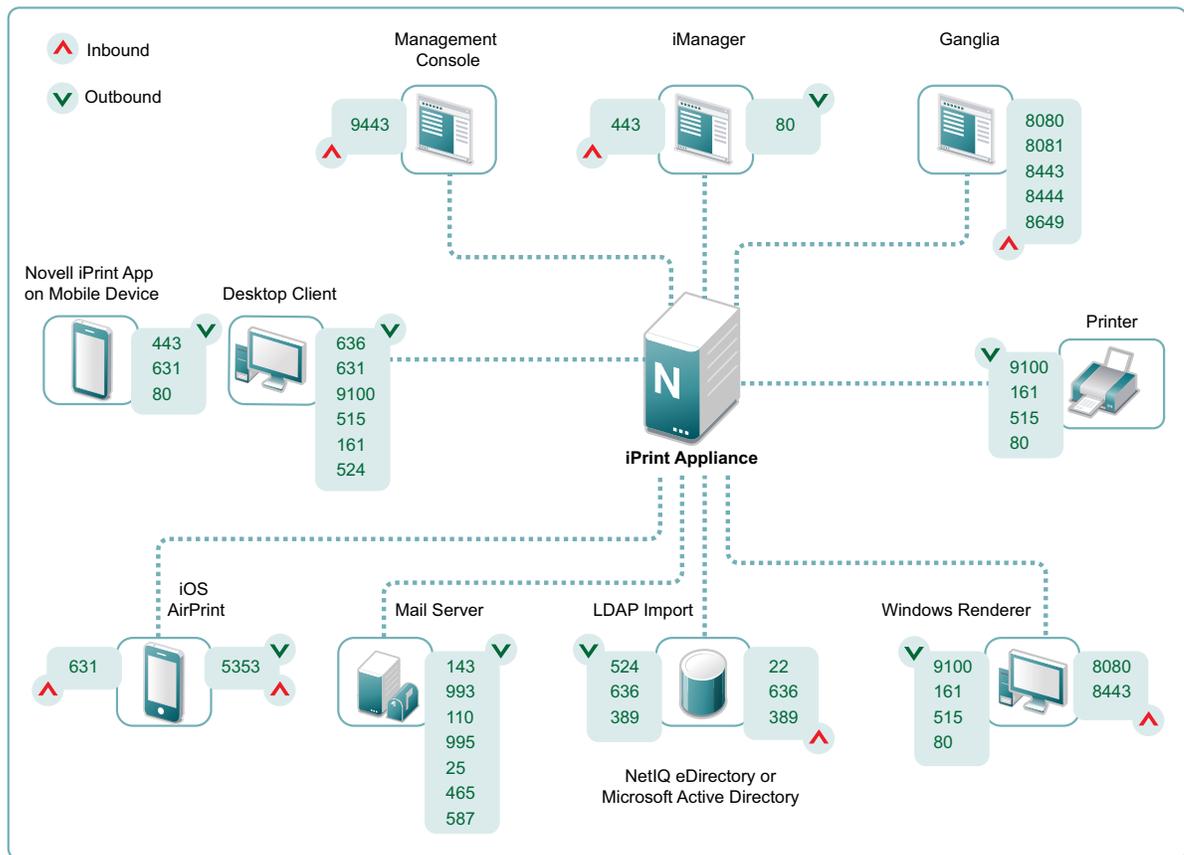
Desktop Clients: Open the ports on your clients to communicate with iPrint Appliance, printers and LDAP sources.

Operating System	Connection Type	Port	Protocols	Description
Windows				
	Outbound	9443		The release portal uses this port to communicate with iPrint Appliance
	Outbound	636	LDAPS (Secure)	To communicate with LDAP sources
	Outbound	631	IPP	To communicate with the printers
		9100	RAW	
		515	LPR	
		161	SNMP	
		524		To communicate with eDirectory using DClient
Mac				
	Outbound	9443		The release portal uses this port to communicate with iPrint Appliance
	Outbound	631	IPP	To communicate with the printers
		9100	RAW	
		515	LPR	

Mobile Apps: Open ports on your mobile devices to communicate with iPrint Appliance and printers.

Operating System	Connection Type	Port	Protocols	Description
iOS, Android, Windows, Blackberry	Outbound	443	HTTPS	To communicate with iPrint Appliance and with the printers
	Outbound	631	IPP	To communicate with the printers
		80	TCP	

Remote Renderer: Open the ports for various communications between iPrint Appliance and printers.

Operating System	Connection Type	Port	Protocols	Description
Windows	Inbound	8080	HTTP	To allow Management Console and Mobile server to connect with the renderer
	Inbound	8443	HTTPS	To allow secure communication
	Outbound	9100	RAW	To communicate with the printers
		161	SNMP	
		515	LPR	

iPrint Appliance: Open the ports for various communications between iPrint Appliance and printers.

Tasks	Connection Type	Port	Protocols	Description
Printers	Outbound	9100	RAW	To communicate with the printers
		161	SNMP	
		515	LPR	
		80	TCP	
AirPrint	Inbound	631	IPP	To perform AirPrint jobs
		443	HTTPS	
		5353	mDNS/ UDP	
	Outbound	5353	mDNS/ UDP	To advertise iPrint printers as iOS AirPrint printers
Desktop Clients	Inbound	515	LPR	To allow Desktop clients to communicate with the appliance
LDAP Import	Outbound	524	NCP (Dclient)	To perform LDAP import and authenticate users to the configured LDAP sources
		636	LDAPS (Secure)	
		389	LDAP (Non-Secure)	
	Inbound	22	SSH	To allow access to appliance to perform LDAP Import
		636	LDAPS (Secure)	
		389	LDAP (Non-Secure)	
Management	Inbound	9443		To allow access to iPrint Management Console
	Inbound/ Outbound	443	HTTPS	To perform iManager tasks
		80	TCP	

Tasks	Connection Type	Port	Protocols	Description
Mail Server	Outbound	143	IMAP	To communicate with the Mail server.
		993	IMAPS (Secure)	
		110	POP3	
		995	POP3	
		25	SMTP	
		465	SMTP (Secure via SSL)	
		587	SMTP (Secure via TLS)	
Ganglia Configuration	Inbound	8080 (blocked)		To configure Ganglia
		8081		
		8443		
		8444		
		8649		

NOTE: For ports required by the 3rd party products, you must refer their documentation.

Remote Renderer Requirements

For desktop quality printing for Microsoft Office and PDF documents, you must install a remote renderer. The minimum requirements are as follows:

- Install the renderer on a Microsoft Windows 64-bit system
- Windows 8.1 / Windows 8/ Windows 7 SP2 /Windows 2012 R2/ Windows 2008 R2 Enterprise with a dual-core processor or higher
- Microsoft .Net Framework 4 or later
- The IP address assigned to the iPrint Appliance and remote renderer must have DNS host entry in the DNS server. Ensure that the DNS entries are in the same domain.

  If you do not have a DNS server to resolve the hostnames, you can use the `hosts` file to resolve the same as follows:

  - Ensure that the `hosts` file is updated with the iPrint Appliance and remote renderer details (IP and hostname) in both the iPrint Appliance and remote renderer machine. The `hosts` file is located at:

  iPrint Appliance: `/etc/hosts`

  Remote renderer in the Windows machine: `C:\Windows\System32\drivers\etc`

- If you are using a third party certificate, ensure that the hostname of the iPrint Appliance and remote renderer are configured with the domain name against which the certificate is issued. For example, appliance.xyz.com and remoterenderer.xyz.com.
- If the iPrint Appliance and remote renderer, requires same IP address to resolve two different host names, then during the appliance configuration, do one of the following:
    - Ensure that the `/etc/hosts` file of iPrint Appliance is updated with the IP address and hostname (domain name against which the certificate is issued) of the iPrint Appliance and remote renderer.
    - If you have a DNS server, then ensure that the PTR record entry for hostname matches the domain name of the used certificate. Ensure to remove all the other hostnames from the `hosts` file.

For Desktop quality printing, we recommend to install the following optional software:

- Microsoft Office 2013
- Microsoft Office 2010
- Adobe Acrobat XI Professional
- Adobe Acrobat X Pro

Mobile Requirements

For more information on the supported platforms, see "Mobile Operating System Support" on page 215.

Migrate Requirements

- Configuration file (`iprintconfig.zip`) of the earlier version of appliance or secondary disk that includes the earlier version configuration file.

For more information, see Chapter 6, "Migrate Existing iPrint Appliance," on page 55.

4 Deploying iPrint Appliance

Configuring Virtual Environment

You must download the iPrint Appliance and configure the virtual environment where you plan to run the appliance.

The process of downloading the iPrint Appliance and configuring the virtual environment differs, depending on which virtual environment you plan to use to run the iPrint Appliance.

VMware Configuration

1 Download the iPrint software (`iPrintAppliance.x86_64-version.ovf.zip`) to your workstation.

You can download the software from the Vibes Downloads page (http://download.novell.com).

2 Extract the `iPrintAppliance.x86_64-version.ovf.zip` file on your workstation. The `iPrint-version` folder is created with the `.ovf` file.

NOTE: On a VMware workstation, do not extract the `iPrintAppliance.x86_64-version.ovf.zip` file using the default Windows extractor. On deploying this file, you may receive an error message, Access is Denied. To resolve this issue, extract the file using any other third-party extractor.

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3 In the vSphere client, click **File** > **Deploy OVF Template**.

4 Browse to and select the `.ovf` file from the `iPrint-version` file folder.

5 Click **Next**.

6 Click **Next** again.

7 In the **Name** field, specify name for the iPrint appliance, then click **Next**.

8 Select the location to store the virtual machine files, then click **Next**.

9 Click **Next** to accept the disk format.

10 Review the deployment settings, then click **Finish**.

On successful deployment, ensure to add a secondary disk before starting the VM.

11 Add a secondary disk for the appliance. The appliance configuration details will be stored in this location.

    11a In the vSphere client, right-click the virtual machine that you just created, then click **Edit Settings**.

        The Virtual Machine Properties page is displayed.

    11b On the **Hardware** tab, click **Add**.

        The Add Hardware dialog box is displayed.

    11c Select **Hard Disk**, then click **Next**.

    11d Select **Create a new virtual disk**, then click **Next**.

    11e Specify the disk space, then click **Next**. Recommended size is 40 GB.

    11f In the Advanced Options, continue with the default selection, then click **Next**.

    11g Review the settings, then click **Finish**.

12 Power on the appliance (virtual machine).

13 Continue with Initial Appliance Configuration.

Citrix Xen Configuration

- "Using OVF Format" on page 28
- "Using XVA Format" on page 29

Using OVF Format

1 Download the iPrint software (`iPrintAppliance.x86_64-version.ovf.zip`) to your management workstation.

You can download the software from the Novell Customer Center (NCC) (https://www.novell.com/center) Or you can download an evaluation version of the software from the Novell Downloads page (http://download.novell.com).

2 Extract the `iPrintAppliance.x86_64-version.ovf.zip` file on your management workstation.

3 In the Citrix XENCenter client, right-click the server on which you will install iPrint Appliance, then click **Import**.

The Import OVF/OVA Package wizard is displayed.

4 **Import Source:** Browse to F folder and select the `.ovf` file.

5 **Location:**

Click **Next** to continue with the default settings.

6 **Storage:** Select one or more storage repositories (SRs) where the disk images for the imported VMs will be placed, then click Next.

7 **Networking:** To map an incoming virtual network interface to a target network, select a network from the list in the **Target Network** column, then click **Next**.

The Network and MAC address shown in the list of the VMs are stored as part of the definition of the original (exported) VM in the export file.

8 **Security:**

If the selected OVF/OVA package is configured with security features such as certificates or a manifest, select **Verify manifest content** to verify the list of files in the package. If the packages are digitally signed, the associated manifest is verified automatically and so the **Verify manifest content** option is not available on the Security page.

Click **Next**.

9 **OS Fixup Settings:** Since the VMs are created on XenServer, select **Don't use Operating System Fixup**, then click **Next**.

10 **Transfer VM Settings:** Configure the network settings, then click **Next**.

  10a Select a network from the list of network interfaces.

  10b To configure networking settings manually, select **Use these network settings** and enter the IP address, subnet mask and gateway.

    We recommend you to provide the same IP address that you plan to use for iPrint VM server. However, you can also provide a temporary IP address.

11 Review all the import settings and then click **Finish** to begin the import process and close the wizard.

  The import progress is displayed in the status bar at the bottom of the XenCenter window and also on the Logs tab.

12 Add a separate hard disk for the appliance. The appliance configuration details will be stored in this location.

  12a In the Citrix XENCenter client, select the virtual machine that you just created, and click on the **Storage** tab.

    The Virtual Disks page is displayed.

  12b Click **Add**.

    The Add Virtual Disk dialog box is displayed.

  12c In the **Name** field, specify the name of the virtual disk.

  12d In the **Size** field, specify the amount of hard disk space that you want to allocate. 40 GB is recommended.

  12e Click **Add**.

13 Power on the appliance (virtual machine).

14 Continue with Initial Appliance Configuration.

Using XVA Format

1 Download the iPrint software (`iPrintAppliance.x86_64-version.xva.tar.gz`) to your management workstation.

  You can download the software from the Novell Customer Center (NCC) (https://www.novell.com/center) Or you can download an evaluation version of the software from the Novell Downloads page (http://download.novell.com).

2 Extract the `iPrintAppliance.x86_64-version.xva.tar.gz` file on your management workstation.

3 In the Citrix XENCenter client, right-click the server on which you will install iPrint Appliance, then click **Import**.

  The Import XVA Package wizard is displayed.

4 **Import Source:** Browse to `iPrintAppliance.x86_64-version` folder and select the `.xva` file.

5 **Home Server:**

  Select the server that you want to nominate as home server for this VM. Click **Next**.

6 **Storage:** Select one or more storage repositories (SRs) where the disk images for the imported VMs will be placed, then click **Import**.

7 **Networking:** To map an incoming virtual network interface to a target network, select a network from the list in the **Network** column, then click **Next**.

The Network and MAC address shown in the list of the VMs are stored as part of the definition of the original (exported) VM in the export file.

8 Review all the import settings.

NOTE: Do not select the option **Start VMs after import**. If you select this option the VM will start without user intervention. We need to add a secondary hard disk before starting the VM.

Click **Finish** to begin the import process and close the wizard. The import progress is displayed in the status bar at the bottom of the XenCenter window and also on the Logs tab.

9 Add a separate hard disk for the appliance. The appliance configuration details will be stored in this location.

9a In the Citrix XENCenter client, select the virtual machine that you just created, and click on the **Storage** tab.

The Virtual Disks page is displayed.

9b Click **Add**.

The Add Virtual Disk dialog box is displayed.

9c In the **Name** field, specify the name of the virtual disk.

9d In the **Size** field, specify the amount of hard disk space that you want to allocate. 40 GB is recommended.

9e Click **Add**.

10 Power on the appliance (virtual machine).

11 Continue with Initial Appliance Configuration.

Xen Configuration

1 Log in to the host server either locally or from a remote workstation.

You can use the following command to log in to the host server from a remote workstation on Linux:

`ssh -X root@host_ip_address`

You must use the -X in the command in order to display the GUI installation program. The steps in this section use the GUI installation program to configure the server.

2 Navigate to the `/var/lib/xen/images` directory on the host server.

3 Create a new directory inside the images directory where you can download the iPrint software.

The name of this directory must be the same as the name that you plan to use for your iPrint virtual appliance. For example, if you plan to name the iPrint appliance `iPrint1`, the name of this new directory must also be `iPrint1`.

4 Change to the directory that you just created. For example, `/var/lib/xen/images/iPrint1`.

5 Download the iPrint software (`iPrintAppliance.x86_64-version.xen.tar.gz`) to the current directory on the host server. For example: `/var/lib/xen/images/iPrint1`

You can access the software from the Novell Customer Center (NCC) (https://www.novell.com/center). Or, you can access an evaluation version of the software from this location (http://download.novell.com/Download?buildid=9xcn1vXns5A~) on the Novell Downloads page (http://download.novell.com).

6 Untar the `iPrintAppliance.x86_64-version.xen.tar.gz` file in the directory where you downloaded it.

You can use the following command to untar the file:

`tar -Sxvzf iPrintAppliance.x86_64-version.xen.tar.gz`

A `iPrint-version` directory is created, which contains a `.raw` file that you will use to run the virtual image. This process can take a few minutes.

7 From the host server, run the following command to launch the GUI configuration menu:

`vm-install`

The Create a Virtual Machine wizard is displayed.

8 Click **Forward**.

9 Select **I have a disk or disk image with an installed operating system**, then click **Forward**.

10 Leave **SUSE Linux Enterprise Server 11** selected, then click **Forward**.

11 Rename the virtual machine by clicking **Name of Virtual Machine**, then specifying a new name in the **Name** field. Then click **Apply**. For example, `iPrint1`.

12 Configure the amount of memory and number of CPUs that Xen allocates for the iPrint appliance.

   12a On the Summary page, click **Hardware**, then specify the following information:

      Available Memory: Displays the amount of available memory that is available on the host server.

      Initial Memory: 4 GB is the recommended minimum amount of memory.

      Maximum Memory: Set this to the same value that you set for Initial Memory.

      Available Processors: Displays the number of available processors on the host server.

   12b Click **Apply**.

13 Configure the bootable disk image:

   13a On the Summary page, click **Disk**s.

   13b Click **Harddisk**.

   13c On the Virtual Disk page, specify the following information:

      Source: Click **Browse**, then browse to the `.raw` file that you untared in Step 6.

      Protocol: Select **file:**.

      Size (GB): The default size is 40.1 GB. This cannot be changed.

      Create Sparse Image File: This option is not available.

      Read-Only Access: Do not select this option.

   13d Click OK.

14 Add a separate Xen hard disk. You must add a hard disk to the virtual machine before you choose this option. If you have not already added a hard disk, click **Power Off Virtual Machine**, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

   14a On the Disks page, click **Harddisk**.

   14b On the Virtual Disk page, specify the following information:

      Source: This field should already contain the path to the `.raw` file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from `disk0` to a name of your choosing.

      Size (GB): Specify the amount of hard disk space that you want to allocate. 40 GB is recommended.

15 Click **OK > Apply**.

16 Click **OK** to save your changes and to create and power on the virtual machine.

> **IMPORTANT:** Do not power on the appliance until you have created a separate Xen hard disk for the appliance, as described in Step 14.

17 Continue with Initial Appliance Configuration.

Hyper-V Configuration

1 Log in to the host server either locally or from a remote workstation.

You can use Windows Remote Desktop to log in to the host server from a remote workstation.

2 Create a new directory in the location where you want each virtual machine to reside (for example, `C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks`). In a later step, you will download the iPrint software to this directory.

As a best practice, give this directory the same name as the name that you plan to use for your iPrint virtual appliance. For example, if you plan to name the iPrint appliance `iPrint1`, the name of this new directory should also be `iPrint1`.

3 Download the iPrint software (`iPrintAppliance.x86_64-version.vhd.zip`) to the directory on the host server that you created in Step 2.

You can access the software from the Novell Customer Center (NCC) (https://www.novell.com/center). Or, you can access an evaluation version of the software from this location (http://download.novell.com/Download?buildid=9xcn1vXns5A~) on the Novell Downloads page (http://download.novell.com).

4 Extract the `iPrintAppliance.x86_64-version.vhd.zip` file to the directory on the host server that you created in Step 2.

5 Open the Hyper-V Manager.

6 In Hyper-V Manager, right-click the disk name in the Action Pane in the left-hand column of the Hyper-V Manager window. This is the disk where you want to create the new virtual machine. Then click **New** > **Virtual Machine**.

The New Virtual Machine Wizard is displayed.

7 Review the Before You Begin page, then click **Next**.

8 In the **Name** field, specify a name for the new virtual machine. For example, `iPrint1`.

9 Click **Next**.

10 In the **Startup memory** field, specify the amount of memory (in MB) to allocate to the virtual machine. 4 GB is the recommended minimum for a iPrint.

11 Click **Next**.

12 On the Configure Networking page, select the networking card of your choice, then click **Next**.

13 Configure the bootable disk image:

13a On the Connect Virtual Hard Disk page, select **Use an existing virtual hard disk**, then browse to the `.vhd` file that was in the downloaded `.zip` file that you extracted in Step 4.

13b Click **Open** to select the file, then click **Next**.

14 Click **Finish**.

15 Create a separate Hyper-V hard disk for the appliance. You must add a hard disk to the virtual machine before you choose this option. If you have not already added a hard disk, click **Power Off Virtual Machine**, modify the virtual machine settings to add a hard disk, then power on the virtual machine.

NOTE: If you do not add a hard disk to the virtual machine, then iPrint Appliance is installed on the default partition. The default partition is /sda.

15a In Hyper-V Manager, right-click the disk that you just created, then click **Settings**.

15b In the Hardware section, select **IDE Controller 1**, select **Hard Drive**, then click **Add**.

15c Select **Virtual hard disk**, then click **New**.

15d Review the Before You Begin page, then click **Next**.

15e On the Choose Disk Format page, select **VHD**, then click **Next**.

15f On the Choose Disk Type page, select **Fixed size**, then click **Next**.

15g On the Specify Name and Location page, specify the following information, then click **Next**:

Name: Specify a name for the hard disk. For example, `iPrintDisk2`.

Location: Specify the location where you want the hard drive to be located.

16 On the Configure Disk page, select **Create a new blank virtual hard disk**, then specify a size for the hard disk. 40 GB is recommended.

17 Click **Next**.

18 Review the summary information, then click **Finish**.

19 Click **Apply** > **OK**.

20 Right-click the virtual machine, then click **Start**.

IMPORTANT: Do not start the appliance until you have created a separate Hyper-V hard disk for the appliance, as described in Step 15.

21 Right-click the virtual machine, then click **Connect**.

22 Continue with Initial Appliance Configuration.

Initial Appliance Configuration

1 After you have downloaded the iPrint appliance, configured the virtual environment, and powered on the appliance, click the **Console** tab.

NOTE: If you are configuring the appliance with a `xva` file, then the remaining steps are displayed in ncurses (text-based) format.

2 After the appliance starts, select your preferred keyboard layout in the **Keyboard Language** drop-down, then accept the license agreement by clicking **Accept**.

You can change the language in the agreement from the **License Language** drop-down.

The Micro Focus iPrint Appliance Passwords and Time Zone page is displayed.

3 On the **Micro Focus iPrint Appliance Passwords and Time Zone** page, specify the following network information:

Root password and confirmation: The root password for your iPrint appliance.

Vaadmin password and confirmation: The preferred user to use when logging in to the appliance.

NTP Server: The IP address or host name of the reliable external Network Time Protocol (NTP) server your OES server uses. For example, time.example.com.

For the best results, set up NTP in accordance with the VMware best practices guidelines.

Region: Your local region.

Time Zone: Your local time zone.

4 Click **Next**.

5 On the **Micro Focus iPrint Appliance Network Settings** page, specify the following information:

Hostname: The fully qualified DNS host name associated with the appliance's IP address. For example, myiPrint.mynetwork.example.com.

IMPORTANT: Ensure that the host name is in valid format because no validation is done in this step. At a later stage, appliance configuration fails if the host name is invalid.

To get the hostname, go to the command prompt and type `nslookup` <*ipaddress*>. For example, nslookup 192.168.1.255.

IP Address: The static IP address for the appliance. For example, 172.17.2.3.

Network Mask: The network mask associated with the appliance's IP address. For example, 255.255.255.0.

Gateway: The IP address of the gateway on the subnet where your iPrint virtual appliance is located. For example, 172.17.2.254.

DNS Servers: The IP address of a primary DNS server for your network. For example, 172.17.1.1.

Domain Search: The domain where the iPrint Appliance is located. For example, mynetwork.example.com.

6 Click **Next**.

7 Select the Hard Drive.

If you created a secondary VMware hard drive for this appliance, it is automatically detected and **sdb** is displayed as the hard drive. If you have not created a secondary VMware hard drive, **sda** is chosen as the default partition.

If you have added a secondary hard drive, specify the following options:

Hard Drive: Select the hard drive you are using.

Create a new partition: Select this option to create a new partition.

Filesystem type: Specify the type of file system.

8 Click **Configure**.

If you have not created a secondary hard disk, a warning message is displayed to power off the VM.

8a Click **Power Off Virtual Machine**, then add the secondary hard disk.

8b Power on the VM and continue with the installation.

The iPrint Appliance installation process begins. A message stating, "The system is ready for appliance configuration" is displayed. After the installation is complete, a URL and an IP address to access the iPrint Appliance Management Console is displayed. Using a Web browser, navigate to the Management Console URL.

The iPrint Appliance installation is now complete. You must configure iPrint Appliance before you can start printing. Continue with Chapter 5, "Creating New Appliance," on page 35.

5 Creating New Appliance

You can configure iPrint Appliance through the iPrint Appliance Management Console.

- ◆ "Creating New iPrint Appliance" on page 36
- ◆ "Creating Printers" on page 37
- ◆ "Creating or Importing Users" on page 41
- ◆ "Configuring Printer Drivers" on page 41
- ◆ "Configuring Printing Through Mobile Devices" on page 49
- ◆ "What's Next" on page 54

You can configure new iPrint Appliance or migrate from an earlier version. To view help, click **Getting Started**.

1 On a Web browser, use either the host name or the IP Address to access the Management Console. For example, https://10.0.0.1:9443.

Ignore the security certificate warning, and continue to the iPrint Appliance Management Console. To avoid the security warning prompt every time you access the iPrint Appliance Management Console, you can add the certificate to the trusted certificates list on your browser.

2 Specify `vaadmin` or `root` as the user name.

3 Specify the password, then click **Log in**.

The Management Console page is displayed.

4 Click **iPrint Appliance Configuration**.
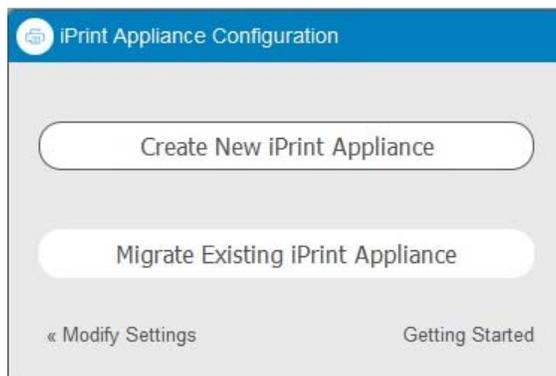
5 Click Create New iPrint Appliance or Migrate Existing iPrint Appliance.

Creating New iPrint Appliance

Figure 5-1 *Create iPrint Appliance*

1 **DNS for Print Service:** The host name is tied to a Print service, rather than the server. The host name must resolve to the IP address of the Appliance. You must validate that the DNS address is correct and functional before continuing because a wrong DNS address can result in errors.

   The default value is the host name of the iPrint Appliance. If you modify this value to a different host name it allows you to move the iPrint server without interrupting the workstations. The host name is used to connect to the Windows and Mac desktop clients.

   NOTE: If you configure a Remote Driver Store, you must manage (using iManager) the Remote Driver Store from the machine where the Driver Store resides.

2 **Authentication Realm:** Specify the tree name only if you want to authenticate to an existing OES server.

   In an OES iPrint server, the Authentication Realm is the eDirectory tree name. When a user logs in to the workstation with NetIQ eDirectory credentials, the credentials are shared with the iPrint Client to provide seamless login experience to all the iPrint servers in your tree.

3 **iManager Credentials:** The credentials in this section are used to log in to the iManager interface. In the earlier release this label was Embedded Data Store.

   Administrator Username: The administrator account user name is pre-populated in the following format: `cn=admin,o=iPrintAppliance`. This field is not editable.

   Administrator Password: Specify the password for the iManager administrator account. This password will be used to log in to the iManager for managing the print environment.

Re-type Password: Specify the password again to confirm.

4 Click **Finish**.

After configuring iPrint Appliance, you must create or import users, create or import printers, and upload drivers. You can also configure printers to accept print jobs from mobile devices, AirPrint, or email.

Creating Printers

Before configuring the printer, you must create the printer object on the iPrint Appliance. You can use any one of the following methods to add printers to iPrint Appliance.

- ◆ Chapter 7, "Migrating Printers from an OES iPrint Server," on page 61
- ◆ "Creating Printers Using iManager" on page 37
- ◆ "Bulk Printer Import Using a CSV File" on page 38

Creating Printers Using iManager

By default, iPrint Appliance supports only PostScript printers. For non-PostScript printers like PCL, or for printers that do not work with the default PostScript driver, you must associate appropriate drivers to the printers.

1 On the iPrint Appliance Management Console page, select the **Manage Printers (iManager)** tool to connect to iManager.

2 Log in to iManager using the eDirectory admin credentials of iPrint Appliance.

Ignore the security certificate warning, and continue to the iPrint Appliance Management Console. If you add the certificate to the trusted certificates list, the security warning is not displayed.

3 Click **iPrint > Create Printer**.

4 Specify the Target printer details.

Printer Name: Defines the label by which the new printer is identified. You can include uppercase and lowercase letters, numbers, spaces, and underscore in the label. Do not use any other characters.

Container Name: The eDirectory container where the printer reference resides. By default, the value is "iPrintAppliance". We do not recommend changing the default value.

Print Manager name: The name of the Print Manager that handles the incoming print jobs.

DNS name or IP address: The IP address of a printer uniquely identifies it on the network and allows other networked machines to communicate with it. A DNS name can also be applied to the printer, which can be translated into the printer's IP address.

Specify the IP address (v4) or the DNS name of the target printer.

Location: Indicates the printer's location. The value of this field is displayed when selecting a printer.

Description: Describes the printer. The value of this field is displayed when selecting a printer.

LPR Printer Name: Specify an LPR printer name. If the LPR protocol is selected, other optional parameters can also be specified. With most modern printers, the name can be set to PASSTHROUGH. With some older printers (1990's & prior), there might be a different printer name.

RAW Port Number: If the RAW protocol is selected, a port number is required. Most printers are configured, by default, to use port 9100 for RAW protocol communications.

iPrint Appliance supports printer communications using either the Line Printer Remote (LPR) or RAW protocols.

The LPR protocol is the most common printing protocol and is generally more flexible than the RAW protocol. A printer that supports the LPR protocol is sometimes referred to as a TCP/IP printer. The LPR protocol has limited error reporting capabilities, which is often limited to "Printer Error" with no details.

The RAW protocol is often the default protocol on non-Windows systems. Most printers that support the RAW protocol use port 9100. The LPR protocol can generally be substituted for the RAW protocol if the RAW protocol does not respond to a print job.

5 Click **Next**.

6 Specify the drivers for the printer.

iPrint Appliance supports both driver and driverless printing. For mobile device printing, drivers are not required. The selectable drivers for each operating system are available in the Micro Focus iPrint Appliance Driver Store.

7 To reedit the printer-specific options after the new printer has been created, click **Modify**. To create another printer, click **Repeat Task**. To continue, click **OK**.

In iManager, you might see a **Partition and Replicas** option. This feature is not supported on iPrint Appliance.

Bulk Printer Import Using a CSV File

You can import printers into iPrint Appliance through a csv file. On successful import the printers resides in the container O=iPrintAppliance.

You must create a csv file, then import the csv file into iPrint Appliance. The csv file must contain the following fields in the same order:

```
PrinterName,PrinterIP,Location,Description,Win95_98_Driver,Winnt_Driver,Win2k_Driv
er,Winxp_Driver,Linux_Driver,Mac_Driver,Vista32_Driver,Vista64_Driver,Win732_Drive
r,Win764_Driver,Win832_Driver,Win864_Driver,Win1032_Driver,Win1064_Driver,Enable
DirectPrinting,Secure Printing,Enable Auditing,LPR/RAW,Raw Port
```

NOTE: You cannot enable both direct printing and auditing. If enabled, both options are disabled when creating the printers.

Table 5-1 *Parameter Description of CSV File*

Parameter	Description	Value (Mandatory/Optional)
PrinterName	Name of the printer that you want to import	Mandatory
PrinterIP	IP Address assigned to this printer **NOTE:** Specify only the IP address. Printer creation fails if host name is specified.	Mandatory
Location	Location of the printer	Optional

Parameter	Description	Value (Mandatory/Optional)
Description	Details of the printers like make, model, and so forth.	Optional
Win95_98_Driver	Driver associated with this printer for Windows 95 and Windows 98 platform.	Optional
Winnt_Driver	Driver associated with this printer for Windows NT platform.	Optional
Win2k_Driver	Driver associated with this printer for Windows 2000 platform.	Optional
Winxp_Driver	Driver associated with this printer for Windows XP platform.	Optional
Linux_Driver	Driver associated with this printer for Linux platform.	Optional
Mac_Driver	Driver associated with this printer for Mac devices.	Optional
Vista32_Driver	Driver associated with this printer for Windows Vista 32-bit platform.	Optional
Vista64_Driver	Driver associated with this printer for Windows Vista 64-bit platform.	Optional
Win732_Driver	Driver associated with this printer for Windows 7 32-bit platform.	Optional
Win764_Driver	Driver associated with this printer for Windows 7 64-bit platform.	Optional
Win832_Driver	Driver associated with this printer for Windows 8.x (32-bit) platform.	Optional
Win864_Driver	Driver associated with this printer for Windows 8.x (64-bit) platform.	Optional
Win1032_Driver	Driver associated with this printer for Windows 10 32-bit platform. Windows 10 uses the same driver as Windows 8.x.	Optional
Win1064_Driver	Driver associated with this printer for Windows 10 64-bit platform. Windows 10 uses the same driver as Windows 8.x.	Optional
DirectPrinting	Enable direct printing for this printer. Value is `yes` or `no`. By default, this option is disabled. You cannot enable both direct printing and auditing.	Optional
Secure Printing	Enable secure printing for this printer. Value is `yes` or `no`. By default, this option is disabled.	Optional
Enable Auditing	Enable auditing of this printer. Value is `yes` or `no`. By default, this option is disabled.	Optional
LPR/RAW	Protocol to be used by this printer. Value is `LPR` or `RAW`. By default, the value is `LPR`.	Optional

Parameter	Description	Value (Mandatory/Optional)
Raw Port	If you have selected RAW protocol, specify the port number.	Optional

IMPORTANT: In the csv file, you must specify at least one driver for each printer. For all optional parameters, you must include a empty string.

Example of a CSV file

If you have to migrate 2 printers (printer1 and printer2) for a Windows 8 32-bit platform. The csv file includes:

```
printer1,10.0.0.1,1st_floor,HP LaserJet 4100,,,,,,,,,,,HP LaserJet 4100 PCL 5
,,,,no,yes,yes,LPR,

printer2,10.0.0.2,2st_floor,HP LaserJet 4100,,,,,,,,,,HP LaserJet 4100 PCL 5
,,,,no,yes,yes,RAW,9100
```

After you create the csv file, upload the file to iPrint Appliance.

Uploading the CSV File

1 On a Web browser, specify either the host name or the IP address. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify the **Username** and **Password**, then click **Log in**.

3 Click **Manager iPrint Appliance**.

4 Click Printers.

5 Click the **Bulk Printer Creation** button in the upper-right corner of the window.
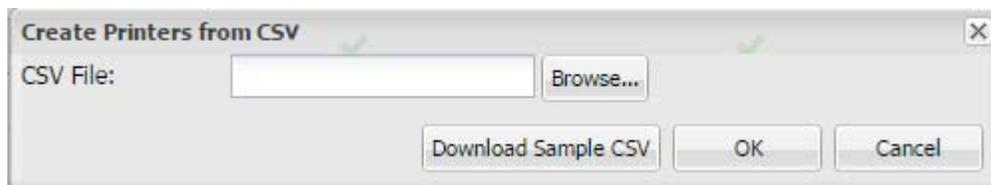
5a To download the sample csv file, click **Download Sample CSV**.

6 Navigate to the `.csv` file, select it, then click **OK** to begin the printer import process.

To enable printing from mobile devices, proceed to "Configuring Printing Through Mobile Devices" on page 49.

Creating or Importing Users

You can either import your users from an existing LDAP eDirectory or Active Directory source, or you can create local users on iPrint Appliance.

- "LDAP Import from eDirectory or AD Source (Recommended)" on page 41

LDAP Import from eDirectory or AD Source (Recommended)

To set up iPrint Appliance and import printers, you must first import users from your LDAP source. For information on how to import users from an LDAP source, see "Import Users" on page 105.

Configuring Printer Drivers

A printer driver or PostScript Printer Description (PPD) file is software that directly supports a physical printer, enabling it to carry out its functions.

Hardware vendors develop printer drivers and PPD files, which are specific to each printer. Most printers require different printer drivers for each operating system they interact with. You can use iManager to view a list of printer drivers and PPD files you have uploaded to the Driver Store. You can add printer drivers and PPD files from diskettes, CDs, and the workstation operating system.

iPrint Appliance ships with a default Linux driver that is used by the local renderer for mobile printing. To modify the default Linux driver, see "Modifying the Default Linux Driver Used by the Local Renderer for Mobile Printing" on page 47.

- "Prerequisites" on page 41
- "Uploading Drivers By Using iManager" on page 41
- "Uploading Drivers By Using Command Line" on page 46
- "Modifying the Default Linux Driver Used by the Local Renderer for Mobile Printing" on page 47
- "Location Of the Linux Printer Drivers" on page 48

Prerequisites

- Install iPrint Client. For more information, see "Installing the iPrint Client" on page 161

Uploading Drivers By Using iManager

iManager is a management tool that allows you to manage your print environment. You can create printers, printer drivers, profiles, and users.

Supported Browsers to Upload Drivers Using iManager

Workstation	Supported Browser	Upload Linux Drivers (PPD file)	Upload Windows Driver (.inf file)	Upload Mac Drivers (PPD file)
		Linux	Windows	Mac
Windows	Internet Explorer 6.0 or later (run as administrator)	✓	✓	✓
			Same version as the workstation	
Mac	Not supported	✗	✗	✗

NOTE: If you are running iManager from a Windows workstation, you can only add printer drivers for that version of Windows.

You cannot upload drivers from a Windows Server platform. To print documents from your Windows server, you must upload the drivers from the Windows workstation that can work with the server platform. For more information, see "Windows server and workstation Map" on page 46.

Uploading Drivers to the Driver Store

To upload printer drivers to the Driver Store:

1 In iManager, click **iPrint** > **Manage Driver Store**.
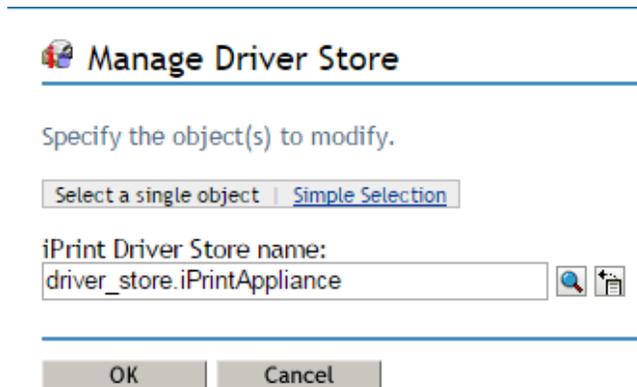
2 Specify the name of the iPrint Driver Store to which you want to add printer drivers.
3 Select the **Drivers** tab.
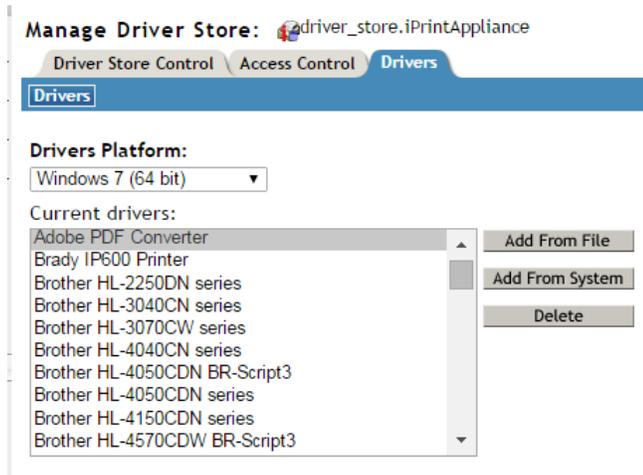
4 Use the **Drivers Platform** drop-down list to select the client platform for which you want to add the printer driver.

5 Perform one of the following actions:

- Click **Add from File** to add printer resources from a printer driver (`.inf` file or `PPD`) file.

  Mac: The standard file format is PPD (Postscript Printer Description) file.

  Windows: The standard file format is `.inf` file.

- Click **Add from System** to add drivers from the workstation where you are running iManager.

  The drivers installed on your workstation are only available to be uploaded to the Driver Store.

6 (Conditional) If the client platform is Mac, new options are available as follows:.
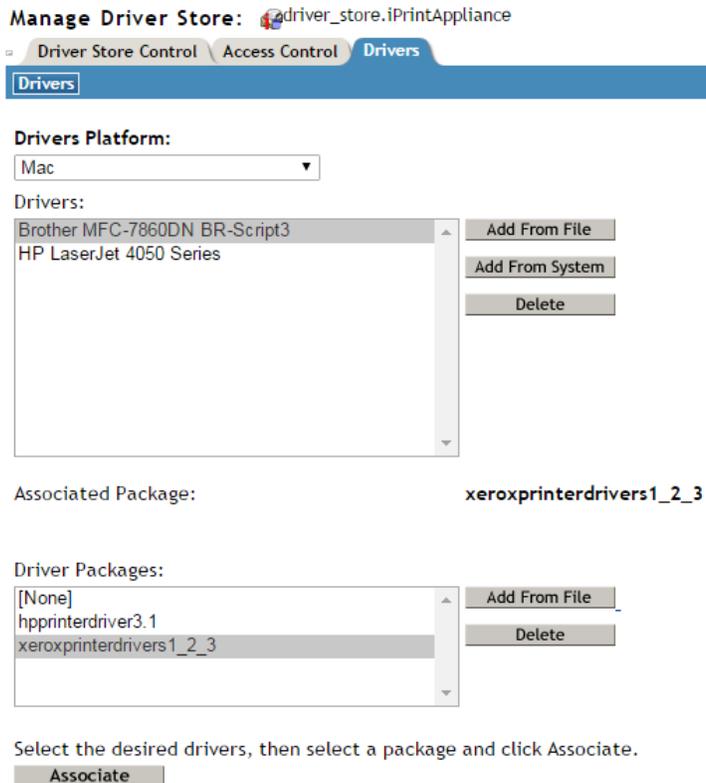
Associated Driver Package: Displays the driver package, if any, associated with the selected drivers. This is the dependent package for the driver and is installed with the printer. This option is available only on a Mac machine.

6a Perform one of the following actions:

- Click **Add from File** to add printer driver package to the list from a .pkg or .dmg file that you obtain from the printer vendor.

- Select the driver from the **Drivers** list, then select the package from the **Driver Packages** list and click **Associate**. This associates the selected driver to the package. When a user installs the printer, the driver and its associated files from this package are installed on the workstation. If the dependent files are missing, the printer installation fails.

- To disassociate a driver from the package, select the driver and select None from the Driver Packages list and click Associate. The driver is no longer associated to any package.

7 Click **OK** to save your changes.

To display the changes you made, click **Refresh**.

Deleting Drivers from the Driver Store

1 In iManager, click **iPrint** > **Manage Driver Store**.

2 Select the **Drivers** tab.

3 Read the list of existing printer drivers displayed in the **Current Drivers** panel.

4 Select a driver, then click **Delete**.

5 Click **OK** to save your changes

6 Click **Refresh** to refresh the screen and display the changes you just made.

Associating the Driver

To set the default driver:

1 In iManager, click **iPrint > Manage Printer**.
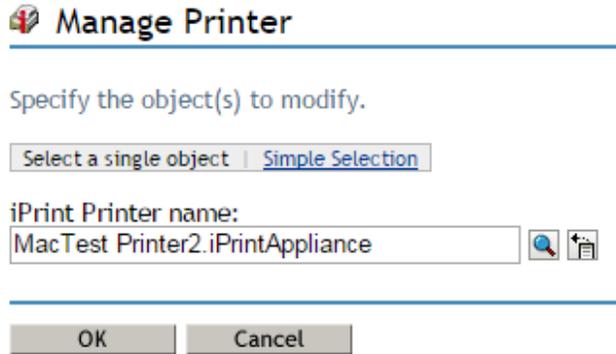
2 Specify the name of the printer to which you want to set the default driver.

3 Select the **Drivers** tab.
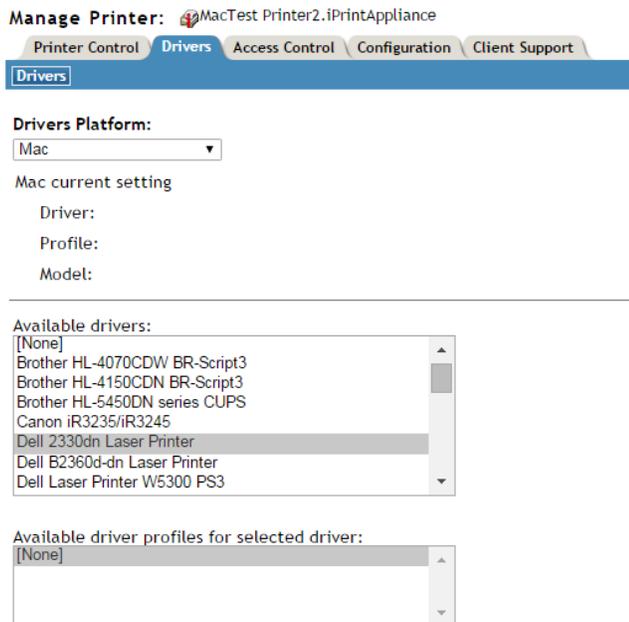
4 Use the **Drivers Platform** drop-down list to select the client platform for which you want to set the printer driver for the selected printer.

5 In the **Available drivers**, select the printer driver you want to associate with the selected printer.

This field displays a list of printer drivers that have been uploaded for this operating system. If you do not want a printer driver to be used, select **None**.

NOTE: If no printer driver is selected, you cannot print from a desktop client to that printer. For mobile printing, the default driver will be used to render jobs for that printer.

Windows server and workstation Map

Windows Desktop	Windows Server
Windows XP (32-bit)	Windows 2003
Windows Vista (64-bit)	Windows 2008
Windows 7 (64-bit)	Windows 2008 R2
Windows 8 or 8.1 (64-bit)	Windows 2012 or 2012 R2
Windows 10	

For example, To print from Windows 2008 server, associate the printer with Windows Vista driver.

Uploading Drivers By Using Command Line

You can upload drivers from your workstation or from an iPrint Appliance server.

Workstation

iprntcmd is a command-line utility that helps you manage iPrint tasks on your workstation. To upload the drivers to the driver store, run the following commands on your workstation:

Windows Client: Execute the following command to upload Windows driver:

```
iprntcmd -U <ids_address> <username> <password> <INF path>
```

where *ids_address* is the IP address or host name of the driver store, *username* and *password* are credentials of the user who has rights to add the drivers to the driver store and *INF path* is the path of the Windows driver file.

Windows Client: Execute the following command to upload MAC driver:

```
iprntcmd -U [osx] <ids_address> <username> <password> driver-Filepath
```

where *ids_address* is the IP address or host name of the driver store, *username* and *password* are credentials of the user who has rights to add the drivers to the driver store, *driver-Filepath* is the path of the Mac driver file (PPD or PDE).

Mac Client: Execute the following command:

```
iprntcmd -u <ids_uri> <PPD path or Mac driver path>
```

where *ids_uri* is the IP address or host name of the driver store, and *PPD path* is the path of the printer driver file or path of the driver package file.

iPrint Appliance Server

iprntman is a command-line utility that helps you manage iPrint tasks on the iPrint Appliance server.

Linux: Execute the following command:

```
iprntman driver linux --upload --from-ppd <PPD path> -u <eDir username> -P <eDir
password>
```

where *PPD path* is the path of the printer driver file, *eDir username* and *password* are credentials of the eDirectory user who has rights to add the drivers to the driver store.

Modifying the Default Linux Driver Used by the Local Renderer for Mobile Printing

iPrint Appliance ships with a default Linux driver that is used by the local renderer for mobile printing. Remote renderer does not include any driver, you must upload the drivers available in the driver store.

To modify the default Linux driver:

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.
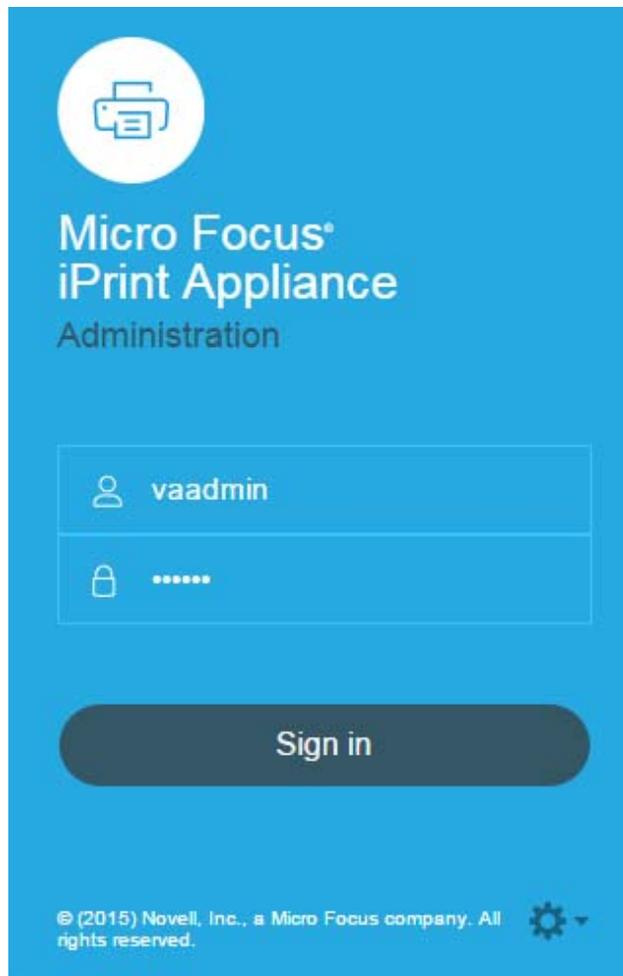
2 Specify `root` or `vaadmin` as the user name.

3 Specify password. This password was created when you performed the Initial configuration of the iPrint Appliance.

The Appliance Console page is displayed.

4 Click **Manage iPrint Appliance**.

iPrint Appliance
Configuration

5 Under **Configuration**, click **Renderers**.

6 On the Renderers Configuration page, select the `iPrint Local Renderer`, then click Edit.

7 In the **Default Printer Driver** drop-down list, select the driver that you want to set as default for the local renderer.

NOTE: The drivers from the driver store are listed in the **Default Printer Driver** field.

If a printer does not have a driver associated to it, the default printer driver is automatically used to print the documents.

Location Of the Linux Printer Drivers

iPrint Appliance ships with a default Linux driver that is uploaded to the Driver Store and used by the local renderer for mobile printing.

If you want to modify the default Linux driver, the appliance is also bundled with additional Linux printer drivers. To associate the drivers, you must upload the drivers to the Driver Store. The location of the drivers is `/usr/share/cups/model` and `/usr/share/cups/model/manufacturer-PPDs/hplip`.

To extract the relevant driver, execute the following command:

`gunzip <path to ppd.gz>`

For example, `gunzip /usr/share/cups/model/epson24.ppd.gz`

Using iManager or CLI, you can upload the drivers to the Driver Store.

You can also download the Linux drivers from the OPEN PRINTING (http://www.openprinting.org/printers) website and then upload to the Driver Store for association.

Configuring Printing Through Mobile Devices

You can configure printers to accept print jobs through mobile devices, AirPrint or email.

Configuring for Mobile Printing

1 On a Web browser, use either the host name or the IP Address to access the Management Console. For example, https://10.0.0.1:9443 or http://iprint.example.com/admin.

   Ignore the security certificate warning, and continue to the iPrint Appliance Management Console. If you add the certificate to the trusted certificates list, the security warning is not displayed.

2 In the Micro Focus iPrint Appliance Configuration login page, enter the user name as `vaadmin`, enter the password that you specified for vaadmin, then click **Log in**.

3 Click **Manage iPrint Appliance**.

4 Under **Configuration**, click **Printers**.

   The printers listed in this screen can be enabled for AirPrint, Mobile, and Email printing for iPrint Appliance.

5 Select the printer that you want to configure. You can choose multiple printers at a time by holding the **Ctrl** key.

   The **AirPrint**, **Mobile** and **Configure** drop-down menus are activated.

6 To configure the printers for Mobile printing, click the **Mobile** drop-down menu, then select **Enable**.

Configuring for Email Printing

iPrint Appliance contains an email printing feature. Using email printing, you can print documents from any device capable of sending emails. You can print emails by specifying email printing commands in the subject line of the email. You can also print documents by emailing them to your printer as attachments.

When you enable email printing, the email address you provide becomes the global print email address. You can also configure a printer for private email printing by providing a specific email address to each printer.

The difference between global email printing and private email printing is:

* **Global Email Printing:** When you enable email printing, you are prompted to specify an email address. This email address is the global print email address. When configured for email printing, iPrint Appliance becomes a client to an email server. The global email account inbox is polled for incoming print jobs, which are then routed to the intended printer.
* **Private Email Printing:** With private email printing, you can assign a specific email address to each printer. When a user sends an email printing request, the print job is sent directly to the printer. Users do not need to specify any print commands in the subject line of the email.

Email printing is not enabled by default. You can enable email printing through the Management Console. You must create a unique email address for iPrint Appliance to receive and process print requests. For more information on enabling Email, see "Global Email Settings" on page 102 and "Enabling Private Email Printing" on page 96.

IMPORTANT: If you enable auditing for email print jobs, the email address of the user is logged in the iPrint audit logs. If the same email address is populated for the user object in the LDAP source, then the user FDN is logged instead of email address. This is important if you are using an accounting software to ensure that jobs are tracked or accounted correctly.

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* "Email Printing Commands" on page 50

Email Printing Commands

You can print the body of the email and the attachments by using a few simple print commands in the subject line of your email.

* "Basic Print Commands" on page 50
* "Additional Print Commands" on page 52

Basic Print Commands

`help`

> Provides information on email printing commands.

`list printers`

> To get the names of the available printers, send an email to the iPrint server address (for example, iprint@example.com) with the subject line `list printers`.

print printer=<printer_name>

Prints your email and its attachments to the specified printer. For example, `print printer=hp#Test Mail`.

If you print to a specific printer by using the printer's email address, the `print printer` command is ignored.

hold printer=<printer_name>

Queues your email along with its attachments and sends you the job ID as acknowledgement.

resume

Resumes the printing of a job that you put on hold. There are two ways to print a job on hold:

- ◆ Send an email with subject `resume` followed by the job ID. For example, `resume 10`
- ◆ Send an email with the original subject line prefixed with `resume`. For example, `resume#Test Mail`

cancel

Cancels a job that you put on hold. There are two ways to cancel a job on hold:

- ◆ Send an email with subject `cancel` followed by the job ID. For example, `cancel 10`
- ◆ Send an email with the original subject line prefixed with `cancel`. For example, `cancel#Test Mail`

status

Displays the status of a job. There are two ways to check the status of a job:

- ◆ Send an email with subject `status` followed by the job ID. For example, `status 10`
- ◆ Send an email with the original subject line prefixed with `status`. For example, `status#Test Mail`

move

Moves a job to a new printer. There are two ways to move a job to a new printer:

- ◆ Send an email with subject `move`, the job ID, and the name of the new printer. For example, `move 10 printer=<PrinterName>`
- ◆ Send an email with the original subject line prefixed with `move`, the name of the new printer, and #. For example, `move printer=<PrinterName>#Test Mail`

list jobs

Lists the details of the held jobs.

default printer

Displays the default printer.

default printer=<PrinterName>

Sets a particular printer as your default printer. After you set the default printer, you do not need to include the printer name while printing to the default printer. You only need to use the `print` command followed by the email subject. For example, `print#Test Mail`.

Note

- ◆ If a printer name contains spaces, enclose the printer name within double (") or single (') quotes. For example, `print printer='HP PRINTER'`.
- ◆ To separate the email subject from the command, use #. For example, `print printer=hp#Test Mail`.

Additional Print Commands

In addition to the basic print commands listed above, you can use these commands to refine your printing:

`portrait` [portrait=yes/portrait=y (or) portrait=no/portrait=n]

> Prints your email content in portrait orientation. For example, `print printer=hp portrait=y#Test Mail`

`landscape` [landscape=yes/landscape=y (or) landscape=no/landscape=n]

> Prints your email content in landscape orientation. For example, `print printer=hp landscape=y#Test Mail`

`color` [color=yes/color=y (or) color=no/color=n]

> Prints your email content in color. For example, `print printer=hp landscape=y color=y#Test Mail`.

`pages`

> Prints a given range of pages in your email. For example, the command `print printer=hp landscape=y color=y pages=1-3#Test Mail` prints pages 1, 2, and 3.

`copies`

> Prints the specified number of copies of your email and its attachments. For example, the command `print printer=hp landscape=y color=y pages=1-3 copies=5#Test Mail` prints 5 copies of pages 1, 2, and 3.

`duplex` [duplex=yes/duplex=y (or) duplex=no/duplex=n]

> Prints your email and its attachments on both sides of the printing paper. For example, the command `print printer=hp landscape=y color=y pages=1-3 copies=5 duplex=y#TestMail` prints 5 copies of pages 1, 2, and 3 in duplex mode.

`media`

> Prints your email and its attachments with the specified paper type. The default paper type is "LETTER." You can change the default paper type by using the iPrint Appliance Management Console. The other available print paper types are A3, A4, and other common paper types. For example, the command `print printer=hp landscape=y color=y pages=1-3 copies=5 duplex=y media=A3#Test Mail` prints 5 copies of pages 1, 2, and 3 in duplex mode, on an A3 size paper.

`mailbody` [mailbody=yes/mailbody=y (or) mailbody=no/mailbody=n]

> Prints either your email and its attachments or only the attachments from your email without the email body. For example, using the command print `printer=hp landscape=y color=y mailbody=n#Test Mail` prints only the email attachments in landscape mode.

NOTE: If you do not specify any of the additional commands, your print job is carried out according to the default preferences set by your administrator.

IMPORTANT: When printing to a specific printer using the printer's private email address, you do not need to specify the printer's name in the command. You can also leave the subject line empty. Printing is carried out according to the default print options set by the administrator.

However, you must specify the print command in the following scenarios:

- The administrator changes the `subject_optional_for_printer_specific_emails` to **False** in the iPrint Appliance Server Configuration file located at `/etc/opt/novell/iprintmobile/conf/iprintmobile.conf`.
- If you want to customize the print options, you must specify the `print` command, along with the required print options. For example, `print landscape=y color=y pages=1-3 copies=5 duplex=y media=A3#Test Mail`.

Printing Using Email

Using email printing, you can print documents from any device capable of sending emails. You can print emails by specifying email printing commands in the subject line of the email. You can also print documents by emailing them to your printer as attachments.

Ensure to meet the following prerequisites:

- Appliance is configured with global or private email address. For example, iprint@example.com
- The users are provided with the appliance configured email address
- List of printers configured for email printing

Perform the following steps to print using email:

1 Open an email. You can use any email mail box.

2 In the **To** field, specify the appliance configured email address. For example, iprint@example.com

3 In the **Subject** field, specify the commands from the "Email Printing Commands" on page 50 section.

    For example,

    - To print from a printer named printer1, `print printer=printer1`
    - To view list of printers that are available to print, list printers
    - To view the list of commands, `help`

4 Specify the information to print in the body of the message or add an attachment to print.

5 Click **Send**.

    The document is printed and a confirmation message is received in the mail box.

Printing via AirPrint

AirPrint is an Apple technology that facilitates printing without the need to download or install drivers. AirPrint enables easy discovery, automatic selection of media, and so on.

Mac, iPhone, iPad, or iPod touch users can use AirPrint to print over wireless network to AirPrint enabled printers.

Enabling AirPrint through iPrint

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify `vaadmin` or `root` as the user name.

3 Specify the password, then click **Log in**.

4 Click **Manage iPrint Appliance**.

5 Under **Configuration**, click **Printers**.

6 Select a printer for which you want to enable AirPrint.

All Apple certified AirPrint printers are supported by iPrint for AirPrint printing.

7 Click the **AirPrint** drop-down menu, then click **Enable Advertising**.

iPrint AirPrint is now enabled on the iPrint printer. You can print to an iPrint AirPrint enabled printer from any iOS device.

Disabling AirPrint through iPrint

To disable AirPrint through iPrint:

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify `vaadmin` or `root` as the user name.

3 Specify the password, then click **Log in**.

4 Click **Manage iPrint Appliance**.

5 Under **Configuration**, click **Printers**.

6 Select a printer for which you want to disable AirPrint.

The **AirPrint** and **Mobile** drop-down menus are activated.

7 Click the **AirPrint** drop-down menu, then click **Disable Advertising**.

Generating QR Code for Printer

User can scan a QR code to select a specific printer on their mobile device. To generate the QR code for the printer, perform the following steps:

1 Create a QR code using any QR code generator.

The generator might include multiple formats, ensure to use Plain text format.

The format to use is ipp://<server ip or host name>/ipp/<printer name>

where the printer name is case-sensitive.

2 Print the generated QR code and paste it on the printer.

What's Next

iPrint Appliance is now configured for printing through desktop, laptops, and mobile devices. You can start printing to iPrint printers.

 For desktop-quality printing on your mobile devices, it is highly recommended that you install the remote renderer. You can download the remote renderer from the iPrint Appliance Management Console. To install and configure the remote renderer, see "Installing and Configuring a Remote Renderer" on page 72.

 For managing iPrint Appliance, see Chapter 10, "Managing Print System," on page 95.

6 Migrate Existing iPrint Appliance

Appliance migration copies the configuration settings from an existing appliance and setting up the new appliance with the same network details.

Depending on whether a configuration zip file is available or a secondary disk is attached, the GUI provides options to proceed with migration:

Support Matrix

You must upgrade to the latest supported patch version before migrating to iPrint Appliance 2.1.

Table 6-1   *iPrint Source Version Support for Migration*

Source Version	Patch Version	Status
2.0	patch 2 or later	Supported
1.1	patch 6 or later	Supported
1.0/ 1.0.1		Not Supported

Prerequisites

Failure to comply with any of the following critical points can result in a non-functional iPrint Appliance.

- Configuration file (iprintconfig.zip) of the earlier version of appliance or secondary disk that includes the earlier version configuration file.
- **Print pending jobs:** Ensure to print or cancel any pending jobs.
- **Remove all snapshots prior to upgrading an appliance:** To ensure that correct disk file and the latest configuration settings get migrated.
- **Meet all hardware and software requirements:** See Chapter 3, "Planning Your Print Environment," on page 21.
- **Patch the appliance:** See "Field Patch" on page 92.
- **You cannot migrate directly from iPrint 1.0 or 1.0.1 to iPrint 2.1:** You must first migrate to iPrint Appliance 1.1, apply all patches, ensure that all desktop clients are updated, and then upgrade to iPrint Appliance 2.1.

Migrating from 1.1 to 2.1

You can migrate from iPrint Appliance 1.1 to 2.1 using a configuration file (`iprintconfig.zip`).

Ensure that the copy of the configuration file (`iprintconfig.zip`) of the earlier version of the appliance is available before performing migration.

1 Create a copy of the configuration file (`iprintconfig.zip`) of the earlier version of the appliance. For more information, see "Exporting the Configuration File" on page 58.

2 Shut down the earlier appliance. The new appliance will be configured with the same IP and network settings.

3 Deploy iPrint Appliance with any virtualization software that can run the `.ovf`, `.vhd`, or `.xen` file formats. For more information, see "Configuring Virtual Environment" on page 27.

4 When the appliance is powered on, click the **Console** tab. Ensure you provide the same network configuration, passwords, and time zone as that of the earlier version of iPrint Appliance from which you exported the `iprintconfig.zip` configuration file.

   The iPrint Appliance installation is now complete.

5 On a Web browser, use either the host name or the IP Address to access the Management Console. For example, https://10.0.0.1:9443 or http://iprint.example.com/admin.

   Ignore the security certificate warning, and continue to the iPrint Appliance Management Console. To avoid the security warning prompt every time you access the iPrint Appliance Management Console, you can add the certificate to the trusted certificates list on your browser.

6 Specify `vaadmin` or `root` as the user name.

7 Specify the password, then click **Log in**.

8 Click **Migrate Existing iPrint Appliance**.
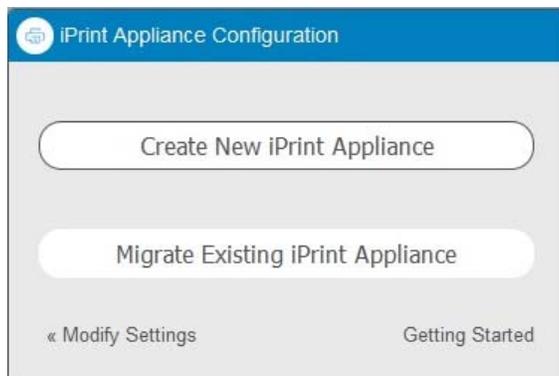
9 In the **Configuration File** option, click **Browse...**, then select the configuration file exported from a previous copy of iPrint Appliance. For more information about the `iprintconfig.zip`, see "Exporting the Configuration File" on page 58.

10 Specify the iManager password that was used to configure the earlier version of the iPrint Appliance.

11 Click **Finish**.

The time taken to complete the configuration depends on the size of the earlier version configuration file. On successful migration, the appliance reboots the VM.

Migrating from 2.0 to 2.*x*

1 Shut down the earlier appliance. The new appliance will be configured with the same IP and network settings.

2 Deploy iPrint Appliance with any virtualization software that can run the `.ovf`, `.vhd`, or `.xen` file formats.

3 Attach the secondary disk of the earlier version of the appliance. This disk includes all the configuration settings of the earlier appliance.

4 Power on the appliance.

5 On the Console tab, enter the root and vaadmin password for the new appliance.

The iPrint Appliance installation is now complete.

6 On a Web browser, use either the host name or the IP Address to access the Management Console. For example, https://10.0.0.1:9443 or http://iprint.example.com/admin.

Ignore the security certificate warning, and continue to the iPrint Appliance Management Console. To avoid the security warning prompt every time you access the iPrint Appliance Management Console, you can add the certificate to the trusted certificates list on your browser.

7 Specify `vaadmin` or `root` as the user name.

8 Specify the password, then click **Log in**.

9 Click **Migrate Existing iPrint Appliance**.
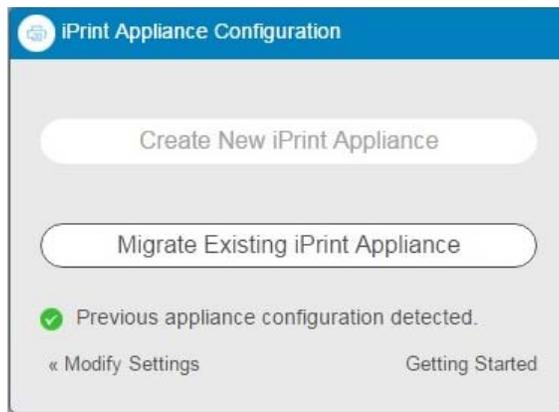
10 The iManager user name field is pre-populated and not editable. Specify the iManager password that was used to configure the earlier version of the iPrint Appliance. This password will be used to log in to the iManager for managing the print environment.
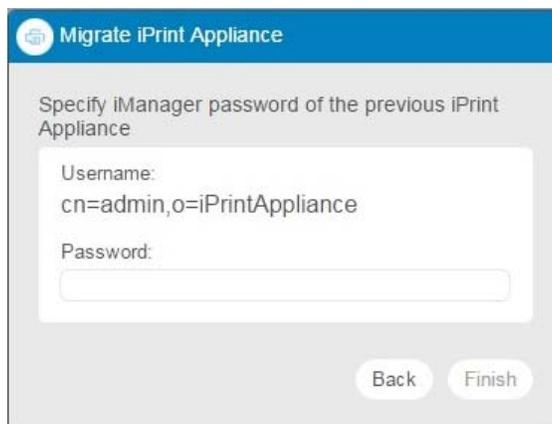
11 Click **Finish**.

The time taken to complete the configuration depends on the size of the earlier version configuration file. On successful migration, the appliance reboots the VM.

Post-Migrate

 • If you have an existing remote renderer, then post-migration of appliance, the renderer might be in an inactive state. To make the renderer active, stop and restart the renderer. After activating the renderer you must upgrade it. For more information, see "Upgrading the Remote Renderer" on page 76.

Exporting the Configuration File

To create the `iprintconfig.zip` file, you must copy the configuration information from an existing iPrint Appliance 1.1.

1 On the iPrint Appliance, either use host name or the IP Address to access the Management Console. For example, https://10.0.0.1:9443 or http://iprint.example.com/admin.

Ignore the security certificate warning.

2 Specify `vaadmin` or `root` as the user name.

3 Specify the password.

The Management Console page is displayed.

4 Click the **iPrint Appliance Configuration** icon.

5 Under **Configuration**, click **Export Configuration**.

6 Specify the **eDirectory administrator Password**, then click **Export**.

This is the password that you use for the administrator account of iPrint Appliance when using iManager.

On successful export, the file is available for download.

7 Click **Download the last exported configuration file**. This downloads the `iprintconfig.zip` file that contains the configuration information.

7 Migrating Printers from an OES iPrint Server

During the process of migration the iCM settings and ACLs are automatically migrated to the iPrint Appliance and depending on your selection printers, drivers, driver profile, and printer configuration details are migrated.

Prerequisites

- Ensure all users are migrated from OES to iPrint Appliance by using Import Users/ Groups task from Management Console. For information on how to import users from an LDAP source, see "Import Users" on page 105.

- Enable SSH service on the appliance. To enable SSH, see "System Services" on page 90. By default, the ssh service is disabled.

Migrating Printers

1 The Migration GUI must be launched from your Windows, Linux or Mac machines. Using iPrint Appliance you cannot launch the Migration GUI.

   1a To connect to the iPrint Appliance by using Windows (SSH):

      1a1 Launch SSH Client and connect to the iPrint Appliance. You must have X server running on your computer.

   1b To connect to the iPrint Appliance by using Linux or Mac:

      1b1 Launch the terminal, then run the command `ssh -X <iPrintApplianceIPaddress>`.

2 Log in as the `root` user and at the command prompt, enter `miggui`.

3 (Optional) Click **Save Project**. If you save a project, the next time you want to import printers, you can use the saved file to retrieve your preferences instantly.

4 Specify the credentials to authenticate to the source and iPrint Appliance server.

   If the source server is OES 2 SP3, OES 11, or OES 2015, specify the password for authentication in the **root Password** field.

5 Click **Add**.

6 Select **Micro Focus iPrint**, then click **OK**.

7 In the Configure Service dialog box, click **Yes**. The iPrint configuration windows is displayed.

iPrint Migration (on wgp-print-231)

Print Options | Other Options

Print Managers

Select printers from Source printers list to migrate.

Source Print Manager :

Target Print Manager : cn=print_manager,o=iprintappliance   Get Printers

☐ eDirectory Server* :

*In case the Target Server does not hold a eDirectory replica

Printer Objects

Source printers: (*Printer with same name exists on Target context)

Select	Printer Agents	Context

☐ Select All   Filter

Create Target printer objects in:

○ Context same as Source printer context

● Target context:

☐ Do Not Migrate Existing Target Printers

? Help

☑ OK   ✖ Cancel

For more information, refer to iPrint Migration Best Practices Guide.

8 Configure the following parameters to proceed with the migration process:

Print Objects	Parameter	Description
Print Managers	Source Print Manager	Specify the active Print Manager on the source server. The source Print Manager can be either an NDPS manager (for NetWare 6.5) or iPrint Manager (OES 2 SP3, OES 11, or OES 2015). To go directly to a context of your choice, specify the context in the search base and click **Search**. The objects in the specified context are displayed.

Print Objects	Parameter	Description
	Target Print Manager	The **Target Print Manager** field is populated with the name of the active Print Manager running on the target server. This field is editable; you can also specify a different name for the active Print Manager. To go directly to a context of your choice, specify the context in the search base and click **Search**. The objects in the specified context are displayed.
		Click **Get Printers** to select printer objects from the source Print Manager.
Printer Objects	Source printers	Displays all printers of the active Print Manager available on the source server. The printers that already exist on the target server are indicated by an asterisk (*).
	Select All	Selects all the printers listed in the Printer Objects dialog box.
		NOTE: When you apply a new filter or modify an existing filter and click **Select All**, only printers that are displayed after applying the filter are selected. When you manually select all printers, the selected printers are migrated.
	Filter	Specify the search pattern in the **Filter** field. This displays the printers in the Printer Agents list. This field is case sensitive.
Create target printer objects in	Context same as source printer context	Select this option to use the same context as the source printers on the target server.
	Target context	This option is selected by default. It allows you to create source printers under a different context on the target server. This option does not maintain the context hierarchy of the source printer.
		To go directly to a context of your choice, specify the context in the search base and click **Search**. The objects in the specified context are displayed.
	Do Not Migrate Existing Target Printers	If the printer names on the source server match the printer names on the target server, the target printer properties and attributes are overwritten by the source printer properties and attributes.
		The printers that already exist on the target server are represented by an asterisk (*).

Other Options	Parameter	Description
Source Driver Store	The Source Driver Store is not on the same server as the Source Print Manager	If the source Driver Store is running on a server different from the source Print Manager's server, this check box is selected.
		Specify the IP address or the host name and the root password of the server on which the source Driver Store is located.

Other Options	Parameter	Description
	Migrate the following additional Source Print Brokers to the Target Driver Store	This section lists the names and IP/DNS addresses of the source Print Broker volumes that must be migrated to the target Driver Store.
		Click the plus button (+) and specify the IP address or the host name of the Source Broker. Select the Source Broker volume from the drop-down list and click **OK**. The list is populated with the IP address or host name of the Source Broker and Broker volume name. You can add multiple Source Brokers to the list.
		To remove the Source Broker from the list, select the IP address or host name and click the minus button (-). You can remove one Broker at a time.
Target Driver Store	Target Driver Store is remote	If the Driver Store is running on the remote server (other than the target server), the **Target Driver Store is remote** check box is enabled.
		Specify the IP address or the host name of the remote server and the root password of the remote server in the corresponding entry fields.
Printer Drivers	Do not Migrate Printer Drivers and the association of the Printer Agents with the Driver	Selecting this option ensures that printer drivers and the association of Printer Agents with the drivers are not migrated.
	Migrate Printer Driver if the driver is not present in the target Driver Store	Selecting this option migrates the printer drivers for the selected driver platforms from the Select Driver Platforms to Migrate list, if they are not present in the target Driver Store. This also migrates all the associations of the Printer Agents with the driver.
		NOTE: The default driver platform selection is **All**.
	Migrate all Printer Drivers. This overwrites the Printer Driver on the target Driver Store	Selecting this option overwrites the target drivers for the driver platforms you have selected from the Select Driver Platforms to Migrate list, if the driver names in the target Driver Store are the same as the source Driver Store. This also migrates all the associations of the Printer Agents with the driver.
		NOTE: The default Driver Platform selection is **All**.
Printer Driver Profile	Migrate Printer Driver Profile	If the profiles are the same on the target server as the source server, the target profiles are overwritten.
iPrint.ini File	Migrate iPrint.ini File	If you migrate printer agents from two or more print managers, the `iPrint.ini` file on the target server is replaced by the `iPrint.ini` file of the last source server.
		NOTE: After migration, if the target server's `iprint.ini` file is overwritten by the source server's file, and if the target server's `iprint.ini` file had new parameters that were erased, you can restore them by copying the parameters manually from the `iprint.bak` file. The `iprint.bak` file is a backup of the target server's `iprint.ini` file. After migration, the `iprint.bak` file is saved in the `/var/opt/novell/iprint/htdocs` directory.

9 Click **OK** to finish the configuration and go back to the migration screen.

10 Click **Migrate** to begin the migration process.

Using iManager, you can verify the details of the migrated printers.

8 Document Rendering

iPrint Appliance provides a client-independent and driverless printing environment to mobile users.

Overview

What Is a Renderer?

iPrint now supports printing from mobile devices that have limited abilities to convert documents into print-ready formats. On desktop platforms, the documents are usually converted to print-ready formats by the application, driver, and the spooler subsystems. This functionality is primitive or non-existent in many of the mobile devices and hence must be provided by the Print Service. To facilitate this, iPrint now provides Rendering and Conversion capabilities in the product and can convert and render most of the documents that are submitted by a mobile device, email, or other submission methods.

This conversion (rendering) is performed on the iPrint Appliance using our built-in solution known as Local Renderer. Printing quality varies, depending on the document complexity so for enhanced desktop-quality printing, you can use the Remote Renderer on a Windows platform.

You can view the Local renderer and list of remote renderers in the **Management Console > iPrint Appliance Configuration**, Renderers page.

The renderers support broad range of document formats. For more information, see "Supported Document Formats By the Local Renderer and Remote Renderer" on page 217.

Local Renderer

iPrint Appliance is bundled with a built-in document renderer known as Local Renderer. The renderer converts documents to the PDF format, and then converts them to the print-ready format using CUPS. The renderer supports multiple formats, has a multithreading feature, and provides limited support for Microsoft Office formats. If a printer does not have a driver associated with it, the default printer driver PostScript 3 is automatically used to print documents.

Remote Renderer

iPrint Appliance also ships with a Remote Renderer. For enhanced desktop-quality printing, you can use the Remote Renderer. The remote renderer can be downloaded from the iPrint Appliance Management Console and installed on a Windows 64-bit computer.

The remote renderer provides high quality rendering for different formats. The remote renderer job might take some additional time to complete the print jobs in comparison to the local renderer. If you do not want to use the built-in PDF renderer, you can also install Adobe Acrobat Pro for PDF rendering. However, printing PDF using a built-in pdf renderer there can be some minor print quality differences such as color shade difference in the PDFs.

The remote renderer communicates with iPrint Appliance for document conversion. Although, it is not a mandatory requirement for iPrint Appliance, the remote renderer is recommended for desktop quality printing.

Key Features

- ◆ "Multi-driver Support" on page 70
- ◆ "Secure and Non-secure Communication Support (Remote Renderer)" on page 70
- ◆ "Automatic Printer Driver Updates" on page 71
- ◆ "Printer Rename and Redirection (Remote Renderer)" on page 71

Multi-driver Support

On iPrint Appliance, you can configure the local and remote renderer to use multiple drivers for different mobile enabled printer agents. The renderer installs the unique drivers associated with various mobile enabled printer agents, on the renderer machine. During the rendering of jobs, the correct printer driver is selected based on the printer agent to which the job is being submitted for rendering.

If a printer agent does not have any driver associated with the renderer platform, the renderer uses the default driver for rendering the jobs sent to those printer agents. You can select a default driver when adding a renderer from the Management Console. The Management Console also provides an option to change the default drivers.

For information on how to upload drivers to the Driver Store, see "Configuring Printer Drivers" on page 41.

Secure and Non-secure Communication Support (Remote Renderer)

On iPrint Appliance, the remote renderer can communicate over secure and non-secure channels with the iPrint Appliance. By default, the iPrint Appliance is set to communicate in both secure and non-secure modes.

Secure Communication Mode: When this mode is used, only the secure remote renderers can communicate with the iPrint Appliance. For information on how to configure the iPrint Appliance and renderer in a secure mode, see "Secure Communication Mode" on page 74.

Non-secure Communication Mode: When this mode is used, both secure and non-secure remote renderers can communicate with the iPrint Appliance. For information on how to configure the iPrint Appliance and renderer in a non-secure mode, see "Non-secure Communication Mode" on page 75.

Non-secure communication mode is desirable in the following scenarios:

- Experiencing problems with third-party certificates

  The iPrint Appliance handles third-party certificates well when working with secure web tools and authentications from the iPrint Mobile App. However, some third-party certificates can be problematic when registering a remote renderer; in these situations, non-secure communication mode is convenient because certificates are not used for the remote renderer registration.

- Domain suffix for the iPrint Appliance and the remote renderer does not match

  Secure communication mode requires both the iPrint Appliance and the remote renderer to have matching DNS domain suffixes. For example, iprintserver.company.com and remoterenderer.cityname.company.com will cause the remote renderer registration to fail if the secure communication mode is selected. The non-secure communication mode ignores the DNS suffix matching requirement.

You can verify the mode of the renderer in the **Renderers** page under the **Secure Mode** column.

- If the **Secure Mode** column displays **false**, then the renderer is in a non-secure communication mode.
- If the **Secure Mode** column displays **true**, then the renderer is in a secure communication mode.

Automatic Printer Driver Updates

The local and remote renderer supports the Automatic Driver Update feature. When a printer driver is updated on the Drive Store, or if the association of a particular printer agent is changed, the driver is automatically updated on the renderer.

Local Renderer: All the jobs submitted for printing is rendered by the driver that is currently associated with the printer. However, the first print job that is sent for printing after the driver association change may take some time to be rendered depending on the size of the driver.

Remote Renderer: All the jobs submitted for printing is rendered by the driver that is currently associated with the printer. However, the first print job that is sent for printing after the driver association change may take some time to be rendered depending on the size of the driver. This is because the remote renderer installs the driver first and then processes it for rendering.

Printer Rename and Redirection (Remote Renderer)

If a printer is renamed or redirected through the Management Console, the remote renderer automatically updates its configuration to associate the correct printer drivers with the printer.

When you redirect a printer, the printer driver associated with the destination printer is used for rendering.

Installing and Configuring a Remote Renderer

For desktop quality printing for Microsoft Office and PDF documents, you must install a remote renderer on a Microsoft Windows 7, Windows 8.1, Windows 2008 R2, Windows 2012, or Windows 2012 R2 64-bit system with a dual-core processor or higher.

During the remote renderer configuration process, when prompted for service configuration credentials, local users must specify the credentials of an account with Windows admin and domain users must specify the user name in [domainname]\[username] format.

- "Prerequisites" on page 72
- "Assigning Log On as a Service Rights" on page 72
- "Downloading the Remote Renderer" on page 73
- "Installing and Configuring the Remote Renderer" on page 73
- "Registering the Remote Renderer" on page 74
- "Secure Communication Mode" on page 74
- "Non-secure Communication Mode" on page 75

Prerequisites

Before installing and configuring the remote renderer, ensure that you have met the requirements listed in "Remote Renderer Requirements" on page 25 and the following prerequisites:

- At least one printer driver is uploaded to the Driver Store for the Windows platform on which you are setting up the renderer. This is required because when you add a remote renderer from the Management Console, you must designate one driver as the default driver for the renderer.

  NOTE: It is recommended that you upload a universal printer driver such as HPUPD, and set that as the default driver.

- You must assign **Log on as a service** rights to the account with which you want to set up the renderer.

Assigning Log On as a Service Rights

Before configuring the remote renderer, you must assign the **Log on as a service** rights to the account with which you want to set up the renderer, on the local machine.

1. On your Windows computer, Go to **Start > Control Panel**.
2. In the upper-right corner of the Control Panel window, click the **View by** drop-down menu, then select **Large icons**.
3. Go to **Administrative Tools > Local Security Policy**.
4. In the left pane, double-click **Local Policies**.
5. Click **User Rights Assignment**.
6. In the right pane, under **Policy**, double-click **Log on as a service**.
7. Click **Add User or Group**.
8. Specify the user name in the **Enter the object names to select** box, then click **Check Names**.
9. Click **OK** after the user is displayed.

10 Click **OK**.

11 Click **OK**, then close the Local Security Policy window.

Downloading the Remote Renderer

1 On a web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify `root` or `vaadmin` as the user name.

3 Specify the password that you provided for root or vaadmin.

The Management Console page is displayed.

4 Click **iPrint Appliance Configuration**.

5 Under **Configuration**, click **Renderers**.

6 Click the ⊕icon in the upper-right corner of the screen.

NOTE: The remote renderer installation interface is not available in Slovak, Hungarian, Netherlands Dutch, or Catalan languages

A zip file named `iPrintRendererBundle.zip` is downloaded. This zip file contains a `setup.exe` file, `iPrintRendererSetup.msi` file, `readme.txt`, and a `device.pfx` certificate file.

Continue with installing and configuring the remote renderer.

Installing and Configuring the Remote Renderer

1 Unzip the `iPrintRendererBundle.zip` file, then launch the `setup.exe` file. Follow the on-screen prompts to complete the installation procedure.

2 When the installation is complete, launch the command prompt in the **Run as administrator** mode.

3 Run the command `iPrntRendCmd -c` to configure the remote renderer.

   3a If you want to configure the remote renderer over a secure channel and if you are using a self-signed digital certificate, copy the `device.pfx` file into the `C:\NDPS\Renderer\certificates\` folder.

   3b If you want to configure the remote renderer over a secure channel and if you are using a third-party certificate, copy the `PKCS12` file of type `.pfx` or `.p12` into the `C:\NDPS\Renderer\certificates\` folder.

4 When prompted for **Do you want to configure the remote renderer over secure channel**, depending on your requirement, specify **Yes** or **No**.

    4a When you specify **Yes**, the renderer is configured in a secure mode. You need to perform additional steps, if you need iPrint Appliance to accept only secure communications. For more information, see "Secure Communication Mode" on page 74.

    4b When you specify **No**, the renderer is configured in a non-secure mode. You need to perform additional steps to ensure that iPrint Appliance accepts non-secure communications. For more information, see "Non-secure Communication Mode" on page 75.

5 When prompted for credentials, specify your credentials.

On successful configuration, you must register the Remote Renderer.

Registering the Remote Renderer

1 On the Management Console, click **iPrint Appliance Configuration**.

2 Under **Configuration**, click **Renderers**.

3 Click **New**.

4 In the **Renderer Host/IP address** box, specify the hostname or IP address of the renderer system, then click **Connect**.

5 Under Options, specify a name for the renderer in the **Renderer Name** box.

6 Select the document formats you want the remote renderer to render.

7 Choose the **Default Printer Driver**, then click **Register**.

After you click the **Register** button, a success message is displayed, but the remote renderer is still configuring. The configuration time depends on the number of unique drivers associated with mobile enabled printers. During that period, the renderer is in the **Configuring** state. After the configuration is complete, the renderer changes to the **Active** state. When the status of the remote renderer displays **Active**, it means that the registration is successful. Refresh the page after a couple of minutes to check the status.

Secure Communication Mode

By default, the iPrint Appliance accepts both secure and non-secure communication.To set only secure communication mode, you must ensure that the renderer is secure and the iPrint Appliance accepts only secure communications.

On the Windows computer, run the `iPrntRendCmd -c` command to configure secure remote renderer. On configuring the renderer to a secure mode, you can verify the status in the Management Console, **Renderers** page under the **Secure Mode** column, the value displayed is **true.**

To configure iPrint Appliance to accept only secure communications, modify the secure communication settings in the Management Console as follows:

1 On a web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify the root or vaadmin name that you provided as the user name.

3 Specify the password that you provided for the root or vaadmin.

The Management Console page is displayed.

4 Click **iPrint Appliance Configuration**.

5 Under **Configuration**, click **Renderers**. All the available renderers are displayed.

6 Click the **Secure settings for renderers** icon.

The Secure Communication Settings window is displayed.
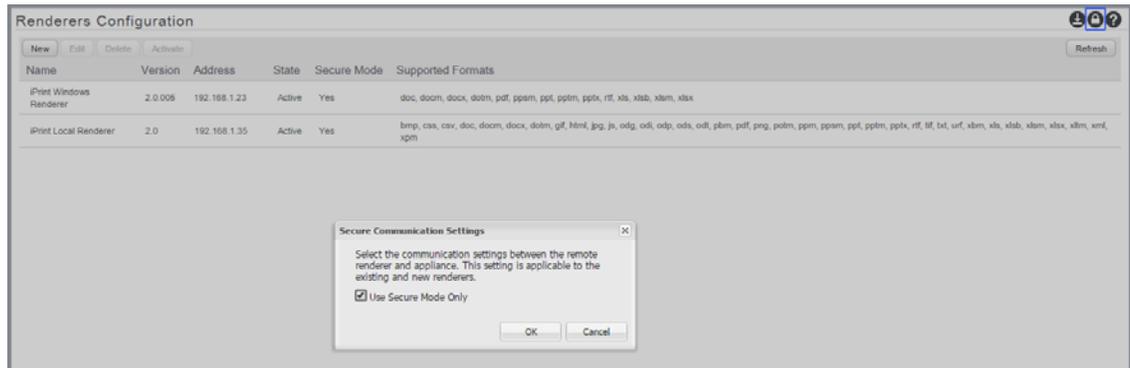
7 Select the **Use Secure Mode Only** check box, then click **OK**. The iPrint Appliance will now accept only secure communications. The non-secure renderers will fail to communicate with the iPrint Appliance and no jobs can be rendered by those renderers.

Non-secure Communication Mode

By default, the iPrint Appliance accepts both secure and non-secure communication but if the iPrint Appliance is modified to accept only secure communications, then you must modify the iPrint Appliance to accept both secure and non-secure communications.

On the Windows computer, run the `iPrntRendCmd -c` command to configure the non-secure remote renderer. On configuring the renderer to a non-secure mode, you can verify the status in the Management Console, **Renderers** page under the **Secure Mode** column, the value displayed is **false.**

Modify the secure communication settings in the Management Console for iPrint Appliance to accept both secure and non-secure communications:

1 On a web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify the root or vaadmin name that you provided as the user name.

3 Specify the password that you provided for the root or vaadmin.

The Management Console page is displayed.

4 Click **iPrint Appliance Configuration**.

5 Under **Configuration**, click **Renderers**. All the available renderers are displayed.

6 Click the **Secure settings for renderers** icon.

The Secure Communication Settings window is displayed.
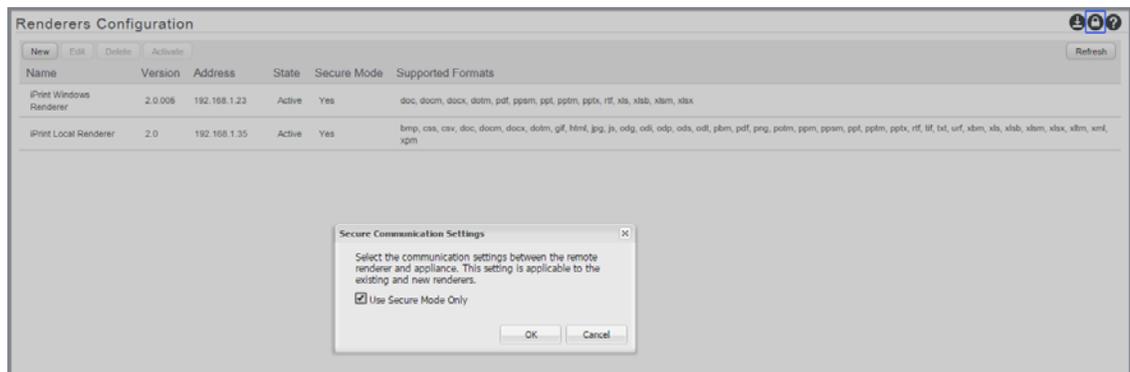
7 Deselect the **Use Secure Mode Only** check box, then click **OK**. The iPrint Appliance will now accept both secure and non-secure communications.

Upgrading the Remote Renderer

If you have upgraded your iPrint Appliance, you must also upgrade the remote renderer. Before upgrading the remote renderer, ensure that you have applied the patch and updated the iPrint Appliance server.

NOTE: Upgrading the remote renderer from iPrint Appliance 1.0 or 1.0.1 to iPrint Appliance 1.1 is not supported.

Upgrading from 2.0 or later to 2.1

The version of the remote renderer for 2.0 and 2.1 is same. To make the renderer active after upgrading the iPrint Appliance server, you must reconfigure the renderer using the command `iPrntRendCmd -c`.

Upgrading from 1.1 or later to 2.1

On upgrading the iPrint Appliance to 2.1 or later, ensure to upgrade the remote renderer as follows:

1 Follow the steps from "Downloading the Remote Renderer" on page 73 to "Installing and Configuring the Remote Renderer" on page 73.

When the procedure is complete, the iPrint remote renderer is updated and is ready to be used.

Upgrading from 1.0 or 1.0.1 to 1.1 Patch 1 or later

On upgrading the iPrint Appliance from 1.0 or 1.0.1 to 1.1 Patch 1 or later, ensure to upgrade the remote renderer as follows:

1 Follow the steps from "Downloading the Remote Renderer" on page 73 to "Registering the Remote Renderer" on page 74.

When the procedure is complete, the iPrint remote renderer is updated and is ready to be used.

Managing the Remote Renderer

You can manage the remote renderer through the Management Console.

1 On a web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify `root` or `vaadmin` as the user name.

3 Specify the password that you provided for root or vaadmin.

The Management Console page is displayed.

4 Click **iPrint Appliance Configuration**.

5 Under **Configuration**, click **Renderers**.

On the Renderers page, you can perform the following actions:

- "Add a Renderer" on page 77
- "Edit a Renderer" on page 77
- "Delete a Renderer" on page 77
- "Activate or Deactivate a Renderer" on page 78

Add a Renderer

1 On the Renderers page, click **New**.

2 In the **Renderer Host/IP address** box, specify the host name or IP address of the renderer system, then click **Connect**.

3 Under Options, specify a name for the renderer in the **Renderer Name** box.

4 Select the document formats you want the remote renderer to render.

NOTE: The **PDF Formats** option along with the **In-built PDF renderer** is selected by default. If you want to use Adobe Acrobat, you must ensure that Adobe Acrobat Pro is installed on the renderer machine before selecting the **Adobe Acrobat** option. Similarly, if you want to enable the remote renderer to render Microsoft Office formats, you must ensure that Microsoft Office is installed on the renderer machine before selecting the **Office Formats** option.

5 Choose the **Default Printer Driver**, then click **Register**.

Edit a Renderer

You can change a remote renderer's name, the document rendering options, and the default printer driver using the Edit feature on the Renderers page.

1 On the Renderers page, select a renderer which you want to edit, then click **Edit**.

2 Change the rendering options, then click **Commit**.

Delete a Renderer

1 On the Renderers page, select a renderer that you want to delete, then click **Delete**.

Deleting a renderer unregisters the renderer from iPrint Appliance.

Activate or Deactivate a Renderer

1 On the Renderers page, select a renderer that you want to activate or deactivate, then click **Activate/De-Activate**.

If the renderer is in an Active state, it is deactivated. If the renderer is in an Inactive state, it is activated.

If the renderer is in an Inactive state, it will not render any job.

Deactivating a renderer does not unregister the renderer from iPrint Appliance.

Remote Renderer Commands

The management of remote renderer is supported from the Management Console. You can additionally use the command line interface by launching the command prompt in the **Run as administrator** mode and executing the `iPrntRendCmd` command for the following operations:

Command	Description
`-h` | --help	Shows the various available commands with their syntax.
`-v` | --version	Shows the current version of the remote renderer.
`-c` | --configureservice	Configures the remote renderer service for the specified user. It also provides the option of choosing between secure and non-secure communication mode with the iPrint Appliance.
`-u` | --unregisterrenderer <iPrint Appliance server Fully Qualified Domain Name or IP address>	Unregisters the remote renderer from the iPrint Appliance server. Afterward, the remote renderer stops accepting jobs from the iPrint Appliance server for conversion. The iPrint Rendering service is running, but does not receive rendering jobs from the iPrint Appliance server.
`-rt` | --reregisterrenderer <iPrint Appliance server Fully Qualified Domain Name or IP address>	Installs both self-signed and unsigned drivers for remote renderers.
`-s` | --rendererstatus	Displays the status of the iPrint Windows Rendering service.
`-l` | --launchrenderer	Starts the iPrint Windows Rendering service. After registration, the rendering service starts automatically.
`-q` |--stoprenderer	Stops the iPrint Windows Rendering service.
`-t` | --testconverttops <input file location> <output file location>	Tests the conversion locally.
`-ls` | --listservers	Lists the iPrint Appliance registered with the remote renderer.

9 Managing iPrint Appliance

The Micro Focus iPrint Appliance Management Console allows you to administer iPrint Appliance, and to change configuration settings, such as administrative passwords, network settings, and certificate settings.

To access the Appliance System Configuration page:

1 On a Web browser, specify either the host name or the IP address. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify the **Username** and **Password**, then click **Log in**.

The Micro Focus Appliance Configuration pane displays the following options:

- "Ganglia Monitoring" on page 79
- "Network" on page 80
- "Time" on page 80
- "Digital Certificates" on page 81
- "Storage" on page 89
- "System Services" on page 90
- "Firewall" on page 91
- "/var Mount Configuration" on page 91
- "Administrative Passwords" on page 91
- "Field Patch" on page 92
- "Ganglia Configuration" on page 92
- "Support" on page 93
- "Shutting Down and Restarting iPrint Appliance" on page 93
- "Signing Out of iPrint Appliance" on page 94

Ganglia Monitoring

Ganglia is a scalable, distributed monitoring system that allows you to gather important information about your iPrint Appliance system.The default metrics that you can monitor are processor, disk, load, memory, network, and process.

To monitor iPrint Appliance using Ganglia, you must enable Ganglia Configuration in the Appliance System Configuration page of the iPrint Appliance Management Console. For information in how to enable Ganglia Configuration, see "Ganglia Configuration" on page 92.

To view Ganglia monitoring of your iPrint Appliance system:

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click the **Ganglia Monitoring** icon.

An overview of all the nodes in the cluster, including information such as processor utilization, memory, load, and so forth is displayed.

3 In the **Grid-Node** drop-down list, select a node that you want to monitor.

or

Scroll to the bottom of the page and click a node to get server information for your iPrint Appliance.

For information about how to configure Ganglia for your environment, including changing from multicast mode to unicast mode, see .

Network

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Network**.

3 In the **DNS Configuration** section, you can modify the name servers, search domains, and gateway settings for your Micro Focus iPrint Appliance network.

If the **Search Domains** field is left blank, it is auto-populated with the domain of the appliance hostname. For example, if the hostname of the appliance is `iprint.mycompany.com`, the domain is auto-populated with `mycompany.com`.

4 In the **NIC Configuration** section, you can modify the IP address, hostname, and network mask of any Network Interface Controller (NIC) associated with the appliance. (If you configured multiple NICs for the Micro Focus iPrint Appliance, you can configure the additional NICs.)

   4a In the **NIC Configuration** section, click the ID of the NIC.

   4b Edit the IP address, hostname, or network mask.

   If you change the IP address, you must restart the appliance in order for the change to be reflected

   4c Click **OK**.

5 (Optional) In the **Appliance Configuration UI (port 9443) Access Restrictions** section, specify the IP address of any networks for which you want to allow access to the iPrint Appliance. Leave this section blank to allow any network to access the iPrint Appliance.

IMPORTANT: Post iPrint Appliance configuration, do not change any Network settings.

6 Click **OK**.

Time

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Time**.

3 Change the time configuration options as necessary:

NTP Server: Specify the NTP server that you want to use for time synchronization.

Region: Select the region where your Micro Focus Appliance is located.

Time Zone: Select the time zone where your Micro Focus Appliance is located.

4 Click **OK**.

Digital Certificates

The Micro Focus iPrint Appliance ships with a self-signed digital certificate. All the inbound and outbound communications to the iPrint Appliance are via self-signed certificate. The validity of the certificate is two years. To verify the details of self-signed certificate, see "Viewing Details of the Certificates" on page 81.

To renew the self-signed certificate on expiry, see "Self-Signed Certificate Expiry" on page 82.

If you want to use a third party certificate instead of the self-signed certificate, see "Third Party Certificates" on page 82.

The certificate works for both the Micro Focus iPrint Appliance and the iPrint remote renderer (ports 9443 and 8443). You do not need to update your certificate when you update the iPrint Appliance software.

Terminology

Server Certificate: This is a certificate that is used for all secure communications with iPrint Appliance. You can either use the self-signed certificate or third party certificate.

- **Self-signed Certificate:** This is the default certificate (self-signed_cert) that is shipped with iPrint Appliance.
- **Third Party Certificate:** Instead of using the self-signed certificate, you could use other trusted server certificate that is signed by a trusted certificate authority (CA) such as VeriSign or Equifax.

Private Key: This key was generated when creating Certificate Signing Request (CSR).

Chain Certificate: This is the file from the vendor (CA). Ensure all the chain certificates are available.

- "Viewing Details of the Certificates" on page 81
- "Third Party Certificates" on page 82
- "Self-Signed Certificate Expiry" on page 82
- "Creating a New Certificate and Getting it Signed" on page 83
- "Activating the Certificate" on page 84
- "Managing Certificates" on page 84
- "Converting Certificates to pfx or p12 Formats" on page 85
- "Configuring Certificates for Apache" on page 85
- "Generating Certificates for Server and Remote Renderer" on page 86
- "Renewing eDirectory Certificates" on page 87
- "Reconfiguring Certificates" on page 87
- "Troubleshooting Certificate Issues" on page 88

Viewing Details of the Certificates

1. On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.
2. Click **Digital Certificates**.
3. In the **Key Store** drop-down list, select **JVM Certificates** or **Web Application Certificates**.

   List of certificates are displayed that are configured on the appliance.

4 Select a certificate, then click **View Info**. Details of certificate such as name of the CA, validity of the certificates will be displayed.

For example, to view details of self-signed certificate, select **Web Application Certificates > self-signed_cert**, then click **View Info**.

Third Party Certificates

If you plan to use a third party certificate instead of the self-signed certificate, you need to meet the following prerequisites:

- Server certificate signed by CA
- Private key
- Chain certificates
- All the above certificates must be packaged in a PKCS12 format

When you use an existing certificate and key pair, use a `PKCS12` key pair format. If your trusted certificates are not in PKCS12 format, see "Converting Certificates to pfx or p12 Formats" on page 85.

1 Go to the Digital Certificates page by clicking **Digital Certificates** from the Micro Focus Appliance Configuration.

2 On the Digital Certificates page, in the Key Store drop-down menu, select **Web Application Certificates**.

3 Click **File** > **Import** > **Trusted Certificate**. Browse and select your existing certificate, then click **OK**.

   3a Alias Specify a name that you want to use to identify and manage this certificate.

4 Click **File** > **Import** > **Trusted Certificate**. Browse and select your existing certificate chain for the certificate that you selected in the preceding step, then click **OK**.

5 Click **File** > **Import** > **Key Pair**, then browse to and select your `.p12` or `.pfx` key pair file, specify your password if needed, then click **OK**.

6 Continue with "Activating the Certificate" on page 84.

Self-Signed Certificate Expiry

The self-signed certificate is valid for two years. To regenerate the self-signed certificate after expiry, do the following:

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Digital Certificates**.

3 In the **Key Store** drop-down list, ensure that **Web Application Certificates** is selected.

4 Click **File** > **New Certificate (Key Pair)**, then specify the following information:

Alias: Specify a name that you want to use to identify and manage this certificate.

Validity (days): Specify how long you want the certificate to remain valid.

Key Algorithm: Select either **RSA** or **DSA**.

Key Size: Select the desired key size.

Signature Algorithm: Select the desired signature algorithm.

Common Name (CN): This must match the server name in the URL in order for browsers to accept the certificate for SSL communication.

Organizational Unit (OU): (Optional) Small organization name, such as a department or division. For example, Purchasing.

Organization (O): (Optional) Large organization name. For example, Micro Focus, Inc.

City or Locality (L): (Optional) City name. For example, Provo.

State or Province (ST): (Optional) State or province name. For example, Utah.

Two-letter Country Code (C): (Optional) Two-letter country code. For example, US

5 Click **OK** to create the certificate.

After the certificate is created, it is self-signed.

6 You must now activate the certificate, see "Activating the Certificate" on page 84.

Creating a New Certificate and Getting it Signed

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Digital Certificates**.

3 In the **Key Store** drop-down list, ensure that **Web Application Certificates** is selected.

4 Click **File** > **New Certificate (Key Pair)**, then specify the following information:

Alias: Specify a name that you want to use to identify and manage this certificate.

Validity (days): Specify how long you want the certificate to remain valid.

Key Algorithm: Select either **RSA** or **DSA**.

Key Size: Select the desired key size.

Signature Algorithm: Select the desired signature algorithm.

Common Name (CN): This must match the server name in the URL in order for browsers to accept the certificate for SSL communication.

Organizational Unit (OU): (Optional) Small organization name, such as a department or division. For example, Purchasing.

Organization (O): (Optional) Large organization name. For example, Micro Focus, Inc.

City or Locality (L): (Optional) City name. For example, Provo.

State or Province (ST): (Optional) State or province name. For example, Utah.

Two-letter Country Code (C): (Optional) Two-letter country code. For example, US

5 Click **OK** to create the certificate.

After the certificate is created, it is self-signed.

6 Select the certificate that you created in the preceding step, then click **File** > **Certificate Requests** > **Generate CSR**.

7 Mail the digital certificate to a certificate authority (CA), such as VeriSign or Equifax.

The CA takes the Certificate Signing Request (CSR) and generates an official certificate based on the information in the CSR. The CA then mails the new certificate and chain certificates back to you.

8 After you have received the official certificate and certificate chain from the CA:

    8a Click Digital Certificates.

    8b Click **File** > **Import** > **Trusted Certificate**. Browse to the trusted certificate chain that you received from the CA, then click **OK**.

    8c Select the self-signed certificate, then click **File** > **Certification Request** > **Import CA Reply**.

    8d Browse to and upload the official certificate to be used.

        On the Digital Certificates page, the name in the **Issuer** column for your certificate changes to the name of the CA that stamped your certificate.

9 Activate the certificate, as described in .

Activating the Certificate

1 On the Digital Certificates page, in the **Key Store** drop-down menu, select **Web Application Certificates**.

2 Select the certificate that you want to make active, click **Set as Active**, then click **Yes**.

3 Verify that the certificate and the certificate chain were created correctly by selecting the certificate, then clicking **View Info**.

    When you activate a certificate, the **Set as Active** button might still be enabled for that certificate. You can ignore it, as it does not affect the certificate activation.

Managing Certificates

All certificates that are included with the IBM Java package that is bundled with the version of SLES that iPrint Appliance ships with, are installed when you install iPrint Appliance.

You can use the Digital Certificates tool on the iPrint Appliance to remove certificates that are not used by your organization, if you are concerned about keeping them.

Also, you can use the Digital Certificates tool on the iPrint Appliance to maintain the certificate store by removing certificates that have expired and then installing new certificates as needed, according to your organization's security policies.

To access the Digital Certificates tool:

1 Click **Digital Certificates** in the Micro Focus Appliance Configuration page.

To delete a certificate:

1 On the Digital Certificates page, in the **Key Store** drop-down menu, select **Web Application Certificates** or **JVM Certificates**.

    In Web Application Certificates, do not delete the self-signed certificate if you are using it.

    In JVM Certificates, do not delete the **edir_root_ca** certificate. This certificate is used when importing the users to the appliance using the Import Users feature of the appliance.

2 Select a certificate, then click **Edit > Delete**.

Converting Certificates to pfx or p12 Formats

The iPrint Appliance server only accepts certificates that are in `.pfx` or `.p12` format. Use this script to convert the third-party certificate to `.pfx` or `.p12` format. The location of the `certman.sh` is `/opt/novell/iprintmobile/bin`.

On successful conversion, you can upload the certificates to the iPrint Appliance server.

Syntax: Execute the following script on the appliance server:

```
sh certman.sh -t convert <options>
```

Table 9-1 Certificate Conversion Options

Parameter	Description
-h	Displays help
-i <format>	Specify the input certificate format. Valid formats: `crt`, `pem`, or `cer`.
-o <format>	Specify the format to convert the certificate. Valid formats: `pfx` or `p12`
-w <absolute path>	Specify the path to create the output (`pfx` or `p12`) file.
-c <absolute path>	Specify the path to the input certificate file. Valid formats: `crt`, `.cer`, or `.pem`
-k <absolute path>	Specify the path to the key file.
-n <absolute path>	Specify the path to the chain certificate file.
-p <key passphrase>	(Optional) Specify the passphrase for the key file. The default value is 'changeit' when no value is specified.

Examples: The server certificate is `vaserver.crt`, the key file `vaserver.key`, and the chain certificate is `chain_certificate.pem`. On successful conversion the certificates are converted to `pfx` format.

```
sh certman.sh -t convert -i crt -o pfx -c /vastorage/conf/certs/vaserver.crt -k /
vastorage/conf/certs/vaserver.key -n /vastorage/conf/certs/chain_certificate.pem -
w /tmp/cert.pfx
```

Configuring Certificates for Apache

Use this script to configure the certificates for the Apache server.

Syntax: Execute the following script on the appliance server:

```
sh certman.sh -t apache <options>
```

Table 9-2 *Apache Configuration Options*

Parameter	Description
-h	Displays help.
-a	Configures Apache automatically with the default path of the certificate file and key file. Only the passphrase option (-p) can be used with this option.
-r <path>	Specify the absolute path of the certificate file.
-k <path>	Specify the absolute path of the key file.
-n <path>	Specify the absolute path of the certificate chain file.
-c <path>	Specify the absolute path of the CA certificate file.
-p <key passphrase>	(Optional) Specify the passphrase for the key file. The default value is 'changeit' when no value is specified.

Example 1: If you are facing issues when using a self-signed certificate, use the -a option to configure Apache automatically.

```
sh certman.sh -t apache
```

Example 2: To configure the third-party certificates for the Apache server, execute the following:

```
sh certman.sh -t apache -r /vastorage/conf/certs/vaserver.crt -k /vastorage/conf/
certs/vaserver.key -n /vastorage/conf/certs/chain_certificate.pem -c /vastorage/
conf/certs/CA_certificate.pem
```

Generating Certificates for Server and Remote Renderer

Use this script to regenerate the certificates of the iPrint Appliance server and the Remote renderer client.

Syntax: Execute the following script on the appliance server:

```
sh certman.sh -t cert <options>
```

Table 9-3 *Certificate Generation Options*

Parameter	Description
-h	Displays help.
-s	Generates the certificate for the server.
-g	Generates the certificate for the remote renderer client.
-d <directory>	(Optional) Specify the directory to store the newly created certificates.
-i	Imports certificates to the default path (/vastorage/conf/certs/keystore) of the Java keystore.
-c <path to .p12>	(Optional) Specify the path of the .p12 file to be imported to the Java keystore. If no path of the file is provided the vaserver.p12 file available in the /vastorage/conf/certs/ folder is imported to the Java keystore.

Example 1: If the self-signed certificate is expired, execute the following script:

```
sh certman.sh -t cert -s
```

This regenerates the certificates and configures the server.

Example 2: If the remote renderer certificate is expired, execute the following script:

```
sh certman.sh -t cert -g
```

This regenerates the certificates and will be placed in a bundle with the remote renderer. You can now download these newly generated certificates from the Renderers page in the Management Console.

Example 3: If the iPrint management console is not reflecting the imported third party certificate, then you can use the following script to import the certificate to the java keystore:

```
sh certman.sh -t cert -i -c <path to .p12 certificate file>

sh certman.sh -t cert -i -c /tmp/appliance-cert.p12
```

The `appliance-cert.p12` file is imported to the java keystore. You must restart jetty to use the newly added certificate file.

Renewing eDirectory Certificates

Use this script to renew the eDirectory certificates.

Syntax: Execute the following script on the appliance server:

```
sh certman.sh -t edir <options>
```

Table 9-4   eDirectory Regeneration Options

Parameter	Description
-h	Displays help
-r	Regenerates the certificates for eDirectory.

Reconfiguring Certificates

If you are facing any issues with the certificates, use this script to reconfigure the certificates for the appliance.

Syntax: Execute the following script on the appliance server:

```
sh certman.sh -t repair <options>
```

Table 9-5   Certificate Repair Options

Parameter	Description
-h	Displays help.
-a	Performs repair of the certificates automatically. This also creates a backup of the previous certificate configuration.
-r	Reverts to the state of the certificate before the execution of the -a option.

Example: If you are facing issues with the self-signed or third party certificates, execute the following:

```
sh certman.sh -t repair -a
```

This will repair the certificates and reconfigure the appliance.

Troubleshooting Certificate Issues

Authentication Failure When Logging to the Mobile Apps

Logging to the Mobile App fails with an authentication error.

One of the reason for this failure could be the missing trusted CA certificate. To verify if it is a certificate issue, view the details of certificate. To resolve the issue, perform the following:

1 Convert the third party certificates to a `p12` format. For more information, see "Converting Certificates to pfx or p12 Formats" on page 85

2 Import the `p12` format certificates to the iPrint Appliance.

   2a Go to the Digital Certificates page by clicking **Digital Certificates** from the Micro Focus Appliance Configuration.

   2b On the Digital Certificates page, in the Key Store drop-down menu, select **Web Application Certificates**.

   2c Click **File** > **Import** > **Trusted Certificate**. Browse and select your existing certificate, then click **OK**.

   2d Click **File** > **Import** > **Trusted Certificate**. Browse and select your existing certificate chain for the certificate that you selected in the preceding step, then click **OK**.

   2e Click **File** > **Import** > **Key Pair**, then browse to and select your .P12 key pair file, specify your password if needed, then click **OK**.

   2f Select the certificate that you want to make active, click **Set as Active**, then click **Yes**.

   2g Verify that the certificate and the certificate chain were created correctly by selecting the certificate, then clicking **View Info**.

3 Restart the services: apache, jetty, and mobile server.

Logging to the Management Console Displays an Untrusted Certificate Message

Logging to the Management Console or Mobile Apps displays an untrusted certificate message. This is caused when chain certificates are missing from the p12 file. Due to missing chain certificates, iPrint Appliance is not able to validate the certificates from the CA.

To resolve this issue, when using third party certificates, ensure to include chain certificates to the root CA.

OES Signed Certificate

If you have used OES as a certificate authority (CA) to sign the iPrint Appliance certificate, then all the logins to Apps and browsers will display an untrusted certificate error. To resolve this issue, perform the following:

1 Download the OES CA certificate in `DER` format from the OES server.

2 Convert the `DER` format certificate to `PEM` format using the following script:

   `openssl x509 -inform der -in <OES_CA_certificate>.der -out <OES_CA_certificate>.pem`

3 Copy the `OES_CA_certificate.pem` file to `/vastorage/conf/certs` folder

4 In the `/etc/apache2/vhosts.d/vhost-ssl.conf` file, edit the path of the parameter `SSLCACertificateFile` with the newly created OES CA certificate.

```
#    Certificate Authority (CA):
#    Set the CA certificate verification path where to find CA
#    certificates for client authentication or alternatively one
#    huge file containing all of them (file must be PEM encoded)
#    Note: Inside SSLCACertificatePath you need hash symlinks
#          to point to the certificate files. Use the provided
#          Makefile to update the hash symlinks after changes.
#SSLCACertificatePath /etc/apache2/ssl.crt
SSLCACertificateFile /vastorage/conf/certs/OES_CA_certificate.pem
```

5 Using the following script, combine the certificate files vaserver.key, vaserver.crt, and the OES CA certificate (`OES_CA_certificate.pem`) to a `pfx` format.

   `sh certman.sh -t convert -c <absolute_path_server_certificate> -k <absolute_path_key> -n <absolute_path_chain_certificate> -w <options>`

   `sh certman.sh -t convert -i crt -o pfx -c /vastorage/conf/certs/vaserver.crt -k /vastorage/conf/certs/vaserver.key -n /vastorage/conf/certs/OES_CA_certificate.pem -w /temp/cert.pfx`

6 Go to the Digital Certificates page by clicking **Digital Certificates** from the Micro Focus Appliance Configuration.

7 On the Digital Certificates page, in the Key Store drop-down menu, select **Web Application Certificates**.

8 Click **File** > **Import** > **Key Pair**, then browse to and select your `.p12` or `.pfx` key pair file, specify your password if needed, then click **OK**.

9 Activate the certificate.

Storage

If you have created partitions for `/vastorage` and `/var`, iPrint Appliance provides native tools to allow you to expand the storage space for the `/vastorage` and `/var` partitions.

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Storage**.

3 Use the tools provided by your virtualization platform vendor to expand the virtual disks that contain the partitions your are expanding.

4 In the provided table, select the partitions to be expanded.

5 Click **Expand partitions**.

Appliance services are stopped, the selected partitions are expanded to the size of their respective disks, and appliance services are restarted.

6 Reboot the appliance so the operating system can detect the disks that have been expanded.

System Services

This section displays the system services that are required for iPrint Appliance.

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **System Services**.

3 You can perform the following actions:

 - "Starting, Stopping, or Restarting System Services" on page 90
 - "Setting System Services to Automatic or Manual" on page 90
 - "Downloading Log Files for System Services" on page 90

Starting, Stopping, or Restarting System Services

1 Select the service that you want to start, stop, or restart.

2 Click **Action**, then click **Start**, **Stop**, or **Restart**.

3 Click **Close** to exit System Services.

Setting System Services to Automatic or Manual

1 Select the service that you want to make automatic or manual.

2 Click **Action**, then click **Set as Automatic**, or **Set as Manual**.

Downloading Log Files for System Services

In the **Log Files** column of the table, click the **download** link for the service for which you want to view log files.

You can download the following log files for each service:

SSH: This is the SSH service that is running on the appliance.

Micro Focus iPrint Mobile: The iprintmobile0.log file includes log messages related to mobile server and renderer. To access this file, either click **Download** or browse to `/var/opt/novell/log/iprintmobile/` folder.

Micro Focus iManager: The `catalina.out` file includes log messages related to iManager operations. To access this file, either click **Download** or browse to `/var/opt/novell/tomcat6/logs/` folder.

Authentication Services: The `catalina.out` file includes log messages related to services accessed by the users. To access this file, either click **Download** or browse to `/opt/novell/filr/apache-tomcat/logs/` folder.

NetIQ eDirectory: The `ndsd.log` file includes log messages related to eDirectory operations. To access this file, either click **Download** or browse to `/var/opt/novell/eDirectory/log/` folder.

Apache server for Micro Focus iPrint: The `error_log` file includes log messages related to Apache web server operations. To access this file, either click **Download** or browse to `/var/log/apache2/` folder.

Driver Store: The `idsd.log` file includes log messages related to driver store operations. To access this file, either click **Download** or browse to `/var/opt/novell/log/iprint/` folder.

Print Manager: The `ipsmd.log` file includes log messages related to print manager operations. To access this file, either click **Download** or browse to `/var/opt/novell/log/iprint/` folder.

Firewall

You can view your current firewall configuration directly from the iPrint Appliance:

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Firewall**.

   Port numbers are listed with the current status of each port number. This page is for informational purposes and is not editable.

To have seamless experience with iPrint Appliance, ensure you do not block the ports with your firewall settings. For more information, see "Ports Requirements" on page 22.

/var Mount Configuration

iPrint Appliance system events are logged in the `/var` directory. Since the `/var` directory can fill up with log files and cause the boot partition to grow, it is recommended that `/var` be located either on a separate hard disk on the appliance, or on a remote NFS directory.

To move the `/var` directory to a dedicated disk or to a remote NFS directory:

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **/var Mount Configuration**.

3 Specify the hard disk information for the `/var` directory:

   ◆ **Select disk:** Select the hard disk where you want to place `/var`.

   ◆ **File system type:** Specify the type of file system.

4 Click **OK**.

Administrative Passwords

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Administrative Passwords**.

3 Specify new passwords for the root and vaadmin administrators.

   If you are changing the root password, you must first specify the current root password.

4 (Optional) Select or deselect **Allow root access to SSH**. When this option is selected, the root user is able to SSH to the appliance. If this option is not selected, only the vaadmin user can SSH to the appliance.

5 Click **OK**.

IMPORTANT: To change the eDirectory admin password, launch the terminal and run the script `iprint_edir_change_passwd.sh`.

Field Patch

You can manage field test patches for the iPrint Appliance from the Field Patch page. You can install new patches, view currently installed patches, and uninstall patches.

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Field Patch**.

3 (Optional) Install a Downloaded Patch:

    3a Before you can install a patch, you first need to download it from the Novell Support web site (https://www.novell.com/support/) to your management workstation.

    3b From the Field Test Patch page on the iPrint appliance, click **Browse**.

    3c Browse to and select the patch that you downloaded in Step 3a.

    3d Click **Install**.

4 (Optional) Manage Installed Patches: Uninstall Patch

    4a Click **Uninstall Latest Patch** to uninstall the latest patch. You may not be able to uninstall some patches.

5 (Optional) Manage Installed Patches: Download Log File

    5a Click **Download Log File** to download the log file. This file includes details about patch installation.

Ganglia Configuration

Ganglia is a scalable, distributed monitoring system that allows you to gather important information about your iPrint Appliance system. The default metric that you can monitor are CPU, disk, load, memory, network, and process.

To monitor iPrint Appliance using Ganglia, you must enable Ganglia Configuration as follows:

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Ganglia Configuration**.

3 As necessary, change the following Ganglia configuration options:

Enable Full Monitoring Services: Select this option to receive and store metrics from other appliances, and to allow the Ganglia Web Interface to run on the same machine as the iPrint appliance.

You might want to disable Ganglia monitoring by deselecting this option if:

- ◆ You already have a monitoring system that you plan to use for iPrint.
- ◆ You plan to configure a dedicated appliance for viewing monitoring information. (You do this by selecting **Unicast** below, then specifying the host name or IP address of the appliance where monitoring information will be collected.)

Enable monitoring on this appliance: Select this option to enable Ganglia monitoring on this appliance.

- ◆ **Multicast:** Select this option to send monitoring information to other appliances on the network.
- ◆ **Unicast:** (Recommended) Select this option to send monitoring information to a single destination.

  Unicast mode is recommended for improving performance of the iPrint system.

  Publish to: Specify the URL where Ganglia sends monitoring information when it is running in Unicast mode.

4 (Optional) Click **Reset Database** to remove all existing Ganglia metrics from this appliance.

This option is not related to the iPrint database.

5 Click **OK**.

For more information about how to use Ganglia monitoring with iPrint Appliance, see "Ganglia Monitoring" on page 79.

Support

You can upload configuration files to Novell Support via FTP, or to download the configuration files so that you can send them by an alternative method.

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Support**.

3 Select **Automatically send the configuration to Novell using FTP** to automatically send your iPrint Appliance system's configuration information to Novell Support via FTP.

or

Select **Download and save the configuration file locally, then send it to Novell manually** to download your iPrint Appliance system's configuration information to your management workstation. You can then send the information to Novell Support using a method of your choice.

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

Shutting Down and Restarting iPrint Appliance

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Reboot** or **Shutdown**.

Signing Out of iPrint Appliance

1 In the upper-right corner of the Management Console page, next to the user name, click **Logout**.

On the Management Console page, along with the user name, **Home** and **Logout** links are available. The **Home** directs you to the iPrint Appliance main page, and the **Logout** signs out of the iPrint Appliance.

10 Managing Print System

In this section, you can manage the appliance through the iPrint Appliance Management Console and the configure the server to automatically update the Macintosh and Windows clients.

The iPrint Appliance Management Console allows you to add and manage printers, check the printer status, create printer maps, and monitor iPrint Appliance. To access the Management Console, on a Web browser, specify either the host name or the IP address. For example, https://iprint.example.com:9443 or https://10.0.0.1:9443.

iPrint Appliance Configuration

The iPrint Appliance Configuration page displays the following options:

Printers

The Printers page lists all printers currently managed by iPrint Appliance. You can enable a printer for AirPrint, Email printing, and IPP printing.

Advertising a Printer as AirPrint

1 Select a printer or printers, click the **AirPrint** drop-down menu, then click **Enable Advertising**.

All Apple certified AirPrint printers are supported for AirPrint printing.

On enabling the printer for AirPrint, the printer is advertized as an AirPrint-enabled printer and also gets enabled for Mobile and Email Printing.

Enabling Mobile Printing for a Printer

1 Select a printer or printers, click the **Mobile** drop-down menu, then click **Enable**.

On enabling the printer for mobile, you can print to that printer from your mobile devices or by using the email printing feature.

Enabling Private Email Printing

Using email printing, you can print documents from any device capable of sending emails. You can print emails by specifying email printing commands in the subject line of the email. You can also print documents by emailing them to your printer as attachments. When configured for email printing, iPrint Appliance becomes a client to an email server.

To enable private email printing, you must ensure to meet the following:

- Enable the printer for mobile printing
- Configure global email settings
- Email accounts are created and functional

You can configure a printer for private email printing by providing a specific email address to each printer. To enable a private email address for the printer, do the following:

1 Select a printer, click the **Configure** drop-down menu, then click **Private Email Settings**.
2 Specify the values as follows:

Account	• **Email Address:** Specify the full email address of the mailbox to be polled for the print jobs. When an email-based job arrives, the print job is processed to the printer. For example, print@example.com.
	• **Username:** Specify the user name to be used by iPrint Appliance to log in to the email server to access the private printer email account. For example, iprint.
	• **Password:** Specify the password for iPrint Appliance to log in to the email server to access the private printer email account.
	• **Retype Password:** Confirm the account password.
Server	• **Incoming Mail Server:** Specify the address of the incoming email server for the email account. For example, imap.example.com.
	• **Outgoing Mail Server:** Specify the address of the outgoing email server for the email account. For example, smtp.example.com.
	• **Access Method:** iPrint Appliance supports two different protocols to poll for incoming print jobs. Select POP or IMAP depending on the protocol your email server supports.

Caveats For Email Printing

- An email address used for a particular printer (per-printer email configuration) cannot be shared for any other printer or mobile service.

- If you configure a printer for private email printing and then disable the printer for Mobile printing, the private email configuration settings are deleted. If you want to enable private email printing in future, you must specify the information manually.

Editing a Printer

1 To view and modify the details of a printer, click the printer name.

2 You can modify the details as follows:

- **AirPrint Advertising:** Click the button to enable or disable AirPrint advertising.

  All Apple certified AirPrint printers are supported for AirPrint printing.

- **Bonjour Service Name:** Displays the name with which the printer will be advertised as AirPrint printer.

- **Address:** Displays the IP address or host name of the printer.

- **Geo-location:** (Optional) Geographical location of the printer.

- **Device Location:** (Optional) Local location of the printer.

- **Description:** (Optional) Specific description related to the printer.

- **Printer Status:** Displays the health monitoring GUI to monitor the printer status.

- **Manage Printer:** Displays the iManager GUI to manage the print environment.

- **Manage Certificates:** Displays the Digital Certificates page. The certificates are managed from this location.

3 Click **Save**.

Printer Rename and Printer Refresh

You can rename a printer from the Printers page. Select a printer you want to rename, click the **Configure** menu, then click **Rename Printer**.

To refresh the printers list, click the **Refresh** button in the upper right of the Available Printers window.

Bulk Printer Creation Using a CSV File

You can create multiple printers using a csv file. You must create a csv file, then upload the csv file into iPrint Appliance by clicking the **Bulk Printer Creation** button in the upper-right corner of the **Printers** Configuration page.

The csv file must contain the following fields:

```
PrinterName,PrinterIP,Location,Description,Win95_98_Driver,Winnt_Driver,Win2k_Driv
er,Winxp_Driver,Linux_Driver,Mac_Driver,Vista32_Driver,Vista64_Driver,Win732_Drive
r,Win764_Driver,Win832_Driver,Win864_Driver,Enable DirectPrinting,Secure
Printing,Enable Auditing,LPR/RAW,Raw Port
```

Uploading the CSV File

1 On a Web browser, specify either the host name or the IP address. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Specify the **Username** and **Password**, then click **Log in**.

3 Click **Manager iPrint Appliance**.

4 Click Printers.

5 Click the **Bulk Printer Creation** button in the upper-right corner of the window.
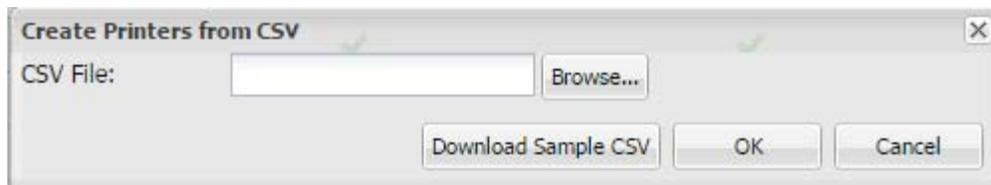
 5a To download the sample csv file, click **Download Sample CSV**.

6 Navigate to the `.csv` file, select it, then click **OK** to begin the printer import process.

For more information on the parameters in the csv file, see "Bulk Printer Import Using a CSV File" on page 38.

WalkUp Printers

WalkUp printer is a virtual print queue that includes group of physical printers. The print jobs sent to the WalkUp printer are put on hold by the iPrint Appliance server and released to a desirable printer. To release the job, use a web browser and specify the server address (<https://<Appliance_IP_address or host_name>/user) to launch the Release Portal UI. On successful user authentication, a list of jobs on hold are displayed.

You must associate drivers for printers when performing desktop printing.

Figure 10-1 *WalkUp Flow*
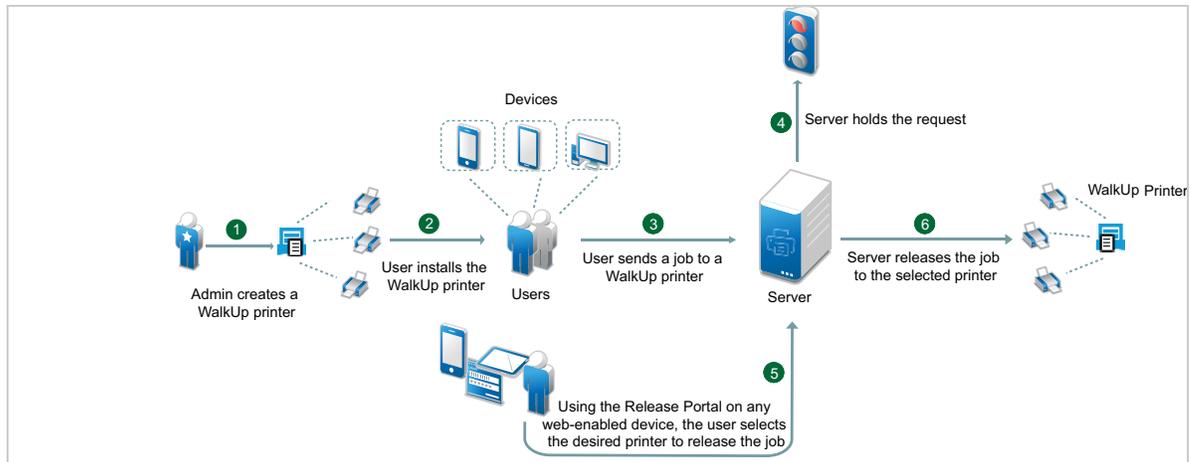
Prerequisites

- Ensure that the physical printers are available before creating a WalkUp printer.

- All the WalkUp jobs are stored on the secondary disk. Depending on the usage of the print service, decide the space required on the secondary disk.

- The users releases the jobs by using a Release Portal or an iOS app. Ensure that the user is aware of the printer location and printer names.

- By default, only the WalkUp administrator and the users created in the `iPrintAppliance` container will have access to the WalkUp printer. To provide access to all the imported users or users in other containers use iManager.

In the Management Console, **WalkUp Printers** page, you can create, edit, and delete a WalkUp printer. You can modify the job hold duration for a printer and also enable it for Mobile printing.

Creating a WalkUp Printer

1 Under **Configuration**, click **WalkUp Printers**.

2 Click **New**.

3 Specify the name of the WalkUp (virtual) printer. This name will be exposed to the user when they install printers on their desktop or mobile devices.

4 (Optional) Specify description for the printer.

5 To enable mobile users to use this printer, select **Enable printer for Mobile Printing**.

6 From the list of printers, select the printers to group under the WalkUp printer. The jobs sent to the WalkUp printer will be put on hold and the user will have control to release those jobs to one of the grouped printer.

   You must select at least one printer.

7 Click **Next**.

8 Assign platform-specific drivers for the WalkUp printer.

If Windows drivers are selected, then bi-directional communication can be set for the WalkUp printer.

    8a Specify the IP Address or host name from the pool of the printer that you have selected for WalkUp.

9 Click **Finish**.

WalkUp printer object is created that includes group of printers. The jobs on hold can only be released to these printers.

Editing a WalkUp Printer

1 Under **Configuration**, click **WalkUp Printers**.

2 Click the printer name.

Displays the details of the printer and its drivers.

3 In the **Printer Details** tab, modify the details of the printer.

4 Click the **Drivers** tab, then reassign the drivers for the selected printers. You can also modify the IP address or host name for bi-di communication.

5 Click **Save**.

The modified settings are applicable to all jobs sent to the selected WalkUp printer.

Deleting a WalkUp Printer

Ensure all the jobs are completed before deleting the printer. On deleting this printer, all the held jobs will be automatically cancelled.

1 Under **Configuration**, click **WalkUp Printers**.

2 Select a printer or printers, then click **Delete**.

Enabling Mobile Printing for a WalkUp Printer

1 Under **Configuration**, click **WalkUp Printers**.

2 Select a printer or printers, click the **Mobile** drop-down menu, then click **Enable**.

Modifying the Job Hold Time

By default, the job is put on hold for four hours, after which the job will be cancelled. You can modify the time duration to put the job on hold as follows:

1 Under **Configuration**, click **WalkUp Printers**.

2 Click **Settings**.

3 Modify the duration to hold a job. This change is applicable only for the jobs put on hold after the setting is modified. The existing jobs will continue to be on hold as per the earlier set duration.

Caveats for Implementing WalkUp Printing

This section lists a few pointers for avoiding common WalkUp implementation problems.

- **Using iManager:** The following management tasks for the WalkUp printer are only managed by iManager:
  - Enable auto driver or profile update
  - Assign driver profiles
  - Set Access Control
  - Enable auditing
  - Delete held jobs

- **Using iPrint status (iPrint Health Monitoring page):** The following tasks of the WalkUp printers are monitored using the iPrint Health Monitoring tool:
  - Delete held jobs
  - Enable auditing

- **Job hold time:** By default, the job is put on hold for four hours, after which the job is cancelled. If a job is cancelled it is no longer available in the Release Portal. The job hold time can be modified from the Management Console. For more information, see "Modifying the Job Hold Time" on page 100.

- **Insufficient balance when printing in PaperCut setup:** If the user prints in spite of having insufficient balance in his account, the job is canceled even though the Release Portal displays a success message.

iPrint Release Portal for Users

The iPrint Release Portal displays the jobs that are put on hold, the time the job was submitted to the WalkUp printer, and the expiry time of the job. By default, the job is put on hold for four hours, after which the job will be cancelled. If a job is canceled it is no longer available in the Release Portal.

To launch the Release Portal in a web browser, specify the Appliance server's address (<https://
<Appliance_IPaddress or host_name>/user> or <https://**<Appliance_IPaddress or
host_name>**:9443/release-portal).

Printing a WalkUp Job

1 Using a web browser, specify the server address (https://<Appliance_IPaddress or host_name>/user) or (https://<Appliance_IPaddress or host_name>:9443/release-portal).

2 Specify the user authentication details.

   On successful authentication, jobs are displayed.

3 Select the document, then click **Print**.

4 Select the printer, then click **OK**.

   The document is printed by the selected printer.

Deleting a WalkUp Job

1 Using a web browser, specify the server address (https://<Appliance_IPaddress or host_name>/user) or (https://<Appliance_IPaddress or host_name>:9443/release-portal).

2 Specify the user authentication details.

   On successful authentication, jobs are displayed.

3 Select the document or multiple documents, then click **Delete**.

The selected jobs are deleted and no longer available to print.

Manage Printers (iManager)

This page displays the iManager interface.

Using iManager, you can manage the print environment such as create printers, printer drivers, profiles, and users. You can also manage workstations. For more information, see "iPrint Printer Configuration (iManager)" on page 119.

Printer Status

This page displays a global view of your print system. The tool displays the current status of Printer Agents, and lets you configure settings and generate reports about your print system.

For more information about the iPrint Printer Status tool, see the *Micro Focus iPrint Appliance 2.1: Micro Focus iPrint Appliance Health Monitoring Guide*.

Mobile

On the Mobile configuration page, you can configure default options for mobile printing and email printing.

Global Mobile Settings

Following are the default settings for all the printers when printing from the mobile app. When performing print, these settings can be modified for a individual printer.

Paper Size: Select **Letter** or **A4**.

Orientation: Select between **Landscape** or **Portrait** printing.

Enable Duplex Printing: Duplex printing allows printing on both the sides of a paper. Print devices without this capability can only print on a single side of paper (simplex printing).

Enable Color Printing: Color printing prints the documents in color, as opposed to monochrome (black and white) printing.

Global Email Settings

iPrint Appliance can be configured to accept print jobs through email messages and attachments. Using email printing, you can print documents from any device capable of sending emails. You can print emails by specifying email printing commands in the subject line of the email. You can also print documents by emailing them to your printer as attachments. When configured for email printing, iPrint Appliance becomes a client to an email server. Email account inbox is polled for incoming print jobs, which are routed to the intended printer.

Ensure email accounts are created and functional prior to their association with the iPrint Appliance.

Enable email-based printing: Select this option to enable email printing. A global email address is assigned for all the printers.

The following fields are used by iPrint Appliance to describe and access the global email account:

Email address: Specify the full email address for global print jobs. For example, print@example.com. Ensure to use an exclusive email account for iPrint Appliance. Do not use an existing email account.

iPrint Appliance polls the inbox of this email address looking for print jobs. When an email-based job arrives, the subject line is parsed to determine the printer to which the job is sent.

IMPORTANT: If an existing email account is used, the mails in that account might get deleted, auto-replied, and so on.

Account Username: Specify the user name for iPrint Appliance to log in to the email server to access the global email account. For example, iprint.

Account Password: Specify the password for iPrint Appliance to log in to the email server to access the global email account.

Incoming Mail Server: Specify the address of the incoming mail server for the email account. For example, imap.example.com.

Incoming Server Type: iPrint Appliance supports POP and IMAP protocols to poll for incoming print jobs. Select POP or IMAP depending on the protocol that your email server supports. For more information, see "Incoming Mail Server Parameters" on page 213.

Outgoing (SMTP) Mail Server: Specify the address of the outgoing mail server for the email account. For example, smtp.example.com. iPrint Appliance uses the SMTP protocol to send email back to users who submit email-based print jobs to report their job status. In order to support iPrint Appliance, the email server you select must support the SMTP protocol. For more information, see "Outgoing Mail Server Parameters" on page 214.

Message body Printing: With email-based printing, attachments are always printed. This option allows the email message body to also be printed. It is enabled by default.

Polling Interval: Configures the interval (in seconds) at which emails are fetched from the mail servers.

IMPORTANT: When using email printing, the print command in the subject line might trigger spam filters. To avoid this issue, configure your email system to allow print-specific emails. Include the approved print users in the spam filter of your email system to prevent unwanted print requests.

You can also configure a printer for private email printing by providing a specific email address to each printer. For more information, see "Enabling Private Email Printing" on page 96.

Renderers

The Renderers Configuration page allows you to download the remote renderer and also manage all the renderers. For more information about installing and configuring a remote renderer, see "Installing and Configuring a Remote Renderer" on page 72.

On the Renderers page, you can perform the following actions:

- "Add a Renderer" on page 104
- "Edit a Renderer" on page 104
- "Delete a Renderer" on page 104
- "Activate or Deactivate a Renderer" on page 104

Add a Renderer

1 Under **Configuration**, click **Renderers**.

2 Click **New**.

3 In the **Renderer Host/IP address** box, specify the host name or IP address of the renderer system, then click **Connect**.

4 Under Options, specify a name for the renderer in the **Renderer Name** box.

5 Select the document formats you want the remote renderer to render.

> **NOTE:** The **Build-in PDF renderer** is selected by default. If you want to use Adobe Acrobat, you must ensure that Adobe Acrobat Pro is installed on the renderer machine before selecting the **Adobe Acrobat** option. Similarly, if you want to enable the remote renderer to render Microsoft Office formats, you must ensure that Microsoft Office is installed on the renderer machine before selecting the **Office Support** option.

6 Choose the **Default Printer Driver**, then click **Register**.

Edit a Renderer

You can change a remote renderer's name, the document rendering options, and the default printer driver using the **Edit** feature on the Renderers page.

1 Under **Configuration**, click **Renderers**.

2 Select a renderer which you want to edit, then click **Edit**.

3 Modify the details, then click **Commit**.

Delete a Renderer

1 Under **Configuration**, click **Renderers**.

2 Select a renderer that you want to delete, then click **Delete**.

Deleting a renderer unregisters the renderer from the iPrint Appliance.

Activate or Deactivate a Renderer

1 Under **Configuration**, click **Renderers**.

2 Select a renderer that you want to activate, then click **Activate**.

The renderer is now in an active state.

If the renderer is in an Inactive state, it will not render any jobs. Deactivating a renderer does not unregister the renderer from the iPrint Appliance.

Driver Store

You can change the Drive Store post the initial configuration.

Changing from local to remote driver store or vice versa: After initial configuration, if you change the local driver store to remote driver store or vice versa, you must again set the default driver for the local renderer.

The Driver Store Configuration page contains the following options:

Local: Select this option to use the Driver Store of the local machine.

Remote: Select this option to change the location of the Remote Driver Store. Specify the **host name/ Address**, Username (FDN format - for example, cn=admin,o=companyname), and the **Password** of the new Remote Driver Store, then click **Save**.

AirPrint Settings

AirPrint is a framework that facilitates driverless printing that allows users to send print jobs to AirPrint enabled printers. This page displays the status of the AirPrint service. You can start or stop the AirPrint service.

Import Users

To create an iPrint Appliance user account, you can synchronize initial user information from your network directory service (NetIQ eDirectory or Microsoft Active Directory service) after you have installed the iPrint Appliance software. Over time, you can continue to synchronize user information from the LDAP directory to your iPrint Appliance.

When you synchronize user information into iPrint Appliance from a source LDAP directory service, the entire Base DN on the source is imported into iPrint Appliance. For example, if you sync the context o=users from an LDAP source, the same o=users context is created in iPrint Appliance.

IMPORTANT:

- iPrint Appliance performs one-way synchronization from the LDAP directory. If you change user information in iPrint Appliance, the changes are not synchronized back to your LDAP directory. It is recommended that you do not change synced LDAP user information on iPrint Appliance.
- iPrint Appliance does not support multi-value attributes. If your LDAP directory contains multi-value attributes, iPrint Appliance recognizes only the first attribute. For example, if your LDAP directory contains multiple email addresses for a given user, only the first email address is synchronized to iPrint Appliance.
- LDAP import does not sync user passwords to iPrint Appliance. Authentication requests from the mobile app are redirected to the defined LDAP source. If a user password is changed on the LDAP source, you do not need to update the same password on iPrint Appliance.
- The LDAP source IP or host name must be always active for iPrint Appliance to authenticate users.

You can configure multiple LDAP connections. To create a new LDAP connection, click **Add a New LDAP Source** on the LDAP Import page.

Each connection requires the following configuration information:

- "LDAP Server URL" on page 106
- "User DN (Proxy User for Synchronizing Users and Groups)" on page 106
- "LDAP Attribute to Identify a User or Group" on page 106
- "LDAP Attribute for iPrint Appliance User Name" on page 107
- "User and Group Object Locations" on page 107
- "LDAP Synchronization" on page 108
- "Securing LDAP Synchronization" on page 108

LDAP Server URL

In order to synchronize initial user information, iPrint Appliance must access an LDAP server where your directory service is running. You must provide the hostname of the server, using a URL with the following format:

```
ldap://hostname
```

If the LDAP server requires a secure SSL connection, use the following format:

```
ldaps://hostname
```

If the LDAP server is configured with a default port number (389 for non-secure connections or 636 for secure SSL connections), the port number is not required in the URL. If the LDAP server uses a different port number, use the following format for the LDAP URL:

```
ldap://hostname:port_number
ldaps://hostname:port_number
```

If the LDAP server requires a secure SSL connection, additional setup is required. You must import the root certificate for your LDAP directory into the Java KeyStore (JVM Certificates) from **Management Tools > Appliance System Configuration > Digital Certificates** on the iPrint server, before you configure iPrint Appliance for LDAP synchronization.

User DN (Proxy User for Synchronizing Users and Groups)

To sync users into iPrint Appliance, you must provide the user name and password of a user who has sufficient rights to access the user information on the LDAP server.

In your LDAP directory tree, you must provide the fully qualified, comma-delimited user name, along with its context, in the format expected by your directory service.

Directory Service	Format for the User Name
eDirectory	cn=username,ou=organizational_unit,o=organization
Active Directory	cn=username,cn=organizational_unit,dc=domain_component

LDAP Attribute to Identify a User or Group

The LDAP attribute that uniquely identifies a user or group helps facilitate renaming and moving iPrint users and groups in the LDAP directory. If this attribute is not set and you rename or move a user in the LDAP source directory, iPrint Appliance assumes that the new name (or the new location of the same name) represents a new user rather than a modified user, and creates a new iPrint Appliance user.

For example, you have an iPrint user with a given name of William Jones. If William changes his name to Bill and you make that change in the LDAP directory, iPrint Appliance creates a new user named Bill Jones.

To ensure that iPrint Appliance modifies the existing user instead of creating a new user when the user is renamed or moved in the LDAP directory, you must specify the name of the LDAP attribute that uniquely identifies the user. For eDirectory, this value is GUID. For Active Directory, this value is objectGUID. This attribute always has a unique value that does not change when you rename or move a user in the LDAP directory. If you want to map users to a different attribute, you must ensure that the attribute that you use is a binary attribute. For example, the cn attribute cannot be used because it is not a binary attribute.

LDAP Attribute for iPrint Appliance User Name

The setting **LDAP Attribute Used for iPrint Appliance User Name** is used for two purposes:

- The value is used as the iPrint Appliance user name when the user is first provisioned from LDAP. The value of this attribute must be unique.
- During iPrint Appliance login, iPrint Appliance uses this attribute to locate the user in the LDAP directory, and then tries to authenticate as that user.

LDAP directories differ in the LDAP attribute used to identify a User object. Both eDirectory and Active Directory might use the `cn` (common name) attribute. A more sure alternative for Active Directory is to use the `sAMAccountName` attribute. Other LDAP directories might use the `uid` (unique ID) attribute, depending on the structure and configuration of the directory tree.

Consult with your directory administrator in order to determine the best attribute to use. In some cases where not all users are being imported successfully, you must set up two LDAP sources pointing to the same LDAP server and have each source use a different value for the **LDAP Attribute Used for iPrint Name**. For example, set up one LDAP source and use `cn` as the **LDAP Attribute Used for iPrint Name**, and then set up a separate source to the same LDAP server and use `sAMAccountName` as the **LDAP Attribute Used for iPrint Name**.

In addition to the attributes already mentioned in this section, other LDAP attributes can be used for the **LDAP Attribute Used for iPrint Name**, as long as the attribute is unique for each User object. For example, the `mail` LDAP attribute on User objects can be used to enable iPrint Appliance users to log in by using their email addresses.

User and Group Object Locations

iPrint Appliance can find and synchronize initial user information from User objects located in one or more containers in the LDAP directory tree. A container under which User objects are located is called a base DN (distinguished name). The format you use to specify a base DN depends on your directory service.

Directory Service	Format for the User Container
eDirectory	`ou=organizational_unit,o=organization`
Active Directory	`cn=organizational_unit,dc=domain_component`

To identify potential iPrint users, iPrint Appliance by default filters on the following LDAP directory object attributes:

- `Person`
- `orgPerson`
- `inetOrgPerson`

If you want to create iPrint groups based on information in your LDAP directory, iPrint Appliance filters on the following LDAP directory object attributes:

- `group`
- `groupOfNames`
- `groupOfUniqueNames`

You can add attributes to the user or group filter list if necessary. You can use the following operators in the filter:

- | OR (the default)
- & AND
- ! NOT

You can choose whether you want iPrint Appliance to search for users (and optionally, groups) in containers below the base DN (that is, in subtrees).

You can create a group that consists of all the users that you want to set up in iPrint Appliance, regardless of where they are located in your LDAP directory. After you create the group, you can use the following filter to search for User objects that have the specified group membership attribute:

(groupMembership=cn=*group_name*,ou=*organizational_unit*,o=*organization*)

IMPORTANT: Ensure that you include parentheses in your filter.

LDAP Synchronization

Synchronization options apply to all LDAP configurations.

Select **Enable schedule**, then set the schedule to synchronize users and groups. You can perform LDAP synchronization every day, or on specific days of the week. You can also perform a sync once a day at a specified time, or multiple times each day. The smallest time interval you can set is .25 hours (every 15 minutes).

To synchronize users and groups immediately, select **Run Immediately**.

NOTE: If you want to delete users that are synced from a particular LDAP source, you must delete the LDAP source connection then run an LDAP sync. When you delete an LDAP source, the users and groups from that context are deleted while the context itself is retained.

Securing LDAP Synchronization

If your LDAP directory service requires a secure LDAP connection (LDAPS), you must configure iPrint Appliance with a root certificate. The root certificate identifies the root certificate authority (CA) for your appliance, which enables you to export a self-signed root certificate based on your eDirectory or Active Directory tree.

- "Exporting a Root Certificate" on page 108
- "Importing the Root Certificate into the Java Keystore" on page 114

Exporting a Root Certificate

- "Exporting a Root Certificate for eDirectory" on page 108
- "Exporting the Root Certificate for Active Directory" on page 109

Exporting a Root Certificate for eDirectory

1 Launch and log in to iManager for your tree.
2 Click **Directory Administration**.
3 Click **Modify Object**.

4 Click the magnifying glass icon to browse to and select the "*Tree Name* CA" object in the Security container of the eDirectory tree.

5 Click **OK**.

6 Click the **Certificates** tab.

7 Select the check box for the root certificate (this is not the certificate titled **Self Signed Certificate**, but rather the root certificate), then click **Validate**.

8 Select the check box for the root certificate, then click **Export**.

9 Deselect **Export private key**, then click **Next**.

10 Click **Save the exported certificate**, then select **File in binary DER format**.

11 Save the file to a location where it can be accessed later and with a file name that you can remember, such as `SelfSignCert.der`.

12 Click **Close** > **OK**.

13 Continue with .

Exporting the Root Certificate for Active Directory

1 On the Windows server, click **Start > Run**, then enter `mmc`.
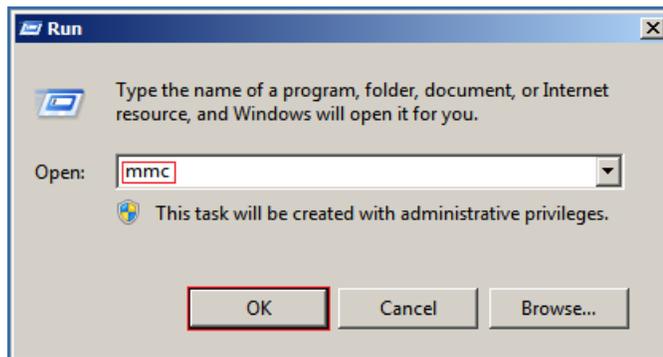
2 In MMC, type `Ctrl+M`.

3 If the **Internet Information Services (IIS) Manager** snap-in is not installed on your Windows server, install it.

4 With IIS selected, click **Add**, then click **OK**.
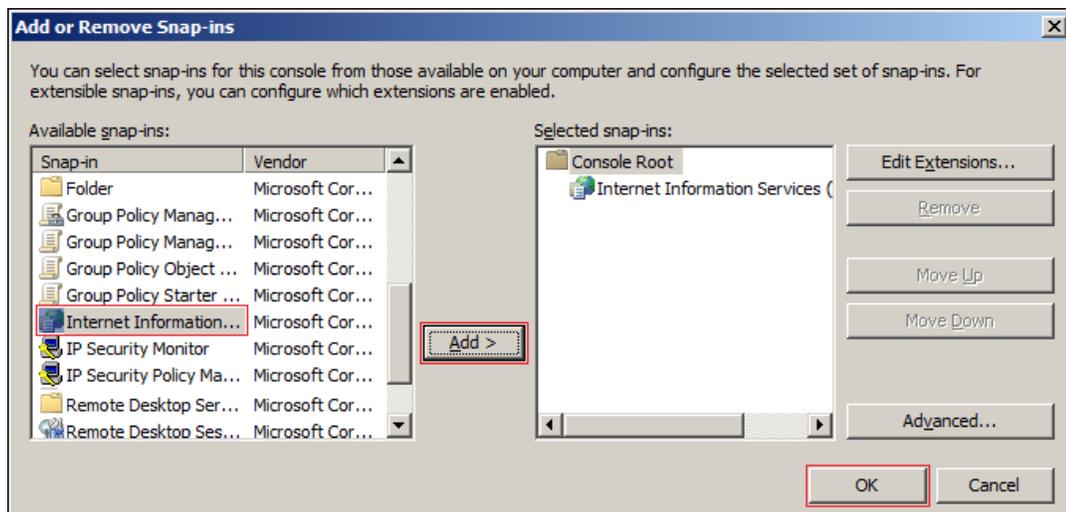
5 In the left frame, click **Internet Information Services**, then click a Windows server that iPrint Appliance can connect to for synchronizing users.
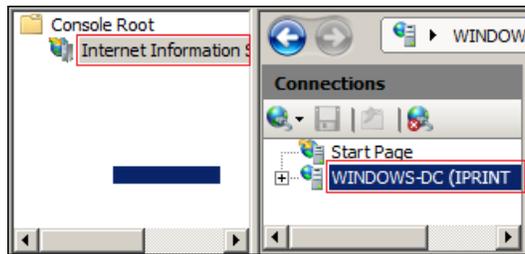
6 In the Filter list, scroll down to **Server Certificates** and double-click the icon.
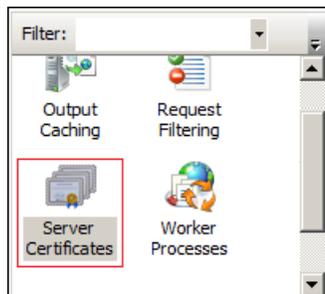
7 In the **Actions** list, click **Create Self-Signed Certificate**.
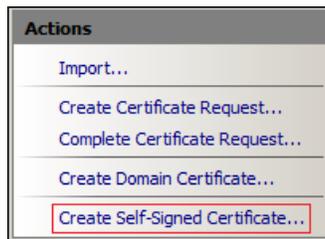
8 Name the certificate with a name you can remember, such as the server name, then click **OK**.
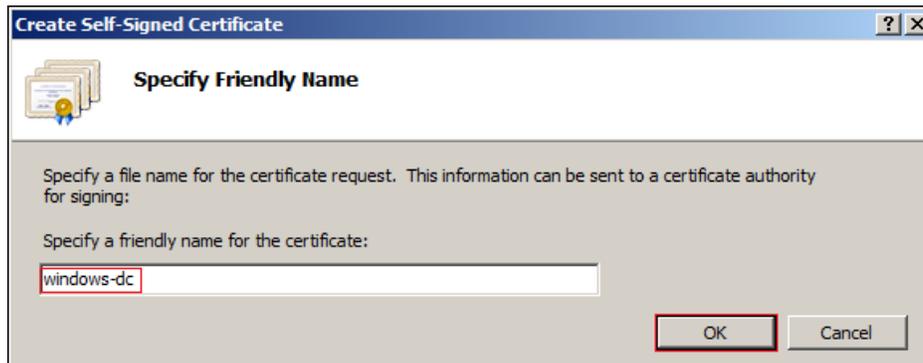
9 Type Ctrl+M, select the **Certificates** plug-in, then click **Add**.
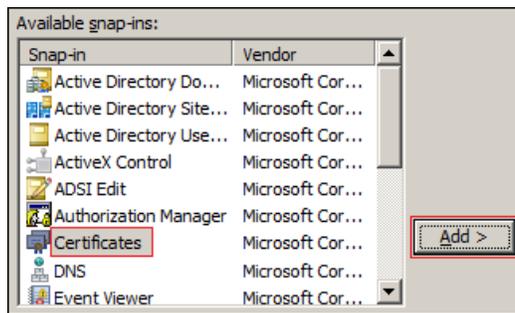
10 Select **Computer account**, then click **Next**.
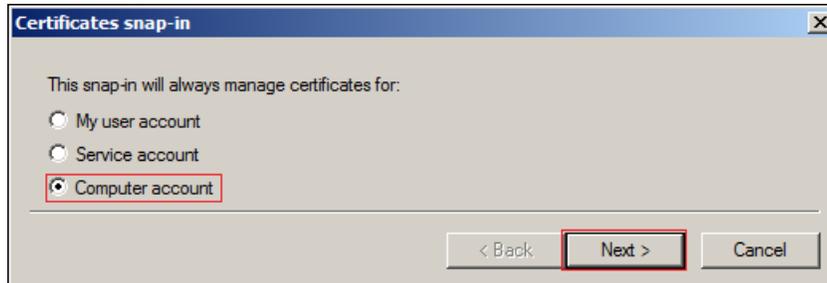
11 Click **Finish**.
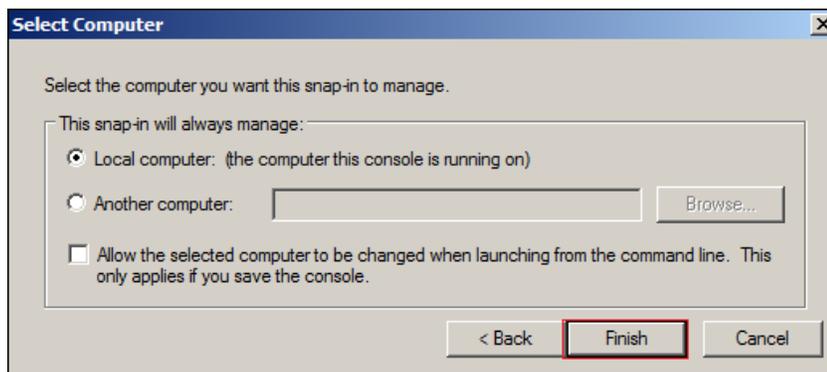
12 In the Snap-ins dialog, click **OK**.

13 In MMC, expand the **Certificates** plug-in, expand **Personal**, then click **Certificates**.
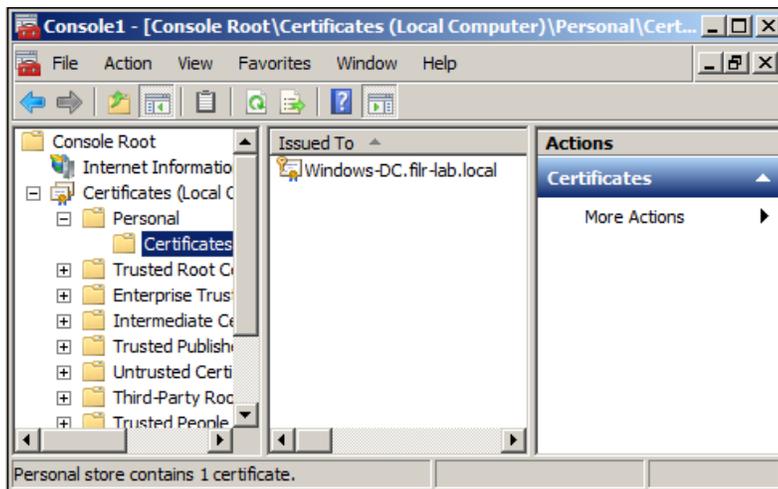
14 Right-click the certificate you created, select **All Tasks**, then click **Export...**.
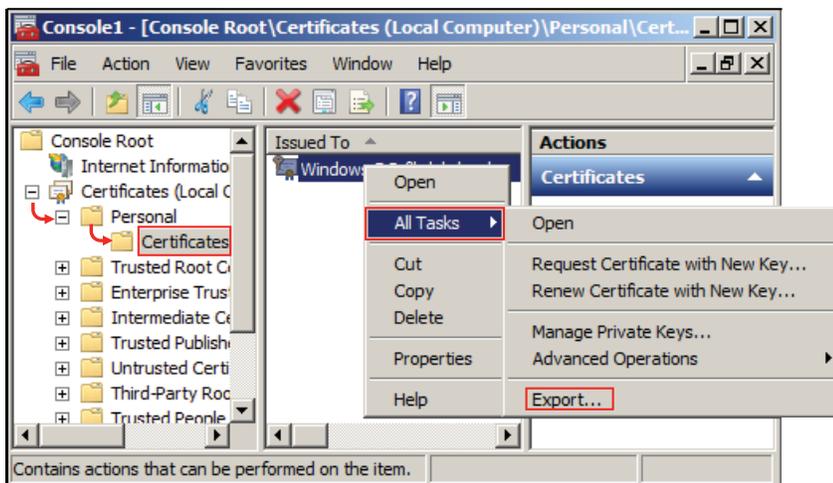
15 In the Certificate Export wizard, click **Next**.

16 Ensure that **No, do not export the private key** is selected, then click **Next**.

17 Ensure that **DER encoded binary** is selected, then click **Next**.
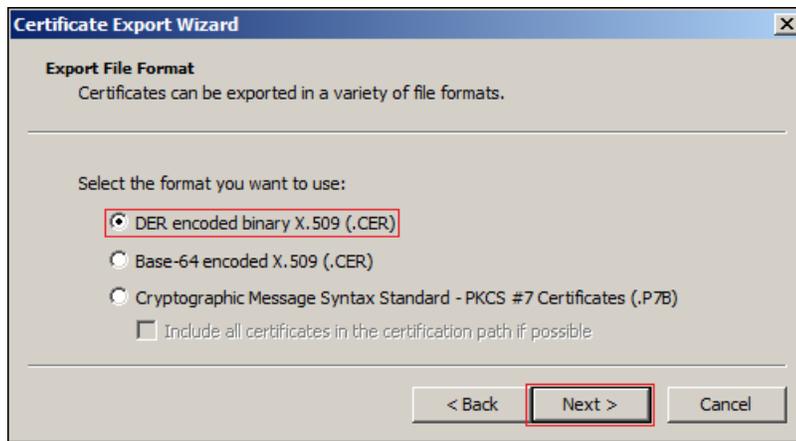
18 Name the certificate, then click **Next**.
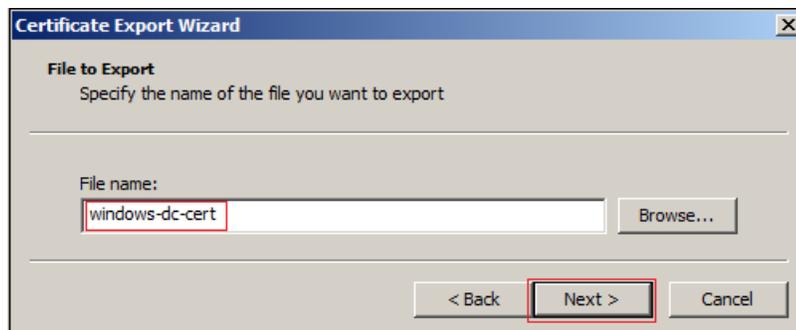
19 Click **Finish > OK**.
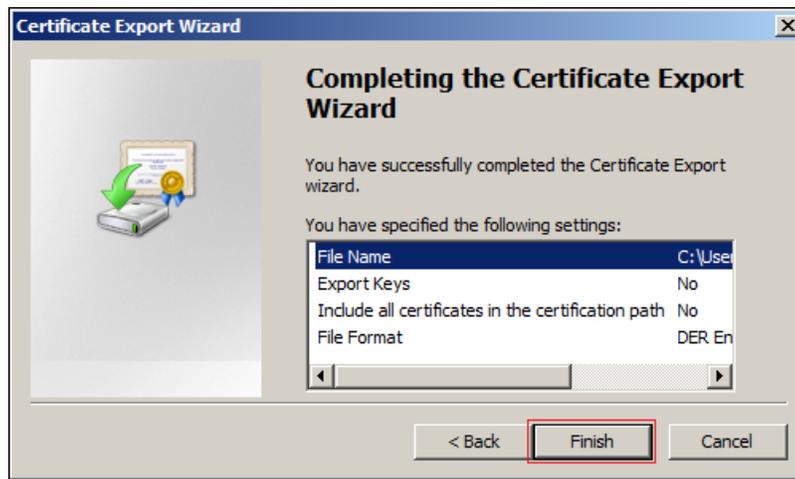
The certificate is saved in `C:\Users\`*`Your-User-Name`*.

20 Ensure that the certificate is accessible from your management browser.

21 Continue with "Importing the Root Certificate into the Java Keystore" on page 114.

Importing the Root Certificate into the Java Keystore

**1** On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Digital Certificates**.

3 In the **Key Store** drop-down list, select **JVM Certificates**.

4 Click **File** > **Import** > **Trusted Certificate**.

A `.der` certificate is required for the import to be successful.

5 Browse to and select the trusted root certificate that you want to import.

If you want to import multiple certificates, ensure that the certificate names are different for each certificate.

6 Do not make any changes to the **Alias** field. It is populated by default.

7 Click **OK**.

The certificate should now be displayed in the list of JVM certificates.

8 Restart iPrint Appliance so that Tomcat rereads the updated Java keystore file.

You can restart the iPrint Appliance service as described in "System Services" on page 90.

You are now ready to configure iPrint Appliance for secure LDAP synchronization.

Printer Map (iPrint Map Designer Tool)

You can create a printer map using the iPrint Map Designer tool or HTML pages.

Use the iPrint Map Designer tool to create a map showing printer locations. The tool lets you import floor plans as background images that can be used to drag and drop printers onto actual locations. These maps are then published on a Web server, so users can install printers that are closest to their location.

The iPrint map pages now display browser-specific user instructions during printer installation. If you have upgraded to iPrint Client 6.0.0 or later for Windows, it is recommended that you recreate your map pages.

After the map is created, you must use the iPrint Map Designer to modify or update it. Changes to a map file that are made outside of the iPrint Map Designer are not supported. If you need to add links to a map, you should create a frameset file and then display the map file in one frame and display your links in a different frame.

Prerequisites

- ❏ Windows 10/8.1/8/7/Vista operating systems

- ❏ Microsoft Internet Explorer 6.0 or later (run as administrator)

- ❏ Micro Focus iPrint Client installed on the workstation

- ❏ All of the background images (maps) are copied to the `/var/opt/novell/iprint/htdocs/images/maps` folder on the iPrint Appliance server.

   You can use JPEG, GIF, and BMP images for backgrounds and printer icon images. These files are detected by iPrint Map Designer at startup. A default set of printer icons are included.

- ❏ All of the custom printer icons are copied to the `/var/opt/novell/iprint/htdocs/images/printers` folder on the iPrint Appliance server.

Creating a Printer Map

1 To launch the iPrint Map Designer tool, go to `https://server_address/maptool.htm` in Internet Explorer, where server_address is the server's IP address or host name of the server where the iPrint Manager is running.

2 Select a map from the **Background image** drop-down list.

3 Add a printer to the map:

   3a From the **Printer image** field, select the type of printer and icon size you want.

      Sizes range from 1 to 6, with 1 being the largest. Icons with a C indicate color printers.

   3b Click the **Printer** icon and drag the printer to the desired location on the map.

   3c Select a printer from the **Printer list**.

      Next to the **Printer list** field, click the **Browse** icon and specify the IP address or host name of the server where the Print Manager is running.

   3d From the **Printer list**, select the printer that you want to associate with the printer icon.

      On selection of the printer, the **Printer agent** and **Print Manager** information is populated. By default, Mouse over text displays the Printer Agent's name.

      You can add printers from different Print Managers to the same map. Click the **Browse** icon adjacent to the **Printer list** field, specify the IP address or host name of the server where the Print Manager is running.

   3e (Optional) In the **Printer Caption** field, specify the title for the printer.

   3f (Optional) From the menu bar, click **Edit > Font** to change the base font, color, and size for text on the map.

4 Click *File* > *Save* **As** to save the map in an HTML format. For example, `filename.html`. You can upload this HTML file to a Web server and use an HTML editor to customize the page.

IMPORTANT: Do not click **Refresh** or exit Internet Explorer without saving the map.

To retrieve and modify an existing map file, click **Open** and browse to the directory where the map is located.

Copy Maps to the iPrint Appliance

On successful creation of maps, you must copy the maps to the location `/var/opt/novell/iprint/htdocs` on the iPrint Appliance.

Users can access the maps by specifying the URL `http://server_DNS_or_IP_address/ippdocs/filename.html` in their browsers.

Customizing HTML Interface for Installing Printers

You can edit the HTML files provided in `var/opt/novell/iprint/htdocs/examples/` or create HTML files to customize iPrint printer list for your environment.

1 Create a HTML file (`sample1.html`) to customize iPrint for your environment.

You can associate a printer with the printers's IPP URL.This URL is displayed when you enable IPP for a printer.

1a In iManager, click **iPrint** > **Manage Printer**.

1b Browse to and select the printer you want.

1c Click Client **Support** > **iPrint Support**.

The printer's URL is displayed under Current iPrint URL.

2 Copy the HTML file (`sample1.html`) to the `var/opt/novell/iprint/htdocs` folder.

3 Use the web browser to view the map https://server_address/ippdocs/sample1.html

Web Page Samples

The iPrint Appliance includes some sample HTML files in the `var/opt/novell/iprint/htdocs/examples/`folder.

- In the `examples` directory, `Example 1` shows a fully graphical interface for locating and installing printers using standard HTML. This type of approach can also be created using the iPrint Map Designer.

  Use the web browser to view the sample map https://server_address/ippdocs/examples/example1/innerweb.html

- In the `examples` directory, `Example 2` shows a lower-maintenance approach for locating and installing printers using standard HTML.

  Use the web browser to view the sample map https://server_address/ippdocs/examples/example2/innerweb.htm

Backup

The backup process creates a password-protected zip file with the configuration settings of the appliance. From iPrint Appliance 2 onwards, an automatic backup is triggered every day at midnight. However, you can also trigger a manual backup and download the file. A single backup file is maintained and the existing file is overwritten with the latest backed up information.

You can download the file and use the configuration settings to create a new iPrint Appliance. The existing Appliance's iManager administrator credentials (cn=admin,o=iPrintAppliance) are required when migrating to a new appliance.

The driver store setting is applicable for both automatic and manual backup.

1 Under **Configuration**, click **Backup**.
2 **Disk Space Required:** Displays the minimum space required on Primary and Secondary disk to store the backed up file.
3 **Include Local Driver Store:** Selecting this option backs up drivers when performing automatic or manual backup. Because backing up drivers consumes more disk space ensure that enough space is available in the secondary disk (vastorage).
4 To trigger a manual backup, click **Backup Now**.
5 Click **Download Backup File** to download the backed up file.
6 The Status field displays the status of automatic or manual backup along with the time stamp.

Any configuration change in the iPrint Appliance takes at least 20 minutes to get updated to the configuration file. We recommend that you wait at least 20 minutes after the last configuration change before you backup the configuration file.

Product Improvement

Telemetry enables Micro Focus to collect statistical data about your usage of iPrint service. This data will enable us to ensure that you have the best possible experience with Micro Focus iPrint. Weekly once the data is sent to the Micro Focus server.

Data That is Collected for Product Improvement

- "Statistical Data" on page 117
- "Feature Information" on page 118

Statistical Data

Table 10-1   *Telemetry Attributes*

Telemetry Attribute	Description
Total Printers	Number of printers configured for iPrint
Mobile Enabled Printers	Number of printers that are enabled for mobile
AirPrint Enabled Printers	Number of printers that are enabled for AirPrint
AirPrint Capable Printers	Number of printers that have AirPrint capability
eDirectory Users	Number of eDirectory users migrated to iPrint Appliance

Telemetry Attribute	Description
Secure Printers	Number of printers that are secure
WalkUp Printers	Number of iPrint printers configured for WalkUp functionality
Mobile Enabled WalkUp Printers	Number of WalkUp printers that are enabled for mobile
WalkUp Job Hold Duration (Minutes)	Job hold time for all WalkUp jobs
Remote Renderers	Number of Remote Renderers
Remote Driver Store	Displays whether the configured driver store is local or remote.
Secure Remote Renderers	Number of secure Remote Renderers
Non Secure Remote Renderers	Number of unsecure Remote Renderers
Secondary Disk Size (GB)	Size of the secondary disk in GB
Upgraded Appliance	Displays whether the iPrint Appliance is new or upgraded from an earlier version.
Global Email Configured	Displays if a global email was configured for printers.
Private Email Configured For Printers	Number of printers configured with private email
Direct Printers	Number of direct printers
Audit Enabled Printers	Number of printers enabled for auditing
Accounting Enabled Printers	Number of printers enabled for accounting
IPP Enabled Printers	Number of printers enabled for IPP protocol
LPR Enabled Printers	Number of printers enabled for LPR protocol

Feature Information

We are collecting the frequency of operations performed for the following features:

- ◆ Download Backup File: Number of times this file was downloaded.
- ◆ Bulk Printer Creation: Number of times the printers were created using this feature.

How Server Receives the Data

After the weekly collection, the data is sent to the iPrint server. If the transfer is unsuccessful, the system attempts to send it again during the next weekly cycle. No attempts to send the data is made outside of the weekly cycles.

The data is not encrypted because no sensitive or identifying information is included.

License

The License page displays information about your current iPrint license such as the product version, date it was issued, expiry details, and so on.

iPrint ships with a 60-day evaluation license. To continue usage of iPrint, you must update this license to a full product license.

You can obtain a new license key from the Novell Customer Center (NCC).

- ◆ "Accessing the License Page" on page 119
- ◆ "Updating the iPrint Appliance License" on page 119

Accessing the License Page

1 Under **Configuration**, click **License**.

The License page displays the license details of the iPrint Appliance.

Updating the iPrint Appliance License

To update your iPrint Appliance license:

1 On the License page, browse and select a valid license (.xml) file to upload.

2 Click **Upload**.

IMPORTANT: If you are running multiple copies of iPrint Appliance, you must update the license for each copy of iPrint Appliance individually.

After copying the license file, iPrint Appliance is updated. Restarting of the services is not required.

Appliance System Configuration

You can change configuration settings, such as administrative passwords, network settings, and certificate settings. For more information, see Chapter 9, "Managing iPrint Appliance," on page 79.

iPrint Printer Configuration (iManager)

iManager enables you to perform the following operations on iPrint Appliance:

- ◆ "Understanding and Managing Certificates" on page 120
- ◆ "Managing the Driver Store" on page 120
- ◆ "Managing the Print Manager" on page 123
- ◆ "Managing Printers" on page 137
- ◆ "Using iPrint Client Management" on page 153

NOTE: If you are running Windows XP Service Pack 2 or other browsers with pop-up blocking, you might encounter problems with pop-up windows. To manage iPrint in iManager and to install printers with iPrint clients, turn off pop-up blocking or allow the URL.

Understanding and Managing Certificates

When you manage Print Managers, driver stores, and printers that are running on a different server than the server running iManager, you might receive a certificate error, meaning that the host name or IP address of the server where you are managing the print object does not match any of the certificates on the server where iManager is running.

To find and accept the correct certificate:

1 Click the **iPrint Certificate Manager** link in the error.

2 Review the certificate information for accuracy.

3 Select the action you want to perform for this certificate.

   In order to manage the print object, you must accept the certificate.

4 Click **OK**.

   You might need to scroll down in order to click **OK** to accept the certificate.

5 Restart your task.

Certificates are accepted on a per-user basis.

You can remove accepted certificates by deleting the certstore folder located at: `/var/opt/novell/iManager/nps/portal/modules/iPrintX/certstore`. Deleting this folder removes all accepted certificates.

Managing the Driver Store

Although the default settings lets users print without additional configuration, you might want to modify some settings so that you can manage your printing resources most effectively.

- "Creating Additional Driver Stores" on page 120
- "Understanding the Driver Store Configuration File" on page 121
- "Changing the eDirectory Server Assignment" on page 121
- "Loading or Unloading the Driver Store" on page 122
- "Updating Printer Drivers" on page 122
- "Deleting Printer Drivers" on page 123

Creating Additional Driver Stores

Although you can create additional Driver Stores, you only need one for your iPrint system because the Print Manager saves the downloaded drivers files to disk. If the Print Manager does not have a requested driver, it copies the driver from the Driver Store and then saves it to disk. This process is relatively quick, even for the first user to request a printer driver. We recommend that you maintain only one Driver Store, so you do not need to track which Driver Store contains what printer drivers. Periodically, the Print Manager checks the Driver Store for updated printer drivers.

If you configure multiple Driver Stores that run on the same server, they all point to the same repository of printer drivers. This can be useful because each Driver Store has its own eDirectory object, and you can distribute the objects in your eDirectory tree.

To create a driver store:

1 In iManager, click **iPrint** > **Create Driver Store**.

2 Specify the Driver Store name you want for the Driver Store object.

3 Specify the container name where you want the Driver Store object to reside. The default value is iPrintAppliance.

4 Specify a host name or IP address of the target server where you want the Driver Store to reside.

5 Specify an eDirectory server that you want the Driver Store to communicate with.

For fault tolerance, you can specify more than one eDirectory server from the same tree. For more information, see "Changing the eDirectory Server Assignment" on page 121.

6 Click **OK**.

To modify the Driver Store properties or to add printer drivers, click **Manage Driver Store**, then select the Driver Store you want to modify.

Understanding the Driver Store Configuration File

When you create a Driver Store, a configuration file is created in `/etc/opt/novell/iprint/conf`. The filename is `idsd.conf`. Each time you use iManager to create a Driver Store object and assign it to the same server, a separate entry is added to `idsd.conf`. Although you can have several Driver Stores assigned to a server, all printer driver files are stored in one file structure on the server. For information about the entries in the configuration file, see `/etc/opt/novell/iprint/conf/idsd.conf`.

Changing the eDirectory Server Assignment

If you need to change the eDirectory server assignment for the Print Manager or Driver Store, edit the Directory Services Server1= entry in the corresponding configuration file, *print_manager_name*`.context.ipsmd.conf` or `idsd.conf`, located in `/etc/opt/novell/iprint/conf`.

NOTE: As many as two additional servers can be specified, using Directory Services Server2 and Directory Services Server3. Directory Services Server1 is considered to be the primary eDirectory server. Directory Services Server2 and Directory Services Server3 are considered to be secondary servers.

For example, editing the Directory Services Servers 1, 2, and 3 entries for the `idsd.conf` file looks like this:

cat /etc/opt/novell/iprint/conf/idsd.conf {

DSServer1 server1.blr.novell.com

DSServer2 server2.blr.novell.com

DSServer3 server3.blr.novell.com

IDSObjectDN CN=ds-102-59-2,O=novell

IDSObjectPasswd yhvuevdbumpuvfuklnqqapvipxvemh

IDSHostAddress 100.100.100.100

}

Editing the Directory Services Servers 1, 2, and 3 entries for the `ipsmd.conf` file looks like this:

cat /etc/opt/novell/iprint/conf/ipsmd.conf

DSServer1 server1.blr.novell.com

```
DSServer2 server2.blr.novell.com

DSServer3 server3.blr.novell.com

PSMObjectDN CN=psm-dns-name,O=novell

PSMObjectPasswd pgtnlafnfekh

PSMHostAddress server1.blr.novell.com
```

Loading or Unloading the Driver Store

You can start and stop the Print Manager in two ways:

Using the Command Line

The Driver Store uses init scripts for starting and stopping the daemon. To load the Driver Store from the command line, enter `/etc/init.d/novell-idsd start`

The following init script actions are also valid:

Table 10-2 *Driver Store Actions*

Action	Description
reload or force-reload	Stops and then starts the daemon.
start	Starts the daemon.
status	Displays the status of the daemon and the name of the Driver Store.
stop	Stops the daemon.

Using iManager

On the Driver Store Control property page, you can view the Driver Store's status and unload or load the Driver Store daemon.

1 In iManager, click **iPrint** > **Manage Driver Store**.

2 Browse to and select the Driver Store you want.

3 Click **Driver Store Control** > **Shutdown** to stop the Driver Store process.

4 Click **OK**.

Updating Printer Drivers

1 Add a new driver.

For more information on adding a new driver, see "Configuring Printer Drivers" on page 41.

2 Associate the printer to the driver.

NOTE: Only the new iPrint Clients auto-update the drivers. For the existing or old Print Clients, you need to manually install and associate the drivers.

Deleting Printer Drivers

1 In iManager, click **iPrint** > **Manage Driver Store**, then browse to and select the Driver Store you want.

2 Click **Drivers**, then select the client platform you want to work with.

3 Select the driver you want to delete.

4 Click **Delete**.

5 Click **OK**.

Managing the Print Manager

Although the default settings let users print without additional configuration, you probably want to modify some of those settings so that you can manage your printing resources most effectively.

NOTE: Printer driver profiles are stored in the Print Manager database file (psmdb.dat). While the `.dat` file can be viewed only using iManager and the /psmstatus page, a text copy of the database file can be viewed using many tools (including text editor, web browser, and others). This text copy is periodically backed up in the same directory as the `.dat` file, but in XML format. The directory location is: `/var/opt/novell/iprint/<print manager name.ou.ou.o>.psm/`.

- "Understanding the Print Manager Database" on page 123
- "Understanding the Print Manager Configuration File" on page 124
- "Changing the eDirectory Server Assignment" on page 124
- "Using the Print Manager Health Monitor" on page 125
- "Setting Up a Printer Pool" on page 127
- "Using Print Auditing" on page 128
- "Creating Additional Print Managers" on page 132
- "Loading or Unloading the Print Manager" on page 133
- "Moving Print Managers to Another Linux Server" on page 134
- "Auto Driver/Profile Update" on page 134
- "Enabling Printer Agent Redirection" on page 135

Understanding the Print Manager Database

The Print Manager uses a database to store information about the printers it controls. The database creates a backup when you create or delete a printer and also every night at midnight.

NOTE: Although database creation is a quick process, sometimes the backup is delayed because of other tasks the Print Manager is doing. You might need to wait a short while after you create or delete a printer before a backup is generated and uploaded to eDirectory.

The last four backups are saved. When a new backup file is created, the oldest of the four stored files is deleted. If the oldest backup file is older than four days, then the Print Manager creates a new backup.

If the database fails to load through normal mechanisms, you can use the following procedure to access the backup database:

1 Rename `/var/opt/novell/iprint/<PSM_Name>/psmdb.*` to `psmdbold.*`.

2 Rename `/var/opt/novell/iprint/<PSM_Name>/psmdbsav.*` to `psmdb.*`.

3 Start the Print Manager.

Understanding the Print Manager Configuration File

When you create a Print Manager, a configuration file is created in `/etc/opt/novell/iprint/conf`. The file name is *print_manager_name*`.context.ipsmd.conf`. A separate file is created for each Print Manager that is created and assigned to run on the same server. Only one Print Manager can run on the server at a time. For information about the entries in the configuration file, see `/etc/opt/novell/iprint/conf/ipsmd-template.conf`.

The `ipsmd.conf` file links to the configuration file of the currently loaded Print Manager.

To load a different Print Manager on the server, use the **iPrint> Manage Print Manager** > **Manager Control** page in iManager. If you attempt to load a Print Manager when one is already running, you receive an error message instructing you to unload the current Print Manager before loading the new one.

Changing the eDirectory Server Assignment

If you need to change the eDirectory server assignment for the Print Manager or Driver Store, edit the Directory Services Server1= entry in the corresponding configuration file, *print_manager_name*`.context.ipsmd.conf` or `idsd.conf`, located in `/etc/opt/novell/iprint/conf`.

NOTE: As many as two additional servers can be specified, using Directory Services Server2 and Directory Services Server3. Directory Services Server1 is considered to be the primary eDirectory server. Directory Services Server2 and Directory Services Server3 are considered to be secondary servers.

For example, editing the Directory Services Servers 1, 2, and 3 entries for the `idsd.conf` file looks like this:

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DSServer2 server2.blr.novell.com

DSServer3 server3.blr.novell.com

IDSObjectDN CN=ds-102-59-2,O=novell

IDSObjectPasswd yhvuevdbumpuvfuklnqqapvipxvemh

IDSHostAddress 100.100.100.100

}

Editing the Directory Services Servers 1, 2, and 3 entries for the `ipsmd.conf` file looks like this:

```
cat /etc/opt/novell/iprint/conf/ipsmd.conf

DSServer1 server1.blr.novell.com

DSServer2 server2.blr.novell.com

DSServer3 server3.blr.novell.com

PSMObjectDN CN=psm-dns-name,O=novell

PSMObjectPasswd pgtnlafnfekh

PSMHostAddress server1.blr.novell.com
```

Using the Print Manager Health Monitor

The Print Manager Health Monitor provides you with a global view of your print system. The Health Monitor shows you the current status of the Print Manager and the associated printers and lets you configure error threshold, customize some print system settings, and generate reports about your system.

- "Understanding the Print Manager Health Monitor" on page 125
- "Accessing the Print Manager Health Monitor" on page 125
- "Generating Reports" on page 126
- "Configuring Health Monitor Settings" on page 127
- "Posting Administrator Messages about a Printer" on page 127

Understanding the Print Manager Health Monitor

The Print Manager Health Monitor is a powerful tool for managing and troubleshooting your print system.

The opening page of the Health Monitor shows all of your printers; their current state; and general statistics including the number of print jobs printed in the last hour, in the last day, and since the Print Manager was last started.

A quick look at these statistics helps you identify which printers are not printing because of errors or which printers are not being used. You can click a printer name to see additional details about the printer that can help you troubleshoot a reported printer error and why users are not using the printer.

For example, if the printer status shows `Error printing`, click the printer for a list of known problems. If one of the known problems is `Printer not connected`, use the IP address listed in the **Load String** field to ping the printer to determine if the IP address is valid.

By looking at the statistical information, you can correct printer problems or make decisions about redeploying under used printers to departments that print a lot. For more information, see "An Overview of the iPrint Manager Health Monitor".

Accessing the Print Manager Health Monitor

Access the Health Monitor by going to http://*server_address*/psmstatus, where *server_address* is the IP address or host name of the server where the Print Manager is running.

For example: http://printing.my_company.com/psmstatus.

You can view current Printer Agent states, start up and shut down Printer Agents, and other information about your print system.

Generating Reports

The report feature of the Health Monitor allows you to generate a report that can be displayed on the page or saved as a comma-separated-value (.csv) file that can be used in a spreadsheet program.

1 On the Print Manager Health Monitor main page, click **Advanced Print Manager Information** > **Generate Report**.

2 (Optional) To save the report as a file, click **Write Results to File** under the **File Options** heading.

   The heading specifies the location and filename of the report.

3 Select the information you want included in the report by selecting the corresponding check boxes.

4 Click **Generate Report**.

   The report is displayed on the screen, even if you selected to save the report to a file.

The following common reports are available for you to generate:

Printer Configurations: To determine what features are enabled for each Printer Agent, generate the following reports:

   ◆ SSL Required for iPrint Access
   ◆ Auditing Enabled

Printer's Current State: To view the states of the printers and any printer console messages, generate the following reports:

   ◆ Printer Agent Status
   ◆ Printer Agent State Reasons
   ◆ Printer Console

Printing Statistics: To view statistics about your print system, generate the following reports:

   ◆ Jobs Printed Ever
   ◆ Jobs Printed Since Load
   ◆ Jobs Printed Today
   ◆ Average Job Size Since Load
   ◆ Average Job Size Today

Gateway Information: To view information about a gateway associated with the Printer Agents, including the gateway's IP address, generate the following report:

   ◆ Gateway Load String

Printer Driver Associations: To view the printer drivers associated with each printer, generate the following reports:

   ◆ Windows 95/98 Driver
   ◆ Windows NT4 Driver
   ◆ Windows 2000/XP Driver

- Win XP Driver
- Linux Driver

Printer and Printer Agent Associations: Because a Printer Agent can service more than one printer, use the **Associated NDS Printers** option to view the number of printers serviced by each Printer Agent.

Configuring Health Monitor Settings

You can configure settings in the Health Monitor to control how the Health Monitor presents information when certain thresholds are met.

1 On the Print Manager Health Monitor main page, click **Advanced iPrint Manager Information** > **Configure Settings and Error Thresholds**.

2 Adjust the settings you want to change.

   See the online help for information about the available settings. For most print systems, the default settings are sufficient.

Posting Administrator Messages about a Printer

Suppose a printer has been taken offline and sent for repairs, but you keep getting phone calls from other administrators that the printer has an error in the Health Monitor. This can be resolved by leaving a message about the printer in Health Monitor. Users can see the message, but only administrators can edit it.

1 On the Print Manager Health Monitor main page, click the printer you want, then click **Message from Admin**.

2 Type the text you want displayed for this printer.

3 Click **Apply**.

To remove a message, follow the steps above and delete the text in the message box (Step 2).

Setting Up a Printer Pool

You can create a pool of printers to share the load of printing. Users install one of the printers in the pool. When a printer in the pool has a print job waiting, the Print Manager can redirect that print job to an idle printer in the pool. The Print Manager attempts to evenly distribute print jobs among all printers in a pool.

For example, if four printers are in the pool and the first printer is printing a 100-page job, then the next print job is sent to the second printer. If the second printer completes the print job and the first printer is still busy, the next print job is sent to the third printer to distribute print jobs throughout the pool. Printer pools are specific to the Print Manager, and a printer pool cannot span multiple Print Managers.

Printers that are included in a pool should be the same model and use the same printer drivers. You can include only printers from the same Print Manager in a pool.

When you create a printer pool, the pool information resides in the Print Manager and can be viewed only using iManager. Unlike the printers and the Print Manager, a separate eDirectory object for a printer pool is not created.

After you set up a printer pool, users install only one of the printers in the pool on their workstation. When a user submits a print job to the installed printer, the Print Manager uses the method described in the example above to send the print job to the next available printer in the pool. Users should be

reminded that their print jobs might be printed by any printer in the pool. For this reason, the physical printers that are members of a printer pool should be located close to one another. You might also want to enable banner pages, depending on the type of documents being printed.

To configure a printer pool, do the following:

1 In iManager, click **iPrint** > **Printer Pool Configuration**.

2 Select the Print Manager for this pool.

3 Select **Create Pool** from the **Select Operation** list, then click **OK**.

4 Specify the name of the printer pool.

   This name is used to identify the pool only within iManager.

5 Select the printers you want included in the pool.

6 Click **Next**, then click **OK**.

To modify or delete a pool, follow the above steps and select the desired action from the Select an Operation list in Step 3.

Using Print Auditing

To use print auditing, you first need to enable auditing for *each* printer you want to audit using iManager or the Print Manager Health Monitor.

When auditing is enabled for a Printer Agent, a log file is created indicating who printed how many pages to which printer on a given date. The log file is in a comma-separated format (.csv). The data from this log file can be viewed from the Health Monitor or downloaded into a spreadsheet.

Figure 10-2   *Auditing Management Page*
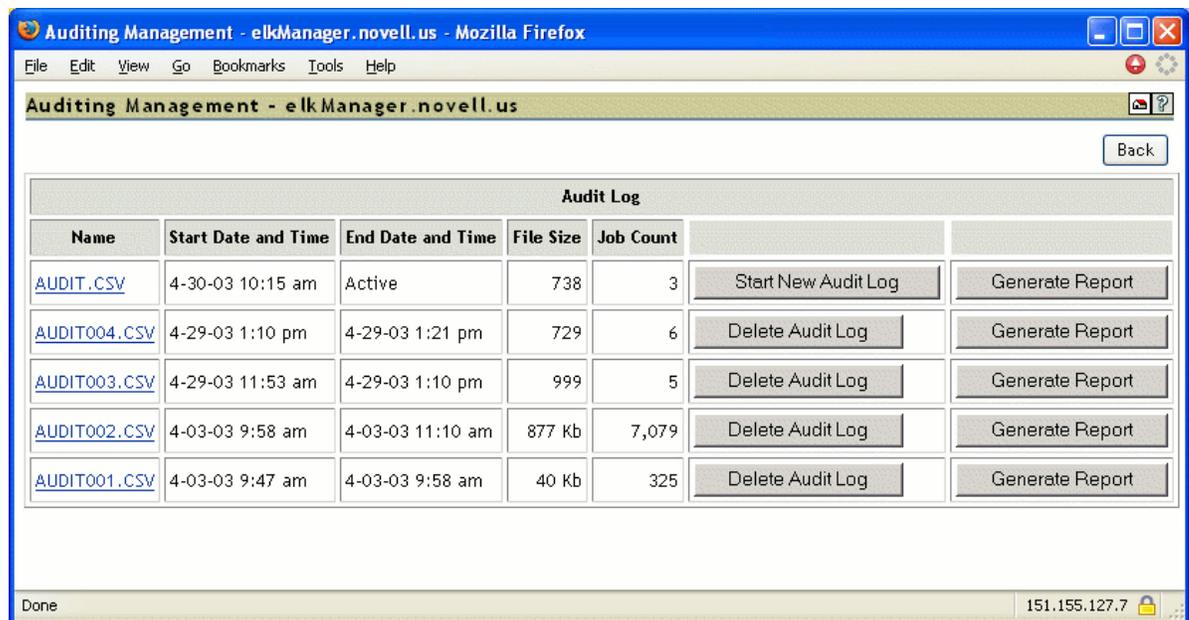
From the Auditing Management page, you can complete the following tasks:

- "Using iManager to Enable Auditing" on page 129
- "Using the Health Monitor to Enable Auditing" on page 129
- "Viewing Auditing Information" on page 129

Using iManager to Enable Auditing

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer you want to enable auditing for.

3 Click **Configuration** > **Auditing**.

4 Select the **Enable Auditing** check box.

Using the Health Monitor to Enable Auditing

1 To access the Print Manager Health Monitor, open http://*server_IP_address*/psmstatus in a Web browser.

   For example: http://printing.my_company.com/psmstatus.

2 Select a printer, then click **Configuration Options**.

   You can also access Configuration Options by going to https://*server_IP_address*/PsmStatus/ configOpt/*Printer_Name*.

3 Select the **Enable Auditing** check box.

Viewing Auditing Information

You can generate an audit report that shows all print jobs, or you can filter the report based on a user or a printer or both.

1 In the Print Manager Health Monitor, click **Advanced iPrint Manager Information** > **Auditing** > **Generate Report**.

   If there is more than one audit log, click **Generate Report** for the audit log you want to view.

2 (Optional) Filter the search by using the **Limit Search by User** or **Limit Search by Printer** filters.
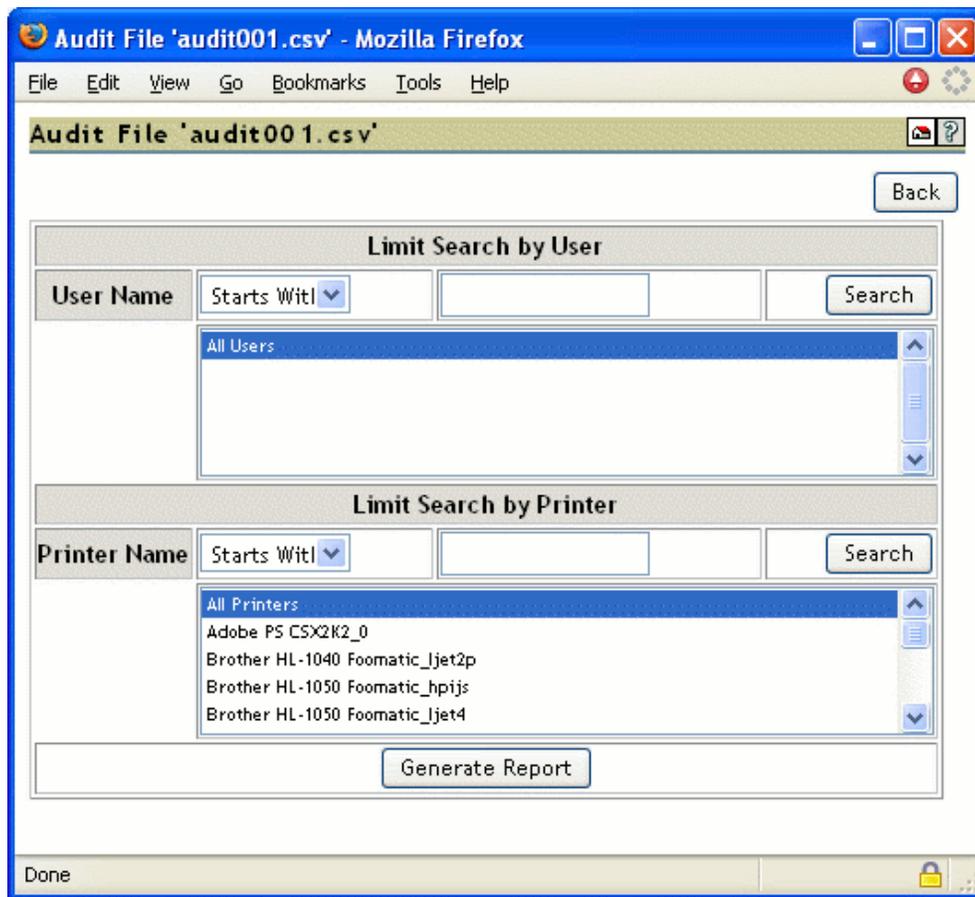
3 Click **Generate Report** to view the report with the specified filters.

There are only 250 print jobs listed at a time. To view more print jobs in the report, click **Next**.
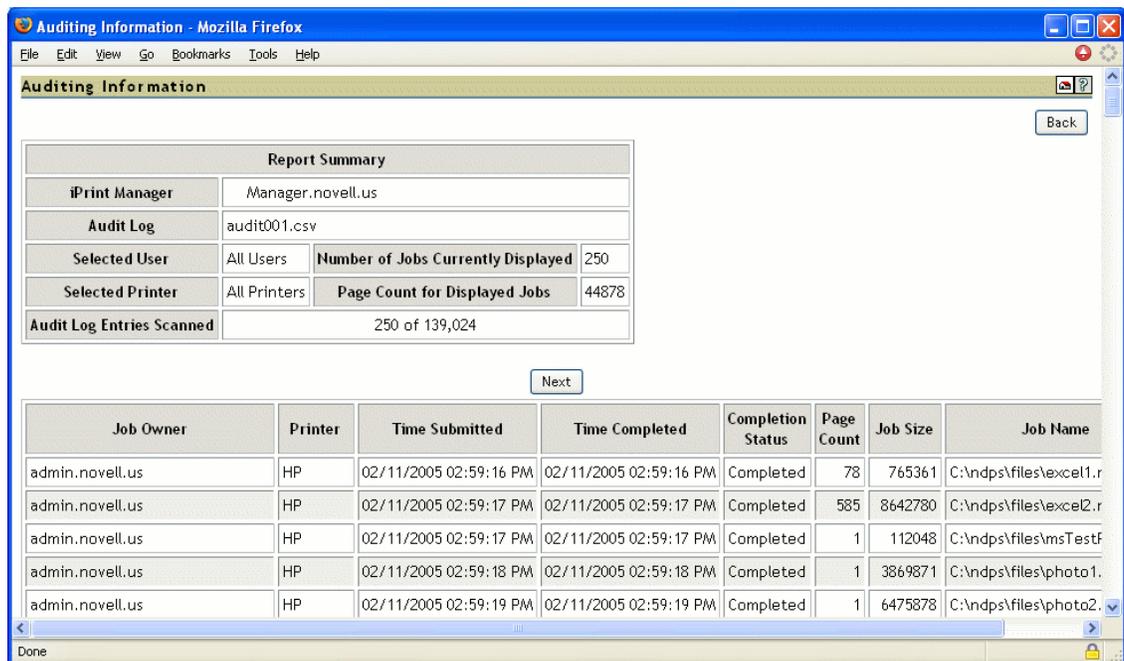
The following table explains the fields that are displayed under the Report Summary.

Field	Description
iPrint Manger	The Print Manager that the information is from.
Audit Log	The audit log filename that was used to create the report.
Selected User	Any user filter criteria that were used to create the report.
Selected Printer	Any printer filter criteria that were used to create the report.
Number of Jobs Currently Displayed	The number of jobs submitted by the indicated users and printers.

The following table discusses what is displayed in the body of the report.

Field	Description
Job Owner	The owner of the print job.
Printer	The printer the print job was sent to.
Time Submitted	The time the print job was submitted to the printer.
Time Completed	The time the print job was printed on the printer.
Completion Status	The completion status of the submitted print job: Completed, Cancelled by User, Cancelled by Operator, or Other (Other usually indicates the job was aborted by the system).
Page Count	The number of pages printed.
Job Size	The size of the print job (in bytes).
Job Name	The print job filename that was submitted and the type of print client that submitted the print job.

Managing Audit Logs

You can manage your audit logs by using the buttons on the Auditing Management page. When audit logs are no longer needed, you can manually delete them. To automatically save and create new logs, see "Configuring Automatic Log Rotation" on page 131.

The active audit log file (audit.csv) logs data for all printers that have been enabled for auditing. You can generate a report from this file or you can move the data to a saved file by using the **Start New Audit Log** option. You cannot download the `audit.csv` file. To download a file, it must be saved as a separate audit log. When you move the data to a saved audit log by using the **Start New Audit Log** button, the log file is named `auditxxx.csv`, where *xxx* is the next sequential number of the log. After a log file is saved, you can download the file to your workstation and import it into a spreadsheet program.

Configuring Automatic Log Rotation

Audit Log Rotation automatically creates a new log when certain criteria are met.

1 In the Print Manager Health Monitor, click **Advanced iPrint Manager Information** > **Auditing** > **Configure Log Rotation**.

2 Select **Enable Audit Log Rotation**.

3 Specify the number of logs to keep.

When the number of logs to keep is reached, the oldest log is deleted when the next log is created. When setting this number, take in to account the criteria you are using to create new log files. If you want a year's worth of logs, set the number of audit logs to keep to 12 and then select the **By Date** and **By Month** options.

4 Specify the criteria used for log rotation:

By Job Count: Specify the maximum number of print jobs that an audit log can contain before a new log is created.

By Date: Select when you want the audit logs to rotate.

- ◆ **Day:** The log rotates each day at midnight.
- ◆ **Week:** The log rotates each Sunday. If the Print Manager is not loaded on Sunday, the log is rotated the next time the Print Manager starts.
- ◆ **Month:** The log rotates at midnight on the first day of the month.

NOTE: If you select Day or Week, ensure that the **Maximum Number of Audit Logs to Keep** entry is large enough so that logs are not rotated before you need the data.

By File Size: Specify the maximum file size (in KB) before a new log is created. The maximum file size is 4194304 KB.

Downloading an Audit Report

When the file is downloaded, you can open the report in a spreadsheet application to sort, view, and format the data to meet your needs. The active audit log, `audit.csv`, cannot be downloaded. You must first start a new audit log by clicking the **Start New Audit Log** option, then download the newly created audit log.

1 On the Print Manager Health Monitor main page, click **Advanced iPrint Manager Information** > **Auditing**.

2 Right-click the name of the audit log you want to download, then click **Save Target As**.

3 Follow the prompts and save the file to the desired location.

Creating Additional Print Managers

A Print Manager must be created and running before you can create and associate printers. A Print Manager provides a platform for Printer Agents, which are logical representations of printers that reside on the server. You can manually load Print Managers on a server.

Use the following guidelines to determine where and when to place a Print Manager:

- ◆ Only one Print Manager can be running on a server.
- ◆ For optimal performance, place the Print Manager and the printers it controls on the same LAN segment.
- ◆ Consider distributing your printers across multiple Print Managers so that if one manager goes down, not all of the Printer Agents are affected.

You need the Supervisor right for the container where the Print Manager object is to reside.

1 In iManager, click **iPrint** > **Create Print Manager**.

2 Specify the Print Manager name for the iPrint Manager object.

3 Specify the container name where you want the Manager's object to reside.

4 Specify an eDirectory server you want the iPrint Manager to communicate with.

For fault tolerance, you can specify more than one eDirectory server from the same tree. For more information, see "Changing the eDirectory Server Assignment" on page 121.

5 Specify the Driver Store name.

6 Select the **Start print manager after creation** check box.

If you do not select the **Start print manager after creation** check box, you should start the Print Manager. You can start the Print Manager by using **Manage Print Manager** > **Manager Control** in iManager or by entering `/etc/init.d./novell-ipsmd start` at a command prompt.

IMPORTANT: In a cluster setup, do not select the **Start print manager after creation** check box.

---

7 Click **OK**.

After the Print Manager is created, the daemon is loaded on the server.

To modify the Print Manager properties, click **Manage Print Manager**, then select the manager you want to modify.

For information about Access Control roles, see "Setting Access Control for Your Print System" on page 137.

Loading or Unloading the Print Manager

You can start and stop the Print Manager in two ways:

- "Using the Command Line" on page 133
- "Using iManager" on page 134

Using the Command Line

The Print Manager uses init scripts for starting and stopping the daemon. To load the Print Manager from the command line, enter `/etc/init.d/novell-ipsmd start`.

The following init script actions are also valid:

Table 10-3 *Print Manager Actions*

Action	Description
start	Starts the daemon.
stop	Stops the daemon.
reload or force-reload	Stops and then starts the daemon.
restart	Restarts the daemon.
try-restart	Tries restarting the daemon.
status	Displays the status of the daemon and the name of the Print Manager.

Using iManager

On the Manager Control Property page, you can view the Print Manager's status and unload or load the manager daemon.

1 In iManager, click **iPrint** > **Manage Print Manager**.

2 Browse to and select the Print Manager you want to control.

3 Click **Manager Control** > **Shutdown** to stop Print Manager.

4 Click **OK**.

Moving Print Managers to Another Linux Server

Sometimes it is necessary to move the Print Manager from one server to another. If you assigned a host name to the Print Manager, you should update the DNS entry with the new IP address that the Manager is running on when the move is completed; otherwise, you cannot manage the Print Manager and users are cannot print.

IMPORTANT: The URLs generated by iPrint are based on the server's IP address or a host name. If you move a Print Manager to a server that has a different IP address or a different host name than is currently being used, a new URL is generated for each printer. Users must delete and reinstall their iPrint printers. If you are using NDPS Printers, printing is not affected.

1 In iManager, click **iPrint** > **Manage Print Manager**.

2 Browse to and select the Print Manager you want to move, then click **OK**.

3 Click **Shutdown**.

Ensure all pending print jobs are complete else the jobs are lost.

4 On the Manager Control page, click **Move**.

5 Fill in the fields:

Target Server: Specify the host name or IP address for the server that is to host the Print Manager. For example, 192.0.34.166 or print.my_company.com.

iPrint Service Name: Displays the IP address or host name for the iPrint service.

eDir Server: Specify an eDirectory server that you want the Print Manager to communicate with.

If you are using a host name, you must update your DNS host tables to reflect the move.

6 Click **OK** to move the Print Manager.

The Print Manager is moved and loaded on the destination server.

Auto Driver/Profile Update

An auto driver/profile update allows you to automatically update the client with the latest drivers and the modified profiles available on the server, without users needing to manually update the driver or profile. If you make any changes to the driver in the Driver Store or modify the profile, the client is prompted for the changes and the client is updated.

NOTE: The client might take few seconds to 24 hours to reflect the changes.

To enable the auto driver/profile update:

1 Upload the updated driver.

2 Create or modify the profile.

For more information on how to create the profile, see "Using Printer Driver Profiles" on page 144.

3 Enable the auto driver/profile update:

3a In iManager, click **iPrint** > **Manage Print Manager**.

3b Browse to and select the Print Manager for which you want to enable the auto driver/profile update.

3c Click *Printer Agents*.

3d Select the *Auto driver/profile update* for the Printer Agents for which you want to enable auto driver/profile update.

3e Click *OK*.

Enabling Printer Agent Redirection

Printer Agent Redirection is useful when you are decommissioning an iPrint printer and want to automatically redirect printing to a different iPrint printer without users manually deleting and reinstalling the printer. Redirection can continue even after you delete the Printer Agent for iPrint printers only.

Printer Agent Redirection is supported with the iPrint client for Windows v4.26 or later.

With Printer Agent Redirection enabled by entering a Printer Redirect URL, the client attempts to access the printer and is then redirected to the new printer. The client verifies that it can access the new printer before deleting the installed printer and installing the new printer.

Before implementing Printer Agent Redirection, you should be aware of the following:

◆ When you redirect a mobile-enabled printer, you must ensure the redirected printer is also mobile-enabled else the job fails to print. For example, Printer1 is redirected to Printer2. Later, if you mobile-enable Printer1, you must ensure to mobile-enable Printer2 before sending a print job.

◆ When you redirect a Printer Agent, the iPrint Printer List Web page is automatically updated to install the redirected printer. This means when a user clicks to install a printer listed from the list page, the link has been updated to install the redirected printer.

For example, you redirect a Printer Agent that has the name of Printer_1_Color to a printer called Color_Printer. On the iPrint Printer List Web page, the user sees and clicks Printer_1_Color. After the printer is installed, the printer listed in the Windows Printer Folder is Color_Printer.

◆ Printers on maps are not automatically redirected. If you are using maps and you redirect the Printer Agent, you need to also update your map and republish it to show the newer Printer Agent. You should update the map before enabling Printer Agent Redirection because as soon as you enter a redirection URL, the link on the map is broken and any user clicking the link in the map receives an error.

◆ If you redirect a Printer Agent to another printer that is also being redirected, the iPrint client attempts to install the final destination printer; however, this might cause undesired results.

For example, if you have redirected Printer_1_Color to Color_Printer, and then redirect Printer_A to Printer_1_Color, the iPrint client attempts to install Color_Printer for Printer_A.

- You should enable Printer Agent Redirection before deleting a printer; otherwise, when the client accesses the Print Manager and cannot find the associated Printer Agent for an installed printer, the installed printer is deleted.

- WalkUp printers cannot be redirected.

IMPORTANT: If you are using iPrint Client Management, you should not use Printer Agent Redirection. Using Printer Agent Redirection for printers being used by iPrint Client Management can cause undesired results.

Instead, you should update iPrint Client Management with the desired printers.

Managing Printer Agent Redirection

Before deleting Printer Agents from a Print Manager, you should enable Printer Agent Redirection for iPrint printers by entering another printer URL. By adding the URL before deleting the printer, workstations can update to the newest printer.

The Printer Agent Redirection lists include NDPS and iPrint printers. If you enable redirection for NDPS printers, then install the iPrint client on the workstations and edit the UpgradeNDPSPrinter= entry in the `iprint.ini` file, NDPS printers can be upgraded. However, if you delete an NDPS Printer Agent, redirection is discontinued.

NOTE: By default, the iprint.ini file is located at: /var/opt/novell/iprint/htdocs/iprint.ini.

1 In iManager, click **iPrint** > **Manage Print Manager**.

2 Browse to and select a Print Manager.

3 Click **Printer Agent Redirection**.

4 For each Printer Agent you want to redirect, use the browse button to select the Printer object in eDirectory to ensure that you use the correct URL.

   If the printer resides in a different tree, you can manually enter the URL in the following format: ipp://*server*/ipp/*pa_name* where *server* is the IP address or host name of the server and *pa_name* is the Printer Agent.

5 Click **Apply**.

   Each URL is validated to ensure that the format is valid and that the Printer Agent is available. An error is displayed when the URL cannot be validated.

Managing Deleted Printer Agent Redirection

Each time a Printer Agent is deleted, it is moved to the Deleted Printer Agent Redirection list. Periodically, you should review this page and delete printers that are no longer being accessed or printers where redirection was not enabled.

1 In iManager, click **iPrint** > **Manage Print Manager**.

2 Browse to and select a Print Manager.

3 Click **Printer Agent Redirection > Deleted Printer Agent Redirection**.

4 Select the Printer Agents to delete.

   Use **Printer Last Accessed Time** and **Printer Deleted Time** to determine if users are still attempting to access a specific printer and if sufficient time has passed that you can delete Printer Agents from the list.

5 Click **Apply**.

Each URL is validated to ensure the format is valid and that the Printer Agent is available. An error is displayed when the URL cannot be validated.

Managing Printers

Although the default settings let users print without additional configuration, you might want to modify some of those settings so that you can manage your printing resources most effectively.

Creating Secure Printers

You can set up a secure printing environment by using the following methods:

Setting Access Control for Your Print System

Your print system is designed to take full advantage of eDirectory. You receive all the benefits of eDirectory security and ease of management provided by the industry's most advanced and robust directory service. The Access Control feature lets you specify the access that each User, Group, or Container object has to your printing resources. Currently, access control for printers is only supported on the Windows iPrint Client.

Access control roles are mutually exclusive, even though the same individual might need to perform tasks reserved for different roles. For example, only Printer Managers can add or delete printer operators or printer users. In a similar way, managers and operators must also be designated as users for a printer before they can submit print jobs to it.

In actual implementation, the defaults prevent most problems that might occur from these distinctions. For example, a manager is automatically designated an operator and user, and an operator of a printer is automatically designated a user of that printer.

The creator of an object is automatically granted privileges for all available roles for the type of object being created.

The following sections describe some of the security issues and features you might find useful as you plan your print system setup:

Setting Access Control for Printers

Printer security is ensured through the assignment of the manager, operator, and user access control roles and by the strategic placement of your printers and printer configurations.

Printer Access Control Roles

Different User, Group, or container objects can have different access rights to the same printer. For example, if you want only certain users to be able to send jobs to a particular printer, you can specify which users should have access and what access roles each user should have.

The following table describes the rights and privileges associated with each of the printer access control roles:

Table 10-4 *Printer Access Control Roles*

Role	Description
Manager	Tasks performed exclusively by the Manager are those that require the creation, modification, or deletion of objects, as well as other eDirectory administrative functions. Managers are automatically designated as Operators and Users, so they can perform all tasks assigned to those operator roles. Typical manager functions include the following: ◆ Modifying and deleting Printer objects ◆ Adding or deleting operators and users for a printer ◆ Adding other managers ◆ Configuring interested-party notification ◆ Creating, modifying, or deleting printer configurations
Operator	Operators are automatically designated as Users, so they can perform all tasks assigned to Users roles. Printer management tasks performed by the operator include the following: ◆ Performing all of the functions available through the Printer Control page ◆ Pausing, restarting, or reinitializing printers ◆ Reordering, moving, copying, and deleting jobs ◆ Setting printer defaults, including locked properties Operators cannot create, modify, or delete eDirectory objects or perform other eDirectory administrative functions.

Role	Description
User	Tasks performed by users include the following: ◆ Submitting print jobs ◆ Managing print jobs they own (users cannot copy, move, reorder, or remove jobs they do not own) To simplify administration, the container a printer resides in is automatically assigned as a user for that printer, so all users in that container and its subcontainers can use that printer without being added to the list. You can delete the container from the list if you want to limit access to certain users, groups, or roles.

Assigning Printer Access Control Roles through Printer Objects

Different User, Group, or Container objects can have different access rights to the same printer. For example, if you want only certain users to be able to send jobs to a particular printer, you can specify which users should have access and what access roles each user should be given.

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer you want to enable Access Control for.

3 Click the **Access Control** tab.

4 Add or delete Users, Groups, or Container objects to the different access control roles.

5 Click **OK**.

Setting Access Control for the Print Manager

Print Manager security is ensured through the assignment of the manager access control role.

Print Manager Access Control Role

The only access control role available for the Print Manager is that of manager. The following table explains the tasks performed by the manager role:

Table 10-5 *Print Manager Access Control Role*

Role	Description
Manager	Tasks performed exclusively by the manager are those that require the creation, modification, or deletion of print system objects, as well as other eDirectory administrative functions. Typical manager functions include the following: ◆ Creating Printer Agents and Print Manager objects ◆ Adding or deleting operators and users for a printer ◆ Adding other managers ◆ Configuring interested-party notification ◆ Creating, modifying, or deleting printer configurations

Assigning the Manager Role for Print Managers

To create manager assignments for your Print Manager objects:

1 In iManager, click **iPrint** > **Manage Print Manager**.

2 Browse to and select the Print Manager you want to enable access control for.

3 Click the **Access Control** tab.

4 Add or delete Users, Groups, or containers to the manager role.

5 Click **OK**.

Setting Access Control for the Driver Store

The Driver Store security is ensured through the assignment of manager access control roles.

- "Driver Store Access Control Roles" on page 140
- "Assigning Managers for the Driver Store" on page 140

Driver Store Access Control Roles

The access control roles available to the Driver Store are manager and public access user. The following table explains these roles:

Table 10-6 *Driver Store Access Control Roles*

Role	Description
Manager	Tasks performed exclusively by the Driver Store manager are those that require the creation, modification, or deletion of Driver Store objects, as well as those that involve other eDirectory administrative functions. Typical manager functions include the following: • Creating, modifying, and deleting Driver Store objects • Adding other managers • Adding resources to the Driver Store
Public Access User	A public access user is a role assigned to all entities on the network that are users of resources provided by the Driver Store. This role is assigned by default and does not require specific administrative action by the Driver Store manager. Typically, Print Managers refresh their cached copies of printer drivers for the printers they are hosting with updated printer drivers from the Driver Store.

Assigning Managers for the Driver Store

To create Manager assignments for your Driver Store objects:

1 In iManager, click **iPrint** > **Manage Driver Store**.

2 Browse to and select the Driver Store you want to enable access control for.

3 Click the **Access Control** tab.

4 Add or delete Users, Groups, or Containers to the manager role.

5 Click **OK**.

Using SSL/TLS for Secure Printing

Secure printing takes advantage of SSL, which requires users to authenticate with their eDirectory usernames and passwords. Users authenticate once per eDirectory tree per session. Between the client and the Print Manager, the print data is encrypted and all print communication uses port 443. Without secure printing, the printer is available to anyone inside the firewall on the network and the print data is not encrypted to the server. Secure printing works in conjunction with the security level set for the printer. All print data between the server and the printer is not encrypted because most printers do not support encrypted data. Also, when you enable iPrint Direct, data is not encrypted between the client and the printer.

If you are using the latest iPrint Client and server software, iPrint automatically attempts to use TLS for printing on port 631. TLS printing supports encrypted and non-encrypted print communication through port 631. Whether or not encryption is used is dependent on the secure printing setting of the Printer Agent. If secure printing is enabled on a printer, the user is required to authenticate, and the print data is encrypted. If secure printing is not enabled, the user does not authenticate and the print data is not encrypted.

Beginning with iPrint Client 4.05, both non-secure and secure printing URLs use ipp://.

- "Enabling SSL/TLS" on page 141
- "Saving Passwords for Secure Printers" on page 141
- "Configuring TLS Printing with Proxies" on page 141

Enabling SSL/TLS

1 In iManager, click **iPrint** > **Manage Printer**.
2 Browse to and select the Printer object you want to modify.
3 Click **Client Support** > **iPrint Support**.
4 Select the **Enable Secure Printing** check box.

   If a WalkUp printer is selected this option is not available. All WalkUp printers are secure printers.

5 Click **Apply** or **OK** to update the printer settings.

Saving Passwords for Secure Printers

When users print to a secure printer, they are prompted for the eDirectory username and password. Users can select to have their workstations remember their password for printing. For Windows NT/2000 users, passwords are saved on a per-user basis.

Configuring TLS Printing with Proxies

To use a proxy with secure printing:

1 Create a file in `/etc/opt/novell/httpd/conf.d` named `mod_proxy.conf`.
2 Add the following lines to the file:

```
LoadModule proxy_module /usr/lib/apache2-worker/mod_proxy.so
LoadModule proxy_connect_module /usr/lib/apache2-worker/mod_proxy_connect.so
LoadModule proxy_http_module /usr/lib/apache2-worker/mod_proxy_http.so

# This is the port the proxy will listen on
Listen 8080

ProxyRequests On
ProxyVia On
<Proxy *>
    Order deny,allow
    Allow from All
</Proxy>
AllowCONNECT 631 443
```

3 Set the proxy port on the client to 8080.

4 Restart Apache.

To set up a Squid proxy:

IMPORTANT: Implementing the following changes lets your users print using TLS; however, there are security risks involved. Contact your Security Administrator before completing these steps.

---

1 Rename the Squid configuration file by using the following command: `mv /etc/squid/squid.conf /etc/squid/squid.conf.orig`

2 Create a new `/etc/squid/squid.conf` file.

3 Add the following lines to the file:

```
http_port 3128

#acl all src all
acl manager proto cache_object
acl localhost src 127.0.0.1/32
acl to_localhost dst 127.0.0.0/8
acl SSL_ports port 80 443 563 631
acl Safe_ports port 80          # http
acl Safe_ports port 21          # ftp
acl Safe_ports port 443 563 631 # https, snews
acl Safe_ports port 70          # gopher
acl Safe_ports port 210         # wais
acl Safe_ports port 1025-65535  # unregistered ports
acl Safe_ports port 280         # http-mgmt
acl Safe_ports port 488         # gss-http
acl Safe_ports port 591         # filemaker
acl Safe_ports port 777         # multiling http
acl CONNECT method CONNECT

acl ipp_access port 631
http_access allow all
miss_access allow all
http_access allow CONNECT ipp_access
http_reply_access allow all
icp_access allow all
miss_access allow all
ignore_expect_100 on
```

4 Set the proxy port on the client to 3128.

5 Restart Squid.

Password Caching

When users change their passwords, secure printers might continue printing with the old password for up to 10 minutes. This is caused by caching inside the iPrint LDAP authentication module, and affects only the users created inside the local eDirectory tree on iPrint Appliance.

Creating Additional Printers

Before creating additional printers, ensure that you meet the following prerequisites:

❒ Have the Supervisor right for the destination container where its associated Printer object is to reside.

❒ Be designated as a manager of the Print Manager that controls this printer.

❒ Have a Driver Store running.

❒ Have a Print Manager running.

To create additional printers:

1 In iManager, click **iPrint** > **Create Printer**.

2 Fill in the fields.

Click **Help** for explanations about the fields.

3 Click **OK**.

4 Click **Next**, then select the drivers for this printer.

If the printer drivers for this printer are not listed, you can still create the printer. After the printer is created, you can add the printer drivers to the Driver Store and then associate the drivers to the printer by clicking **Manage Printer** > **Drivers**.

These drivers are automatically downloaded to users' workstations when they install the printer in the future.

Because the list of printer drivers included with this product is limited, you can add drivers to the Driver Store. See "Updating Printer Drivers" on page 122 for more information.

If you do not select a driver, users are prompted to provide a disk with the appropriate driver the first time they install this printer on their workstations.

5 Click **Next** to create the printer.

Deleting Printers

You use iManager to delete existing Printer Agents. Before deleting a Printer Agent, ensure that the agent is no longer being used by running an report on the printer or by using Printer Agent Redirection to redirect the printer for a period of time before deleting it.

WARNING: Deleting a printer permanently removes the printer from the Print Manager. You cannot use Printer Agent Redirection. The printer is automatically removed from workstations the next time the workstation communicates with the Print manager.

1 In iManager, click **iPrint** > **Delete Print Object**.

2 Browse to and select the objects you want to delete.

3 Click **OK**.

Managing Printer Agents

You use iManager to manage Printer Agents. You can start up and shut down a Printer Agent, pause and resume input and output, view printer information, set configuration settings, and change the printer drivers.

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer you want to manage.

3 Use the tabbed property pages to complete the task you want.

Using Printer Driver Profiles

A printer driver profile allows you to set the driver defaults for a Windows printer driver. When you associate the printer driver profile to a printer, the printer is installed and configured with your defined settings. For example, in a law office you might want the default paper size to be legal size. This means that every time the printer and its corresponding driver is installed on a workstation, the paper size is set to legal size.

When creating a printer driver profile, you work directly with a platform-specific printer driver; so you should create and modify profiles from the same operating-specific platform as the printer driver. For example, to create or modify a Windows 2000 printer driver profile, you must access iManager and complete the task from a Windows 2000 workstation.

Use the Bi-Directional driver option to enable the selected printer driver to communicate with the printer. Bi-Directional communication allows the driver to communicate with the printer and discover its capabilities. This enables you to create more detailed profiles. Bi-Directional drivers communicate with the printer during profile creation. If your printer is not reachable from the client during profile creation, only basic profiles are created. When you create a profile for Bi-Directional drivers, you must provide a Printer Agent.

Use the Universal Printer Driver (UPD) model to simplify the task of managing the vast array of printer makes and models. This model allows the printer vendor to create a single printer driver that works with most of the printer and multifunction devices that the vendor manufactures. With this innovation, the Administrator/User no longer needs to install a unique driver for each and every printer model, but uses one driver to communicate with their devices.

Installing the UPD on the iPrint server (NetWare or Linux) is the same as installing individual drivers. Use iManager to upload the driver to the Broker or Driver Store and then assign this driver to the printers. You should use the latest iManager and also the latest support packs/updates for the iPrint server. The latest updates include support for Windows 7, printer driver profile updates, and enhancements for bidirectional communications, which are necessary for UPD function and printer driver profile creation.

You can create, copy, delete, and modify the printer driver profiles.

- ◆ "Creating a Printer Driver Profile" on page 145
- ◆ "Modifying a Printer Driver Profile" on page 146
- ◆ "Copying a Printer Driver Profile" on page 146
- ◆ "Deleting a Printer Driver Profile" on page 146
- ◆ "Associating a Printer Driver Profile with a Printer" on page 147

Creating a Printer Driver Profile

1 In iManager, click **iPrint** > **Printer Driver Profile**.

2 Browse to and select the Print Manager where you want the driver profile to be stored and made available to the printers on that manager.

3 From the **Select operation** drop-down menu list, select *Create Printer Driver Profile* and click *OK*.

4 In the Create driver profile window, perform the following tasks:

   4a Specify the Driver Profile name.

   You can create a new driver profile or you can use the existing driver profile.

   4b To create a new driver profile, select *Create new driver profile* and then select the driver for new profile from the list.

   NOTE: If you are enabling printer communication for a WalkUp printer, you must select the driver of a non-WalkUp printer. Ensure the same driver is used for WalkUp printer.

   4c To use the existing driver profile, select *Create using existing driver profile* and then select the driver profile from the list of existing driver profiles.

   The associated printer model of the selected driver profile is displayed.

   4d To enable printer communication, select the *Requires printer communication* check box.

   4e Specify the name of the existing Printer Agent in the *iPrint Printer name* field. The driver profile is created and associated with the printer model.

   Ensure that your printer is reachable from the client during profile creation, or only basic profiles are created.

   NOTE: Do not specify a WalkUp printer because it is a virtual print queue and not associated with a printer model. Instead specify a non-WalkUp printer.

   4f Click *Next*.

   The Loading Driver Configuration window appears and shows the progress.

   4g When the driver profile is loaded, the Save Driver Profile page is displayed. Click *Next*.

   The complete page opens.

   4h Click *OK*.

   The driver profile is created.

   After creating a printer driver profile, you must associate it with a printer. For information on associating the driver profile, see "Associating a Printer Driver Profile with a Printer" on page 147.

Modifying a Printer Driver Profile

1 In iManager, click **iPrint** > **Printer Driver Profile**.

2 Browse to and select the Print Manager where you want the driver profile to be stored and made available to the printers on that manager.

3 From the **Select operation** list, select *Modify Printer Driver Profile* and click *OK.*

4 Select the *Driver Profile* that you want to modify and click *Next.*

You can select only one driver profile at a time for modification.

5 (Optional) Specify the name of the existing Printer Agent in the *iPrint Printer name* field and click *Next.*

Ensure that the printer model matches the profile printer model.

This option is displayed only if the printer model is displayed.

The printer model is displayed if you have selected **Requires printer communication** when creating the printer driver profile.

The Loading Driver Configuration window is displayed to indicate the progress.

6 When the driver configuration is completed, the Modify Driver Profile page is displayed. Click *Next.*

The complete page is displayed.

7 Click *OK.*

The driver profile is modified.

Copying a Printer Driver Profile

1 In iManager, click **iPrint** > **Printer Driver Profile**.

2 Browse to and select the Print Manager where you want the driver profile to be stored and made available to the printers on that manager.

3 From the Select operation drop-down list, select *Copy Printer Driver Profile*, then use the *Destination printer manager name* list to select the Printer Manager where you want to copy your driver profile. Click *OK.*

4 Select the *Driver Profiles* that you want to copy and click *Next.*

The complete page is displayed.

5 Click *OK.*

The driver profile is copied.

Deleting a Printer Driver Profile

1 In iManager, click **iPrint** > **Printer Driver Profile**.

2 Browse to and select the Print Manager where the driver profile that you want to delete is stored.

3 From the **Select operation** drop-down list, select *Delete Printer Driver Profile* and click *OK.*

4 Select the driver profiles that you want to delete and click *Next.*

The complete page is displayed.

5 Click *OK.*

The driver profile is deleted.

Associating a Printer Driver Profile with a Printer

1 In iManager, click **iPrint** > *Manage Printer*.

2 Browse to and select the printer you want to modify.

3 Click **Drivers** > *Drivers Platform*.

4 Select the printer driver from the list of available drivers.

5 Select the profile that you want to associate with this printer from the list of **Available Driver Profiles for Selected Driver**.

   If you do not want a profile to be associated, select **None**.

6 Click **OK** to save the changes.

Enabling iPrint Direct

A printer that is enabled for iPrint Direct sends print jobs directly to the printer instead of sending the job to the Print Manager first. A job is sent to the printer in LPR or raw 9100 format, depending on the setting in the gateway autoload command for the printer. Although this greatly reduces server communication, the ability to audit print jobs is lost. iPrint Direct supports direct banner printing (if the banner is already configured) and driver updates. The printer information is gathered directly from the printer by using SNMP.

NOTE: Direct Banner for iPrint Direct is supported only on Windows.

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer for which you want to enable iPrint Direct printing.

3 Click **Client Support** > **iPrint Direct**.

4 Select the **Enable iPrint Direct Printing** option.

   This option is not available for a WalkUp printer.

5 Click **OK**.

NOTE: For detailed information on iPrint Direct, see *Technical Information Document (TID#7001343)* on the Novell Support Site.

Managing Print Jobs

The following sections provide specific information about the print job management features. Users designated as managers or operators for a printer can perform these tasks for all jobs routed to that printer; individual job owners can perform these tasks only for their own print jobs.

Viewing Print Job Information

You can view information about individual print jobs waiting to be processed by a specific printer.

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer the job was sent to.

3 Click **Printer Control** > **Jobs**. Information about the print jobs is displayed.

If a WalkUp job is selected the **Pause**, **Resume**, and **Promote** buttons are not available.

Deleting Print Jobs

Administrators can delete any print job after it has been submitted if the job has not yet started printing. Users can delete only their own print jobs.

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer the job was sent to.

3 Click **Printer Control** > **Jobs**.

4 Select the check box next to the job you want to delete.

5 Click **Delete**.

Changing the Order of Print Jobs

Occasionally, you might need to print a job ahead of other jobs that have already been submitted to a printer but have not yet started printing. Administrators, managers, and operators can move any job up or down the list. Users can move only their own jobs, and can move them only down the list.

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer the job was sent to.

3 Click **Printer Control** > **Jobs**.

4 Select the check box next to the job you want to modify.

5 Click **Promote** to move a print job up the list.

If a WalkUp job is selected the **Promote** button is not available.

Using Printer Banner Pages

Banner pages create a cover sheet for each print job that a printer produces. You use the Printer Banner Configuration task to customize the information printed on a banner to your needs. If you select to display eDirectory information such as the eDir e-mail address, the Print Manager needs rights to read these attributes. Follow the steps in "Using eDirectory Attributes with Custom Banners" on page 149.

- "Configuring a Custom Banner" on page 148
- "Associating a Custom Banner to a Printer" on page 149
- "Using eDirectory Attributes with Custom Banners" on page 149

Configuring a Custom Banner

1 In iManager, click **iPrint** > **Printer Banner Configuration**.

2 Browse to and select the Print Manager you want.

3 Select an operation and click **OK**.

Create Custom Banner: Lets you create a new custom banner.

Delete Custom Banner: Lets you delete an existing banner.

Modify Custom Banner: Lets you edit the settings of an existing custom banner profile.

4. Complete the fields with the information you want. If you create multiple banners, you should use banner names that are descriptive enough to identify them when you associate the banner to a printer.

5. Select the **Banner Text Location**.

   This is where the banner option information appears on the banner page. The banner information is grouped together and then placed as a unit either starting at the top of the page, centered on the page, or starting at the bottom of the page.

6. Select the banner options you want and the font size you want to display the information.

7. Click **OK** to save the changes.

Associating a Custom Banner to a Printer

1. In iManager, click **iPrint** > **Printer Banner Configuration**.

2. Browse to and select the Print Manager where the Printer Agents are hosted.

3. Select **Assign Custom Banner**, then click **OK**.

4. From the **Custom Banner** drop-down list, select the banner you want.

5. Select the check box next to each printer you want this banner associated with.

   When you select the check box, the banner name appears in the **Assign Banner** field. To associate a different banner, select the desired banner from the **Custom Banner** drop-down list, and select the check box for the printer you want to change. If you do not want a banner to be used, select **None**.

You can also assign banners when you use the Manage Printer task.

1. In iManager, click **iPrint** > **Manage Printer**.

2. Browse to and select the printer you want to modify.

3. Click **Configuration** > **Custom Banners**.

   This option is not available for a WalkUp printer.

4. In **Available Banners**, select the banner that you want this printer to use.

5. Click **OK** to save the changes.

   If you select to display eDirectory information such as the eDir e-mail address, the Print Manager needs rights to read these attributes. Follow the steps in "Using eDirectory Attributes with Custom Banners" on page 149.

Using eDirectory Attributes with Custom Banners

Custom banners lets you select the information you want displayed on the banner page. Some of the banner options use information contained in eDirectory. In order for the Print Manager to obtain this information, you must modify the trustee rights and give the Print Manager read rights to these properties. Because rights flow down the eDirectory tree, you can assign the trustee right at a container level above the users, or to the tree.

1. In iManager, click **Rights** > **Modify Trustees**.

2. Select the container or tree where you want to modify the rights.

3. Click **Add Trustee**, then select the Print Manager object.

4. Click **Add Property**, then select the **Show All Properties in Schema** check box.

5. Select the attributes that you want:

Banner Option	eDirectory Property
eDir mail stop	mailstop
eDir e-mail address	EMail Address
eDir location	L
eDir telephone number	Telephone Number
eDir user first name	Given Name
eDir user full name	Full Name
eDir user last name	Surname

6 Click **OK**.

7 Ensure that at least the Read right is selected.

8 Click **Done**.

NOTE: If your client, printer, and server are not all configured for the same language, you might experience problems with the output of your banner pages, such as the job name being corrupted. If you are working in this type of mixed environment, you should consider not using banner pages.

Modifying the Printer's Gateway Load Commands

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer you want to modify.

3 Click **Configuration** > **Gateway**.

This option is not available for a WalkUp printer.

4 Edit the gateway autoload command.

The following table describe the gateway load commands and parameters that can be used.

Gateway Load Parameters	Description
IPRINTGW	The gateway executable that is loaded for the Printer Agent.
PA=	The name of the Printer Agent to be supported by this gateway instance.
PORT=	The port on the physical printer to be used for print job submission. Valid values are: **LPR:** Specifies the LPR print protocol and resolves to the standard LPR port - 515. **RAW:** Specifies the RAW print protocol and resolves to the default RAW port - 9100 unless the port number is specified separately in the load string. Port 91 can also be used instead of 9100. **Number:** The actual port number for the physical printer. **NODATA:** Specifies the LPR print protocol, but document data is not submitted to the physical printer. **NULL:** SNMP and ping are disabled for this gateway instance. Document data is not submitted to the physical printer.
STRICTLPR	Limits the port number on the gateway side of LPR communication to the standard LPR range of sockets (721 - 1020). This parameter is needed only for some older printers that enforce the range of ports specified by the original LPR specification for LPR clients.
HOSTADDRESS= HOSTNAME= HOST= IPADDRESS=	Any of these specifies the hostname / IP address for the physical printer to be supported by this gateway instance. **NOTE:** If the hostname / address value has :nn at the end of the value, the port number for the printer is derived from this value. However, the most common approach is to specify the port with the PORT= parameter.
PRINTERNAME= PRINTER=	The printer / queue name for LPR protocol print sessions to the physical printer. The default value is PASSTHROUGH.
USERNAME_CN	Passes only the user name for LPR communication. For example, if the user name is *admin* and container is *novell*, then on passing this parameter, the user name passed is "*admin*". If this parameter is not passed, the user name is passed in FQDN format (*admin.novell*).
USERNAME_TRUNCATED	Truncates the length of the user name to 31 characters as per standard LPR protocol.
GETCOMMUNITYSTRING= GET=	Specifies the community string for SNMP requests. This is only needed when a printer has been configured with a community string that is different from the default string "public".

Gateway Load Parameters	Description
SQUERYACTIVE=	Specifies the interval between SNMP requests to the physical printer while the printer is idle. The default value is 300 seconds (5 minutes).
SPOLL=	Specifies the interval between SNMP requests to the physical printer while the printer is active or idle.
SETCOMMUNITYSTRING=	Sets the community string to be used for the `SNMPGet` and `GetNext` requests.
JPOLL=	Sets the job polling interval (in seconds). **NOTE:** When the JPOLL option is not set, the job polling interval is 2 seconds.
NOSNMP	Disables SNMP requests for this gateway instance to its respective physical printer.
WAITONPRINTER=	Specifies the number of minutes to timeout for communication to the physical printer. **NOTE:** For write attempts, this parameter is only effective if the value is greater than the minimum default timeout value. If SNMP is disabled by the NOSNMP or the NULL parameter, the minimum default is 15 minutes. If SNMP is active, the minimum default is 5 minutes.
THROTTLE=	Specifies a delay of nn seconds while establishing communication with the physical printer and between print jobs. This is primarily used for solving a problem where the end of a job is lost when submitting an LPR job to a windows system.
KYOCERA=	Sets the Printer Manufacturer (Make) attribute for this Printer Agent to "Kyocera".
RICOH=	Sets the Printer Manufacturer (Make) attribute for this Printer Agent to "Ricoh".
TROY=	This has no effect.

5 Click **OK** to save the changes.

Configuring LPR Printers

To complete the LPR configuration, users need to know the LPR Host and the LPR Printer/Queue information, which is the Printer Agent name, provided in iManager. The iPrint Client is not required for LPR printing.

UNIX, Macintosh, and other LPR clients can print to iPrint printers through LPR.

IMPORTANT: In order for LPR to work, the Printer Agent name cannot contain spaces. If it does, you need to re-create the Printer Agent or select a different printer.

To set up an iPrint printer to accept LPR print jobs, you need to enable LPR/LPD printing for the printer.

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer you want to enable LPR printing for.

3 Click **Client Support** > **LPR Support**.

This option is not available for a WalkUp printer.

4 Select the **Enable LPR/LPD Client Support** check box.

The **LPR Host** and **LPR Printer/Queue** fields display information required when setting up printing for Macintosh, UNIX, or other LPR clients.

LPR Host: The server name where the Print Manager is running.

LPR Printer/Queue: The same as the Printer Agent's name. The Printer Agent name cannot contain any spaces; otherwise, LPR does not work properly.

5 (Optional) Enable the following options:

Filter All LF to CRLF and Append FF to Jobs: Selecting this check box changes bytes in the LPR data stream of all incoming LPR print jobs from Line Feeds to Carriage Returns with Line Feeds and appends a Form Feed to the end of the print job. Typically, these changes are made at the LPR client; however, if you are sure of your users' configurations, you can implement this option.

Address Ranges: Add an address range only if you want to restrict access to this printer to LPR clients within the address range. When the list is empty, all addresses are allowed to print (default).

6 Click **Apply** or **OK** to update the printer settings.

7 From the UNIX, Macintosh or other LPR client, set up a printer using the LPR Host and LPR Printer/Queue information displayed in Step 4.

Configuring Job Holds

1 In iManager, click **iPrint** > **Manage Printer**.

2 Browse to and select the printer you want to modify.

3 Click **Configuration** > **Job Holds**.

This option is not available for a WalkUp printer.

4 Modify the settings.

Operator Hold: A job does not print until the operator releases it.

User Hold: A job does not print until the user who has submitted the job releases it.

5 Click **OK** to save the changes.

Using iPrint Client Management

iPrint Client Management (iCM) includes functionality similar to the Remote Printer Management feature included in Novell Distributed Print Service, which lets you designate printers to be installed on a workstation when a user logs in to the workstation using the Novell Client. Previously, this functionality was only available with NDPS printers, but now it is available for iPrint printers. iCM also lets you control the iPrint Client configuration, making it easier to configure the iPrint Client without visiting each workstation. When the user logs in to the workstation using the Novell Client, the iPrint Client settings you designate are configured on the user's workstation.

iCM is available for Windows 2000/XP/2003/2008/Vista/7/8/8.1/2012/2012 R2 workstations, and requires the following:

* iPrint iManager plug-in for Linux or the iPrint iManager plug-in for NetWare dated May 2006 or later
* Novell iPrint Client v4.17 or later (install after the Novell Client)

- `iprint.ini`
- eDirectory schema update from NetWare 6.5 Support Pack 8 or later.

NOTE: iPrint Client Management does not support dynamic groups.

IMPORTANT: Novell iPrint Windows Client components of version 5.72 and later do not require the Novell Client. However, Novell iPrint Windows Client components of versions prior to 5.72 need Novell Client 4.91 for Windows 2000/XP/2003 or later. For more information, see "Configuring iCM for Windows / Active Directory (AD) environments without Novell Client" on page 155.

All of the required components are included in NetWare 6.5 Support Pack 8 except the Novell Client 4.91 for Windows 2000/XP, which is available from the Novell Support Web site (http://support.novell.com/produpdate/patchlist.html#client).

The iPrint iManager plug-ins also work with Mobile iManager. Mobile iManager is available at Novell Downloads (http://download.novell.com/SummaryFree.jsp?buildid=BJosshlLid0~).

NOTE: You can install the iPrint iManager plug-in for NetWare NPM on Mobile iManager or iManager running on NetWare. You can install the iPrint iManager plug-in for Linux on Mobile iManager or iManager running on Linux or NetWare. Depending on your iManager configuration, you might see two **iPrint** roles. The **iPrint** role is for iPrint running NetWare tasks, and, the **iPrint (Linux)** role is for iPrint running Linux tasks.

With iCM, you manage a set of attributes on a given eDirectory tree regardless of whether the printers are hosted on an Open Enterprise Server NetWare or a Linux server, because iCM is configured and managed through eDirectory objects.

Use the following information to install and configure iCM:

- "Understanding the Schema Update" on page 154
- "Deploying iPrint Client Management" on page 155
- "Configuring iCM for Windows / Active Directory (AD) environments without Novell Client" on page 155
- "Managing iPrint Client Settings" on page 155
- "Automatically Installing Printers" on page 156
- "Using Advanced Settings" on page 157
- "iCM in OES Environment" on page 158
- "iCM with iPrint Appliance" on page 159

Understanding the Schema Update

iPrint Client Management requires you to extend the eDirectory schema. The `iprint.sch` file (found in - `/opt/novell/sch/iprint.sch`) contains the schema extension, which adds some optional attributes to Organization, Organizational Unit, Groups, and User object class definitions. The attributes are:

- iPrintiCMPrinterList
- iPrintiCMClientTrayURI
- iPrintiCMClientProxyURI
- iPrintiCMClientFlags

Users should be able to read these new attributes on their user objects; however, if you plan to configure iCM at an Organization, Organizational Unit, or Group object level, users might need the Read right to read the attributes. The first time you access iCM on an Organization, Organizational Unit, or Group object in iManager, iManager attempts to assign the Read right to the attributes. Then users should be able to read these attributes through inheritance on subcontainers and groups. If iManager cannot assign the read right to the Organization, Organizational Unit, or Group object, your configuration is saved, but a message appears explaining that rights to the attributes could not be granted. You need to grant rights to these iPrint attributes by using either the eDirectory Administration or Trustee task in iManager.

TIP: To avoid multiple explicit rights assignments for the iCM attributes, you should make your first iCM assignment as high in the eDirectory tree as possible so that the rights can flow down the tree. You could even make an iCM assignment so that the Read right is set, and then disable the iCM assignment because this does not remove the Read right to the attributes.

Deploying iPrint Client Management

1 Distribute the iPrint Client version 4.26 or later.

If the iPrint Client is already distributed, see .

If you use `iprint.ini` to distribute the iPrint Client, you need to allow enough time for users to update to the new client before configuring iCM. If you do not allow enough time, the client attempts to update a workstation at the same time it is trying to deploy the settings in iCM.

2 Configure iPrint Client Management in iManager.

See or for more information.

Configuring iCM for Windows / Active Directory (AD) environments without Novell Client

The Novell iPrint Windows Client (version 5.72 and later) now supports Windows / Active Directory environments without the Novell Client. This new feature provides shared authentication with the Windows Login, and also supports iCM for printer distribution and client settings. The following prerequisites should be met:

 Synchronization of users, groups, and containers (via Novell Identity Manager or a similar synchronization tool)

 Standardization on LDAP user names that require unique user names and require the uniqueID attribute to be set

Managing iPrint Client Settings

You can standardize the iPrint Client settings for users by using iCM Client Configuration to define the attributes for an Organization, Organizational Unit, Group, or a User Object. The attributes are delivered as a complete set, meaning that if you change only one attribute, all of the attributes are

delivered to the client. The changes are not additive, so you cannot change the value of an attribute for an object and change the value of a different attribute on another object. Only the set of attributes closest to the user's object are used.

When a user logs in, iCM walks up the tree from the user's container to the highest container in the user's fully distinguished name. Then iCM starts applying the iCM attributes in each container as it walks back down to the user object. Then the user's group membership list is queried for the same attributes. Those closest to the User object have a higher priority. The set of attributes on or closest to the User object is always used.

WARNING: Using iCM on group objects can simplify making assignments, but using iCM on multiple groups can cause undesired results. You should create a new Group object with a descriptive name so that you can control the desired results for users that you assign to that group.

To configure the iCM client attributes:

1 In iManager, click **iPrint** > **iPrint Client Management**.

2 Browse to and select the Organization, Organizational Unit, Group, or User object you want to automatically configure iPrint Client Settings for.

3 Click **Client Configuration**.

4 Configure the attributes you want for the iPrint Client on the workstation.

   Click **Help** for explanations about the attributes.

5 Click **OK** to save the changes.

Automatically Installing Printers

iPrint Client Management Printer Configuration lets you designate printers to be downloaded and installed automatically on user workstations when users log in to the network. These printers appear in the user's printers folder, ready for use. You can also use this feature to remove printers, assign a printer to be the default printer, and set a printer to be a temporary printer so that it is removed when the workstation is rebooted.

iCM configures printers on workstations based on assignments made on the User object, Group object, Organization, and Organizational Unit container. When you use iManager to designate a printer for automatic installation on a user's workstation, the associated eDirectory Container, Group, or User object is updated with this information.

The actions taken are cumulative, meaning that action is taken for each assignment you made. For example, if you add two printers at one level, then add three more printers at another level, the workstation has all five printers installed. If you have more than one printer set as the default, the last printer installed is set as the default.

When a user logs in, iCM starts searching at the highest container in the user's full distinguished name, looking for the iCM Printer Configuration associated to containers and groups. The search continues through subcontainers down to the User object. Printers continue to be added or removed to the workstation as specified by iCM. If the **Allow Only Specified Printers to Reside on Workstation** option is enabled, any actions to printers specified above that container or group in the user's fully distinguished name are ignored, but any actions to printers specified between that point and the User object are taken.

   ◆ If the client finds a printer designated for installation that has not yet been installed, it is automatically installed.

   ◆ If a currently installed printer is added to the **Printers to Remove** list, that printer is automatically uninstalled.

- If you designate a different printer to be the default, the change is made.

- Using **Do Not Update Workstations** turns off iCM for printers at that container, group or user, but actions for iCM printers found on other containers or groups are taken.

WARNING: Using iCM on group objects can simplify making assignments, but using iCM on multiple groups can cause undesired results. You should create a new Group object with a descriptive name so that you can control the desired results for users that you assign to that group.

To automatically install printers:

1 In iManager, click **iPrint** > **iPrint Client Management**.

2 Browse to and select the Organization, Organizational Unit, Group or User object you want to automatically install printers for.

3 Configure the attributes you want for the **Printer Configuration** option.

   Do Not Update Workstations: iCM for printers is disabled and printers are not installed or removed from workstations. Printers already installed are not altered.

   Allow Only Specified Printers to Reside on Workstations: Allow only the iPrint printers specified in the **Printers to Install** list to reside on the workstation. All other iPrint printers on the workstation are removed. Non-iPrint printers are not affected.

4 Use the buttons to modify the **Printers to Install** list.

   If you select a printer to be the default and want to remove the Set as Default attribute, click the button next to to the **Default Printer** field.

5 Modify the **Printers to Remove** list.

6 Click **OK** to save the changes.

Using Advanced Settings

The iPrint Client Management Advanced Settings page lets you configure how far up the eDirectory tree iCM should look for iCM client settings and printers. You can also configure whether the iCM results dialog box should display on the workstations, which is useful for troubleshooting the iCM results.

1 In iManager, click **iPrint** > **iPrint Client Management**.

2 Browse to and select the Organization, Organizational Unit, Group or User object you want to configure the settings on.

3 Click **Advanced Settings**.

4 Configure these settings as needed:

   Ignore iPrint Client Management (iCM) settings on parent containers: Limits the scope used to find iCM client settings and assigned printers to the object where the assignment is made and below. You can enable this setting on User, Group, and Container objects. You should enable this setting to limit traffic on the network, especially across slow network links.

   When a user logs in, iCM checks the User object and group memberships, then it walks up the eDirectory tree from the user object to the root-most container to determine where iCM assignments have been made. If iCM encounters the Ignore Settings on Parent Containers attribute, iCM stops walking up the tree on that object. Then, iCM implements the iCM client settings and printers on the workstation.

   To determine the iCM printers for the workstation, iCM searches down to the User object, adding and removing iCM printers as specified on each Container, Group, or User object. For iCM client settings, iCM uses the set of iCM client attributes closest to or on the User object.

The attributes are delivered as a complete set, meaning that if you change only one attribute, all of the attributes are set on the client. The changes are not additive, so you cannot change the value of one attribute for an object and change the value of a different attribute on another object. Only the set of attributes closest to or on the user's object are used.

The following table describes the behaviors when enabling this setting on different objects.

Object	Behavior
User	Only the iCM client settings and printers assigned to the User object are used. iCM does not check any group memberships, the User object's container, or parent containers.
Group	iCM checks assignments on the User object and all associated groups, but does not check the User object's container or parent containers. All group memberships are read and assignments are considered even if this setting is enabled on just one group. This is useful if you want to apply iCM client settings or assigned printers from a group membership, but do not want any iCM client settings or assigned printers from the User object's container. **IMPORTANT:** Using iCM on Group objects can simplify making assignments, but using iCM on multiple groups could cause undesired results. You should create a new Group object with a descriptive name so that you can control the desired results for users that you assign to that group.
Organization or Organizational Unit	iCM checks assignments on the user object, all associated groups, and each container up to a parent container where this setting is enabled.

Display iCM results in a dialog box on workstations: Displays a window on the workstation that shows the printers that were installed and removed.

5 Click **OK** to save the changes.

iCM in OES Environment

Traditionally iCM was used in the following methods:

- "iCM with Novell Client" on page 158
- "iCM without Novell Client" on page 158

iCM with Novell Client

In OES iPrint, when a user logs in to the corporate eDirectory using the Novell Client, the iCM settings are pushed to the user's machine.

iCM without Novell Client

In iPrint Appliance, users cannot login directly using the Novell Client. This is because iPrint Appliance syncs only user names from the corporate eDirectory, but not the passwords. For iCM to work with iPrint Appliance, you can use one of the following methods:

- Novell Client users continue to login to the existing corporate eDirectory instead of iPrint Appliance. This way, the existing OES server is used for desktop printing, and the iCM settings are available only in the source eDirectory.

Limitation: In this method, the iCM settings are fetched only from the source eDirectory. Any iCM setting changes made on iPrint Appliance are not applied.

◆ Use iCM without Novell Client. In this method, the local Windows/AD credentials must match the eDirectory credentials. This method is suitable for an AD environment where users are synced from AD to the local eDirectory so that the credentials are automatically matched. For more information, see .

Limitation: In this method, the iCM setting are fetched only from iPrint Appliance. iCM setting changes made on the existing corporate eDirectory must be manually added on iPrint Appliance.

iCM with iPrint Appliance

iPrint Appliance does not support traditional iCM with the Novell Client. iPrint Appliance supports iCM using Windows Local/AD credentials.

Depending on your environment, you can deploy iCM in the following ways:

Apply iCM Settings from the Original Tree

In this configuration, iCM settings are applied from the original tree if iCM is not migrated from OES, and OES iPrint is still used for desktop printing and iCM. You can use this configuration with or without the Novell Client.

The limitation of using this configuration is that the iCM settings are fetched only from the source eDirectory. Any iCM changes made locally on iPrint Appliance are not applied.

Apply iCM Settings from iPrint Appliance eDirectory

In this configuration, iPrint Appliance is used for desktop printing, and iCM settings are created on the appliance only.

With Novell Client: With iPrint Appliance, users cannot login directly using the Novell Client because iPrint Appliance syncs only user names from the corporate eDirectory, but not the passwords. Therefore, iCM cannot be used with Novell Client. iCM can be used against the source eDirectory server.

Without Novell Client: To fetch iCM settings from iPrint Appliance, you can use iCM without the Novell Client. In order for iPrint clients to use the Windows Local/AD credentials for iCM, the following conditions must be met:

◆ You must set the iPrint Appliance address set as the primary PSM address on the client by using the command `iprntcmd -S <iPrintAppliance IP Address>`.

◆ The client's Active Directory user name must match their iPrint Appliance credentials. If you import users from Active Directory to iPrint Appliance, the credentials are automatically matched.

◆ In order for iCM to work with imported users and groups, you must enable browse/read rights and inheritance for iCM for the following attributes, using iManager:

   ◆ iPrintPrinterIPPURI
   ◆ iPrintiCMClientFlags
   ◆ iPrintiCMClientProxyURI
   ◆ iPrintiCMClientTrayURI
   ◆ iPrintiCMPrinterFlags
   ◆ iPrintiCMPrinterList

- ◆ iPrintiCMTrustedSiteList
- ◆ Group Membership

IMPORTANT: For the user accounts imported from OES, iCM settings are not migrated. You must reassign the iCM settings on iPrint Appliance for the OES user accounts.

To configure the iCM attributes:

1 On a Web browser, use either the host name or the IP Address to access iManager. For example, https://10.0.0.1/nps or https://iprint.example.com/nps.

2 Specify `admin` as the user name.

3 Specify the password, then click **Login**.

4 In the left pane, under **Roles and Tasks**, click **Rights**.

5 Click **Modify Trustees**.

6 Under **Object name**, click the search icon, then choose the entire tree.

7 Click **OK**.

8 Click the **Assigned Rights** link next to the **Public** domain.

9 Click the **Add Property** button in the upper right of the table.

10 In the **Add Property** pop-up window, select **Show all properties in schema**.

11 In the **Property name** box, select the attributes listed above, then click **OK**.

12 Select the **Inherit** check box next to the attributes you added.

13 Click **Done**.

For more information on using Windows Local/AD credentials for iCM, see the "Configuring iCM for Windows / Active Directory (AD) environments without Novell Client" on page 155.

What's Next

iPrint Appliance is now configured for printing through desktop and laptops. You can start printing to iPrint printers.

11 Installing and Setting Up iPrint on Client Workstations

This section describes how to install iPrint Client and printers on your workstation. When a printer is selected for installation, iPrint verifies if the iPrint Client is installed and then installs it if necessary. If iPrint Client is already installed, the printer driver is downloaded and the printer is installed on your workstation.

Installing the iPrint Client

iPrint Client must be installed on your workstation to install the printers. The client is located in the `/var/opt/novell/iprint/htdocs` directory. You can distribute the client to user's workstations in a variety of ways:

Welcome Page

The welcome page includes clients for laptops and app store links for mobiles.

1 To launch the welcome page, specify the host name or IP address of the appliance server. For example, http://iprint.example.com

Figure 11-1 *iPrint Appliance Welcome Page*

2 Depending on your operating system, download the client and install it on your workstation. On installing the client, you can proceed to install the printers.

For example, on Mac a `iprint.dmg` file is downloaded. Double-click the file to extract the `.pkg` file and launch the iPrint Client install.

IPP page

To launch iPrint Installation page, access the iPrint server URL http://*server_IP_ address or host_name*/ipp in the web browser.

Figure 11-2 *iPrint Printer Installation*

Click **Install iPrint Client** to download and install the client. After installing the client, restart the web browser and select the printer for installation.

iPrint Map

The iPrint map shows the location and details of every printer in the company (both local and global). From desktops or laptops, you can choose printers on a map using a web browser. If the iPrint client is not available, it will prompt to download and install the iPrint client. After installing the client, restart the web browser and select the printer for installation.

Distribution Software

The Windows iPrint Client is packaged in several different, specialized installations. Depending on your distribution method or need, select the file you want. The following table compares the different types of installations.

Table 11-1 *iPrint Clients for Windows*

iPrint Client Filename	Description
`nipp.exe`	Installs the iPrint Client and displays dialog boxes and progress windows that require user intervention.
	This is the default installation program.
`nipp.zip`	A WinZip version of the client that can be used with distribution software programs. After the file is unzipped, run `setupipp.exe`. For a list of the command line parameters that you can use with `setupipp.exe`, enter `setupipp.exe /h` at a command prompt.
`nipp-s.exe`	Installs the iPrint Client. A screen displays the progress of the installation, but requires no user intervention.
`nipp-su.exe`	Uninstalls the iPrint Client. A screen displays the progress of the uninstall, but requires no user intervention.

Windows: Installing Printers

When installing a printer if the iPrint Client is not installed, you will be prompted for installation. You can install the printers in a variety of ways:

- "IPP Page" on page 163
- "Command Line (iprntcmd)" on page 167
- "iPrint Map" on page 169
- "iPrint Client Management Utility on Windows" on page 169

IPP Page

You can install the iPrint printers using the following browsers:

- "On Microsoft Internet Explorer" on page 164
- "On Mozilla Firefox" on page 165
- "On Google Chrome" on page 166

On Microsoft Internet Explorer

1 Launch the browser, and use the host name or IP address to access the web page.

For example, http://*server_IP_ address_or_dns_name*/ipp.

All the available printers are listed.

2 Click on the printer that you want to install.

Depending on the version of the Internet Explorer, you are prompted with a security warning message, click **Allow**.
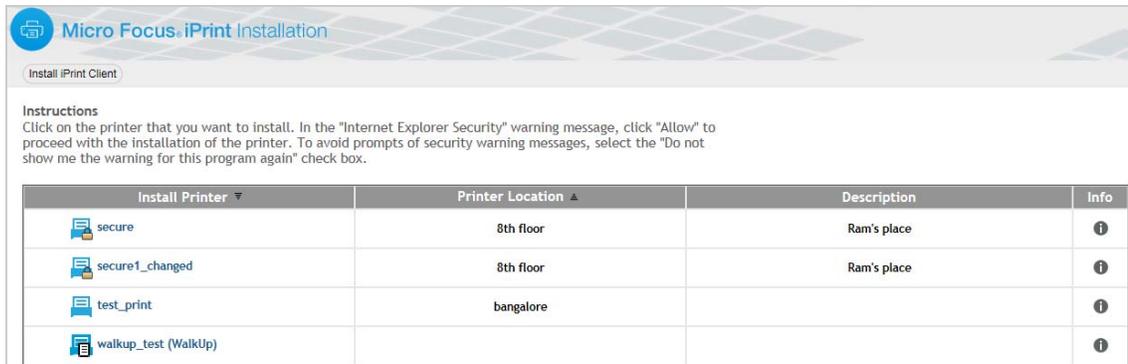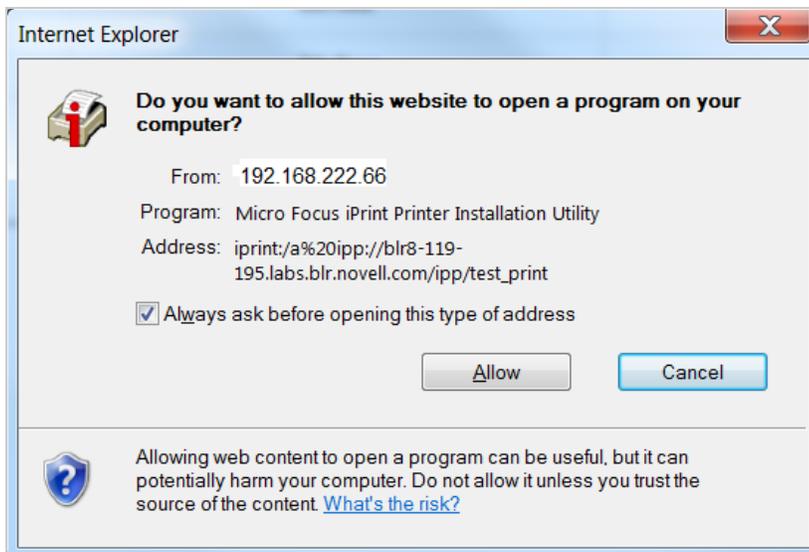
The Internet Explorer security warning message dialog box is displayed.
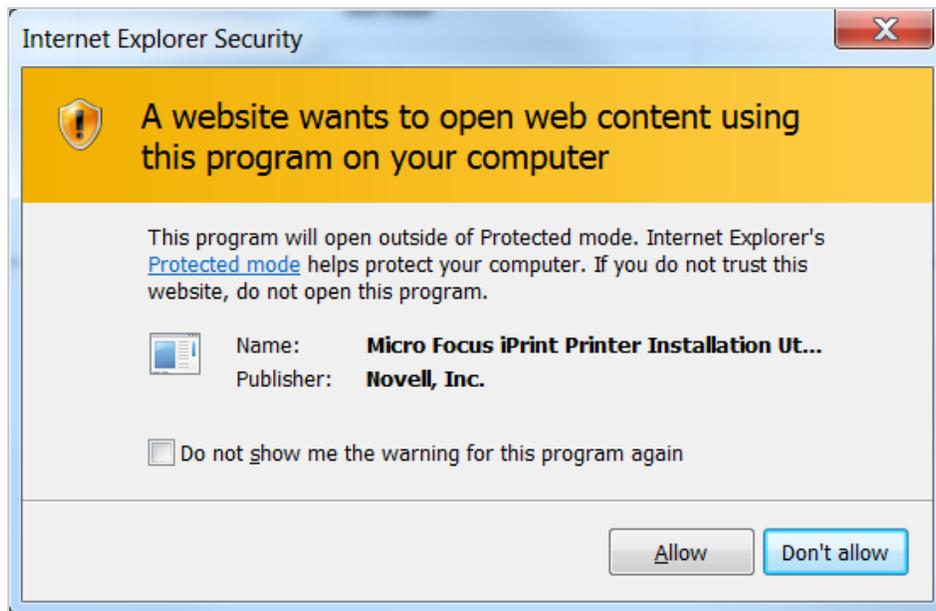
3 Click **Allow** to proceed with the installation of the printer.

4 (Optional) To avoid future prompts to launch the iPrint applications, select the **Do not show me the warning for this program again** check box.

On Mozilla Firefox

1 Launch the browser, and use either the host name or the IP address to access the web page.

For example, http://*server_IP_ address_or_dns_name*/ipp.

All the available printers are listed.
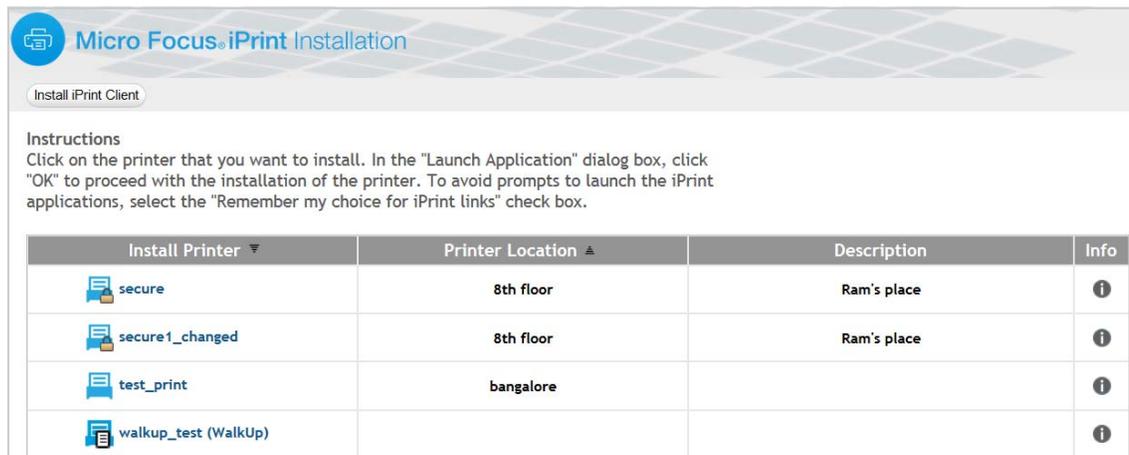
2 Click on the printer that you want to install.

The Launch Application dialog box is displayed.
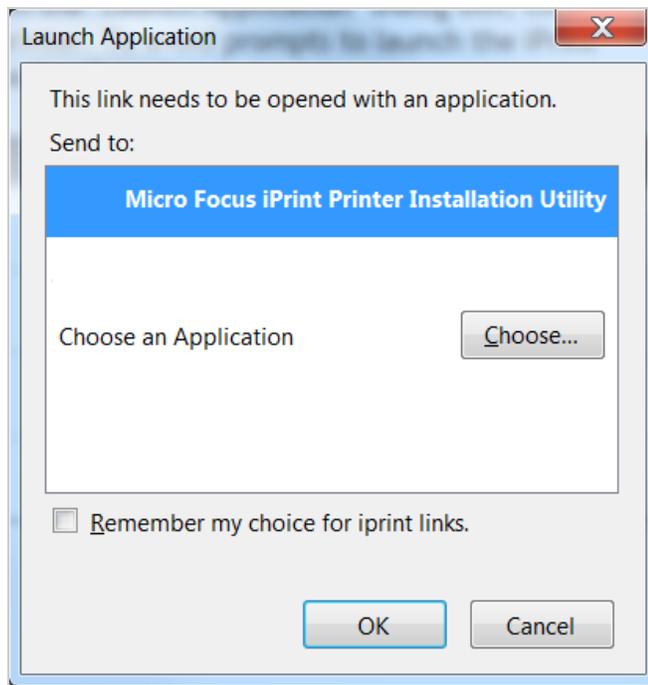
3 Select **Micro Focus iPrint Printer Installation Utility** in the Launch Application dialog box, then click **OK** to proceed with the installation of the printer.

4 (Optional) To avoid future prompts to launch the iPrint applications, select **Remember my choice for iPrint links** check box.

On Google Chrome

1 Launch the browser, and use either the host name or the IP address to access the web page.

For example, http://*server_IP_ address_or_dns_name*/ipp.

All the available printers are listed.
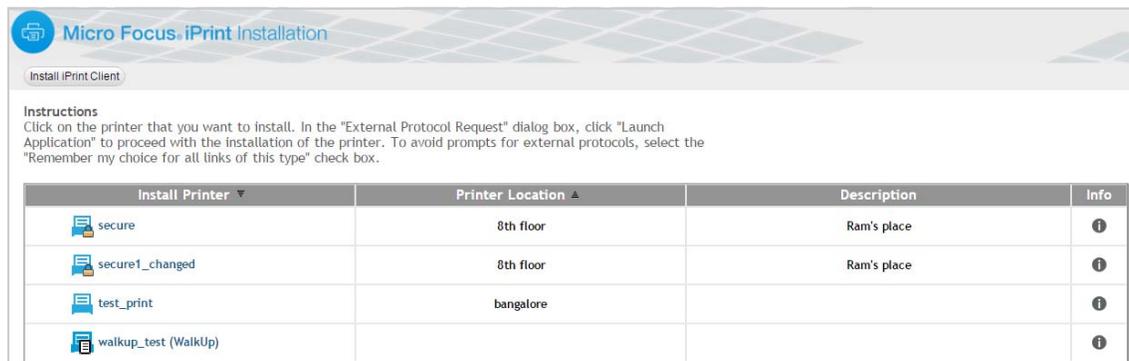
2 Click on the printer that you want to install.

The External Protocol Request dialog box is displayed.
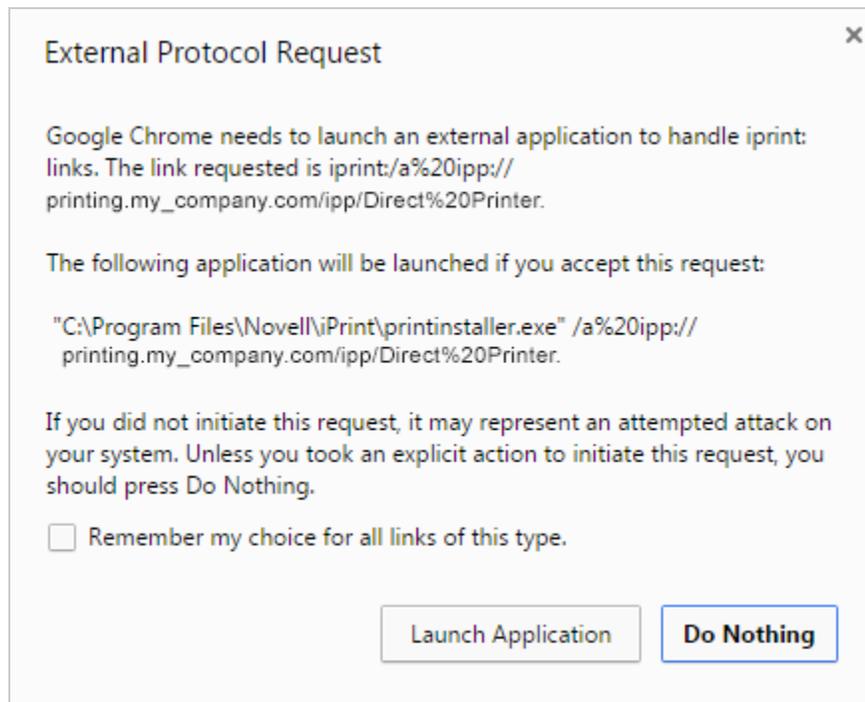
3 Click **Launch Application** on the External Protocol Request dialog box to proceed with the installation of the printer.

4 (Optional) To avoid future prompts to launch external protocol links, select the **Remember my choice for all links of this type** check box.

Command Line (iprntcmd)

`iprntcmd.exe` is a DOS command line utility that lets you install or remove iPrint printers without a web browser and capture LPT ports to iPrint printers. This command is useful when you have legacy applications that require output to an LPT port or when you want to add printers through a login script.

Use the following parameters when executing the `iprntcmd` command.

Table 11-2 *Parameters Used with `iprntcmd`*

Parameters	Description
-a	--addprinter *options printer_uri*	Installs the specified printer. You can replace *options* with any or all of the following: ◆ no-gui: Does not display the printer installation dialog box when installing a printer. ◆ default: Installs the specified printer as the default printer. ◆ temp: The installed printer is removed when the workstation is rebooted. **NOTE:** These options are available only in the Windows Client.

Parameters	Description
-d | --delprinter *printer_uri*	Removes the specified printer.
-f | --fetchdriverlocal *printer_uri*	Pulls drivers from the server and stores them in the local cache directory, such as the `c:\ndsp\drvr_cache directory`.
-g | --getdefault	Displays the default printer installed on the workstation.
-h | --help	Displays help for the command.
-j | --listjobs *printer_uri*	Lists the print jobs for the specified printer that are on the server in a pending or printing state.
-l | --listlocalprinters	Lists printers installed on the workstation.
-L | --listprintersonserver *psm-hostname or psm-address*	Lists iPrint printers on the specified Print Manager where *psm-hostname* or *psm-address* can be a host name or IP address.
-p | --printfile *printer-uri file path*	Sends a printer-ready file to the specified iPrint printer. This option is used to test the print path (job flow) from the client workstation to the server and subsequently to the printer. This requires a print-ready file as an input. The printer or the driver does not need to be installed on the client workstation.
-P | --ppdlist	Lists the PPDs installed on this workstation.
-s | --setdefault *printer_uri*	Sets the specified printer as the default.
-t | --testpage *printer_uri*	Prints a test page to the specified printer.
-v | --version *server_uri server_user*	Displays the server platform and version information, where *server_uri* is the URI for the server and *server_user* is a valid user for the server.
-U | --uploaddriver [osx] *<ids-IPaddress>* or *<ids-hostname> <username> <password>* [INF-Filepath *<model-name>*] | [driver-Filepath]	Uploads Windows drivers or Mac divers. For Windows drivers, specify the (INF-Filepath) path of the Windows driver. For Mac drivers, specify the [OSX] option and [driver-Filepath] path of the Mac driver file (PPD or PDE).
`-w` | `--trustedwebsiteforInternetExplorer` *printer_installation_page_uri*	Adds the specified URI of the printer installation page to the trusted site list for Internet Explorer. The trusted site list allows users to view and add the printers directly from the printer IPP site or printer map page, without running the Internet Explorer browser with administrator privileges on Windows Vista. For example, *http://printing.my_company.com/ ipp*.
-c	Clears the password from the cache.

Use quotes around printer-uri if it contains spaces.

Syntax

```
iprntcmd parameters
```

Example

To install a printer named ColorPrinter1 and set it as the default printer, you would enter the following command:

```
iprntcmd -a -s ipp://printing.my_company.com/ipp/ColorPrinter1
```

iPrint Map

The iPrint map shows the location and details of every printer in the company (both local and global). From desktops or laptops, you can choose printers on a map using a web browser. If iPrint client is not available, it will prompt to download and install the iPrint client. After installing the client, restart the web browser and select the printer for installation.

iPrint Client Management Utility on Windows

You use the iPrint Client Management utility to share your Windows or Active Directory login credentials with the iPrint Client. You can configure the iPrint Client Management (iCM) PSM address by using the iPrint Client tray icon. To view the iPrint Client tray icon's **iCM** tab, enter `iprntcfg icm` at the command line. Then, enter the PSM address (IP/DNS) in the iPrint Client tray icon's **iCM** tab and the system will use the DSServer (Directory Service Server) configuration of the PSM server to obtain the details of your iCM profile. If the PSMServer is not set, you can still specify the DSServer by populating the registry entry directly.

You can also set the address of the PSM server by using the `iprntcmd -S <IP/DNS>` command, in combination with a remote-policy pushing engine like ZENworks.

iPrint Client Tray Icon on Windows

On Windows workstations, the iPrint Client adds an icon to the notification area. The iPrint icon displays notification when a job is printed and allows you to access the iPrint Client settings. Right-clicking the icon displays the following menu options:

iPrint Settings: Opens the iPrint Client Settings page.

Document Status: Displays the status and other information for the last 10 documents printed.

Refresh iCM: Displays the iCM configuration settings. If the administrator has modified the iCM settings, then clicking this button immediately applies the setting for the user.

Launch Printer Folder: Opens the Windows printer folder.

Find/Install Printers: (Optional) Opens a browser window to the Menu Link URL specified on the **Tray Icon** tab.

Close: Removes the iPrint icon from the notification area until the next reboot. To make the icon reappear in your notification area, click **Start** > **Programs** > **Novell iPrint** > **iPrint Client Settings** > **Tray Icon** and deselect the **Enable the iPrint icon in the system tray**. Click **OK**. Then repeat the process to enable the icon.

To permanently remove the icon, see .

Configuring the iPrint Client Settings

Proxy Server

A proxy server is located between a client and another server that the client is trying to communicate with. Often proxy servers are used in conjunction with a firewall to keep internal addresses private while exposing only the proxy server's address to external users. If you have users that need to submit print jobs through a proxy server, you can use the iPrint Clients Proxy setting. The Client sends all print-related requests, such as a print job, to the proxy server. The proxy server then redirects the print job to the correct iPrint server.

For example, Juan is a laptop user who has installed and printed to a variety of iPrint printers at the company's headquarters. While on the road, Juan wants to submit a report to his manager. Rather than sending the report by e-mail or fax, Juan decides to send it to the printer near his manager's office. When Juan tries to send the report to the printer, he receives an error that the printer cannot be found. He knows that the company uses a firewall and a proxy server. He types the proxy server address in the iPrint Proxy settings, then tries to print the report again. This time the print job is accepted. The print job travels from his laptop to the proxy server. The proxy server redirects the print job to the printer's Print Manager, where the print job is spooled and forwarded to the printer.

To set the proxy server address for iPrint in iManager:

1 Click **Start** > **Programs** > **Novell iPrint** > **iPrint Client Settings** > **Proxy**.

2 To use a proxy server, select the check box, then specify the URL for the proxy server.

   To disable using a proxy server, deselect the check box.

3 Click **OK**.

Passwords for Remote iPrint Servers

You can manage passwords for print services that you indicated should be remembered by your workstation. The ability to delete passwords is useful if you are connected to a print service that you no longer use.

To manage passwords for print services in iManager:

1 Click **Start** > **Programs** > **Novell iPrint** > **iPrint Settings** > **Passwords**.

2 Select the password you want to remove, then click **Clear Password**.

Tray Icon

The iPrint icon in the notification area lets you receive notification when a job has printed, and lets you view a list of print jobs that you have submitted.

1 Click **Start** > **Programs** > **Novell iPrint** > **iPrint Settings** > **Tray Icon**.

2 Select the check box to enable the iPrint icon in the system tray.

3 In the **Menu link URL**, specify the URL to install the printers.

This provides a new option **Find/Install printers** when you right-click the printer icon in the system tray.

Print Job Notifications

iPrint can notify you through a pop-up message in the notification area when your document has printed or needs attention.

1 Click **Start** > **Programs** > **Novell iPrint** > **iPrint Settings** > **Notifications**.

2 Select the check box to enable the job notification.

Macintosh: Installing Printers

When installing a printer if the iPrint Client is not installed, you will be prompted for installation. You can install the printers in a variety of ways:

IPP Page

You can install the iPrint printers using the following browsers:

On Safari

1 Launch the browser, and use either the host name or the IP address to access the iPrint Printer List page.

For example, http://*server_IP_ address_or_dns_name*/ipp.

All the available printers are listed on the iPrint Printer List web page.

2 Click on the printer that you want to install.

The iPrint Printer Installation dialog box is displayed.

3 Click **Install** to proceed with the installation of the printer.

    3a If you are installing a secure printer, the iPrint Printer Installation dialog box prompts for user credentials.
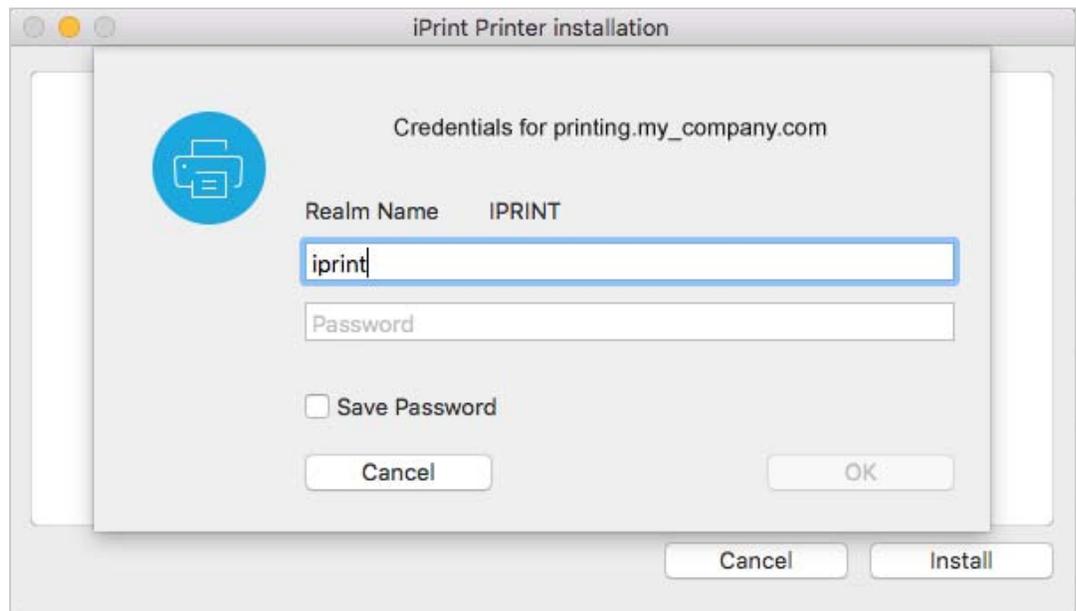
    3b Specify user credentials.

    3c (Optional) To avoid future prompts, select **Save Password** check box.

    3d Click **OK** after you have specified your credentials.

4 Click **OK** when the printer installation is complete.

On Mozilla Firefox

1 Launch the browser, and use either the host name or the IP address to access the iPrint Printer List page.

For example, http://*server_IP_ address_or_dns_name*/ipp.

All the available printers are listed on the iPrint Printer List web page.

2 Click on the printer that you want to install.

The Launch Application dialog box is displayed.

3 Select **Novell iPrint Printer Installation Utility** in the **Launch Application** dialog box, then click **OK** to proceed with the installation of the printer.

4 (Optional) To avoid future prompts to launch the iPrint applications, select **Remember my choice for iPrint links** check box.

The iPrint Printer Installation dialog box is displayed.
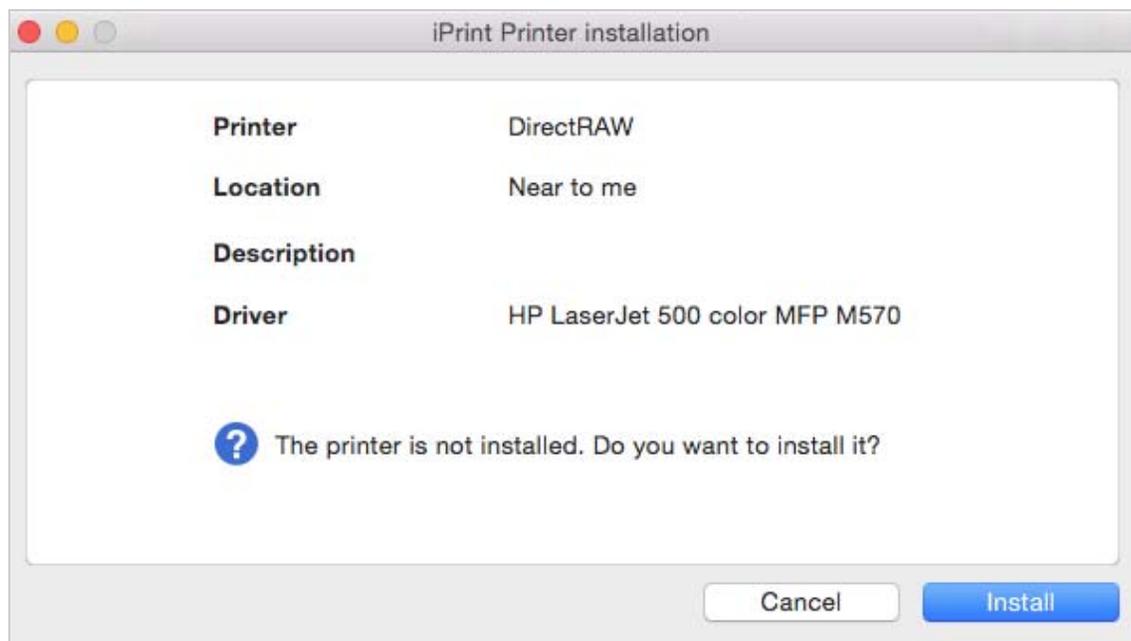
5 Click **Install** to proceed with the installation of the printer.

    5a If you are installing a secure printer, the iPrint Printer Installation dialog box prompts for user credentials.
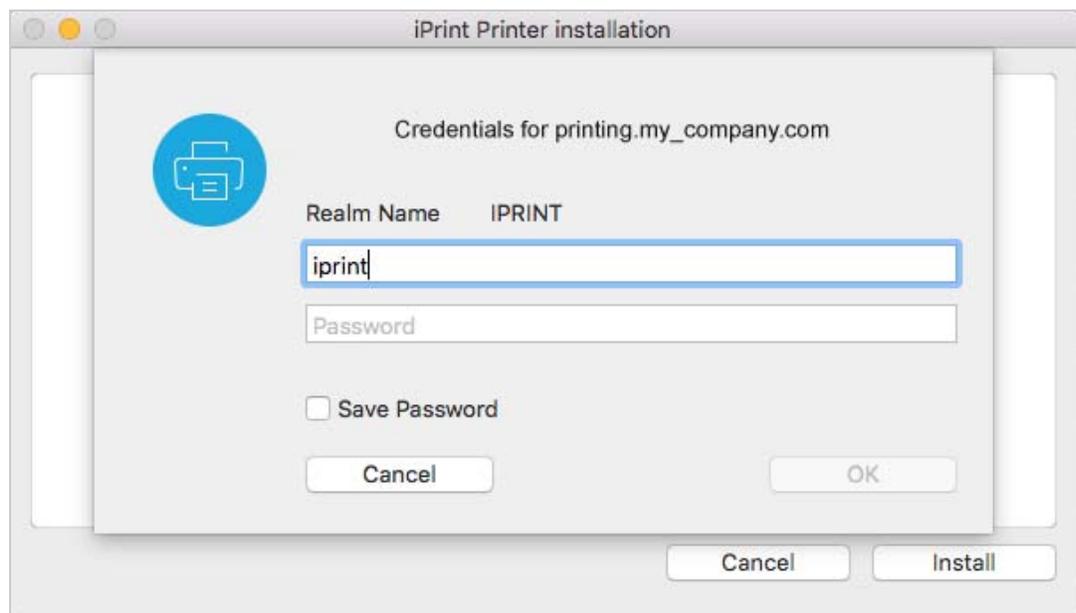
    5b Specify user credentials.

    5c (Optional) To avoid future prompts, select **Save Password** check box.

   **5d** Click **OK** after you have specified your user credentials, then click **OK** to proceed with the installation of the printer.

6 Click **OK** when the printer installation is complete.

On Google Chrome

1 Launch the browser, and use either the host name or the IP address to access the iPrint Printer List page.

For example, http://*server_IP_ address_or_dns_name*/ipp.

All the available printers are listed on the iPrint Printer List web page.

2 Click on the printer that you want to install.

The External Protocol Request dialog box is displayed.

3 Click **Launch Application** on the **External Protocol Request** dialog box to proceed with the installation of the printer.

4 (Optional) To avoid future prompts to launch external protocol links, select the **Remember my choice for all links of this type** check box.

The iPrint Printer Installation dialog box is displayed.
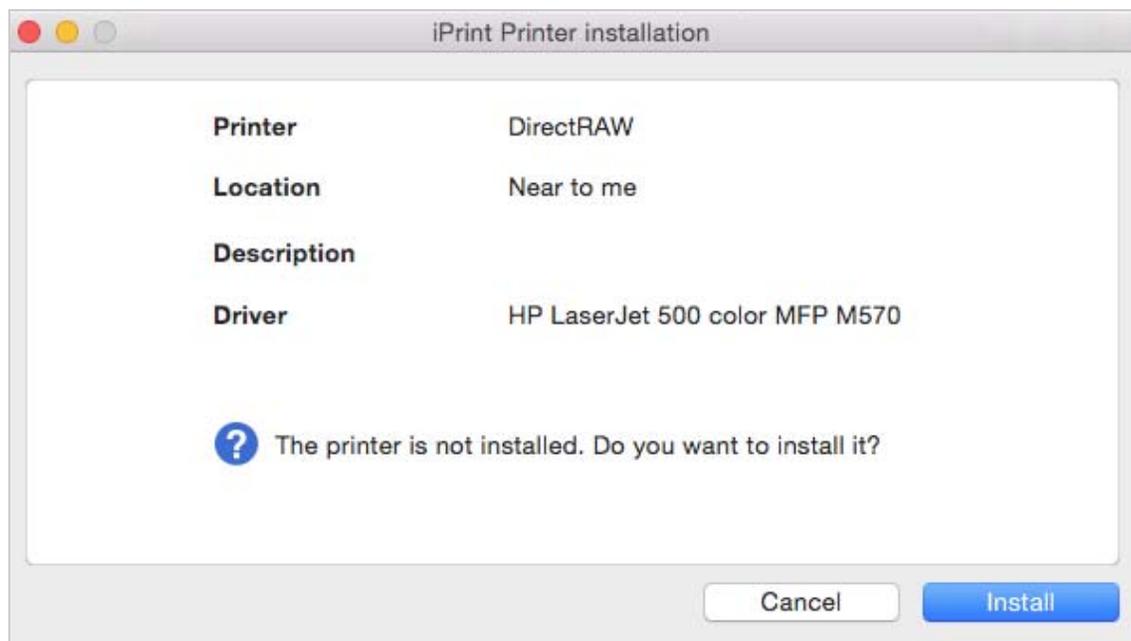
5 Click **Install** to proceed with the installation of the printer.

    5a If you are installing a secure printer, the iPrint Printer Installation dialog box prompts for user credentials.
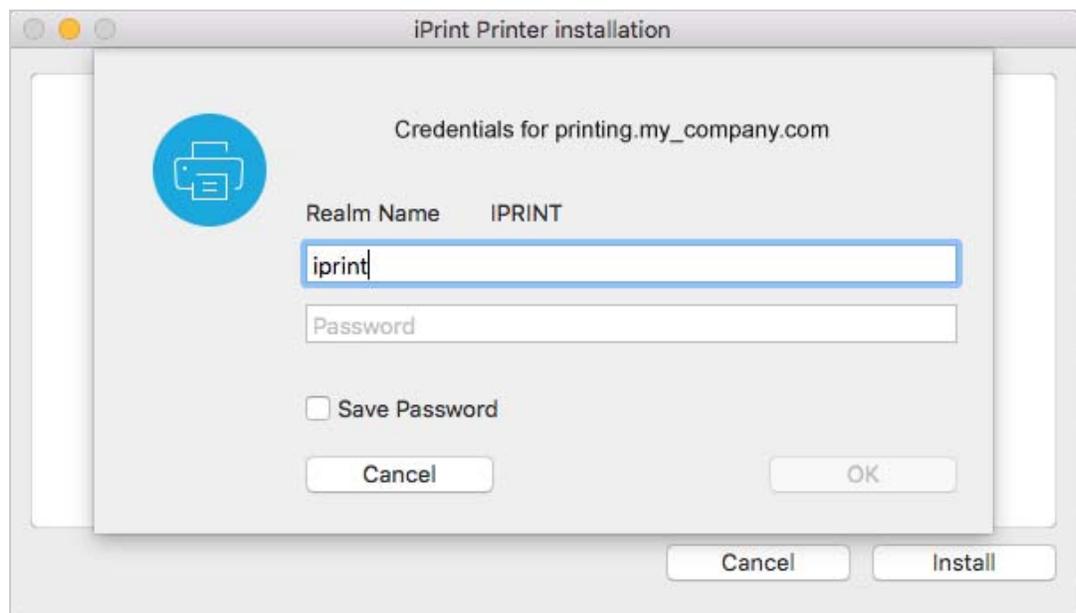
    5b Specify user credentials.

    5c (Optional) To avoid future prompts, select **Save Password** check box.

    5d Click **OK** after you have specified your user credentials, then click **OK** to proceed with the installation of the printer.

During the printer installation, iPrint downloads and installs the printer driver, if one is associated with the printer, and installs the printer on the user's workstation. The first time a printer is installed, printer drivers are forced to the workstation, even if the workstation contains a newer driver. Print Managers refresh their saved copies of printer drivers for the printers they are hosting with updated printer drivers from the associated Driver Store.

Command Line (iprntcmd)

The Macintosh iPrint Clients include the iprntcmd utility that performs the same functions as iprntcmd in the Windows iPrint Client. In addition, you can use iprntcmd to upload PPD drivers to a Driver Store from the iPrint Client. iprntcmd is located in `/usr/bin` on Macintosh.

Use the following parameters when executing the `iprntcmd` command:

Table 11-3 Parameters Used with iprntcmd

Parameters	Description
-T	--tray-icon	Displays an iPrint icon to the notification area and starts the `iprint-listener-gui` process, if it is not running.
-r	--run-listener	Launches the `iprint-listener` process if it is not already running.
-a or --addprinter *<printer_uri>*	Installs the specified printer.
-d or --delprinter *<printer_uri>*	Removes the specified printer.
-d or --delprinter all	Removes all printers. This option requires your confirmation before removing all the printers.
-d or --delprinter all --force	Remove all the printers. This option removes all the printers forcibly without any user intervention.
-g or --getdefault	Displays the default printer installed on the workstation.
-h or --help	Displays help for the command.
-j or --listjobs *<printer_uri>*	Lists the print jobs for the specified printer that are on the server in a pending or printing state.
-l or --listprinters	Lists printers installed on the workstation.
-L or --listprintersonserver *<psm-hostname or psm-address>*	Lists iPrint printers on the specified Print Manager where *psm-hostname* or *psm-address* can be a host name or IP address.
-p or --printfile *<printer-uri filepath>*	Sends a printer-ready file to the specified iPrint printer.
-P or --ppdlist	Lists the PPDs installed on this workstation.
-s or --setdefault *<printer_uri>*	Sets the specified printer as the default.
-t or --testpage *<printer_uri>*	Prints a test page to the specified printer.

Parameters	Description
-u or --uploadids *<ids_uri> <ppd with/without a wildcard>*	Uploads the specified PPD files to the indicated Driver Store where *ids_uri* is the IP address or host name for the Driver Store, and *ppd* is the directory path and filename to the PPD files. You can use a wildcard in the PPD filename.
-U or --uploadbroker *<rms_uri> <rms_name> <ppd with/without a wildcard>*	Uploads the specified PPD files to the indicated Broker where *rms_uri* is the IP address or host name for the Broker's associated Print Manager, *rms_name* is the username with rights to add drivers to the broker, and *ppd* is the directory path and filename to the PPD files. You can use a wildcard in the PPD filename.
-U | --uploaddriver [osx] <ids_uri> <username> <password> [INF-Filepath <model-name>] | [driver-Filepath]	Uploads the specified PPD files to the indicated Driver Store where *ids_uri* is the IP address or host name for the Driver Store, and *INF-Filepath* is the path of the driver package, and *driver-Filepath* is the path of the printer driver file.
-v or --version *<psm-hostname or psm-address>*	Displays the server platform and version information where *server_uri* is the URI for the server.
-i or --info *<printer-uri>*	Displays the printer information.

Syntax

```
iprntcmd options parameters
```

You must use quotes around parameter information that contains a space, such as printer names and printer drivers.

Example

To install a printer named Color Printer 1 and set it as the default printer, enter the following:

```
iprntcmd -a "ipp://printing.my_company.com/ipp/Color Printer 1"
```

```
iprntcmd --setdefault "ipp://printing.my_Company.com/ipp/Color Printer 1"
```

For uploading PPD files from Mac clients, enter the following:

```
iprntcmd -u <ids-hostname or ids-address> <ppd path with/without wild cards>
```

When prompted for a username, examples of two acceptable formats are:

```
admin  or cn=admin,o=OrgName
```

For more examples, use the `man iprntcmd` command on your server console.

iPrint Map

The iPrint map shows the location and details of every printer in the company (both local and global). From desktops or laptops, you can choose printers on a map using a web browser. If iPrint client is not available, it will prompt to download and install the iPrint client. After installing the client, restart the web browser and select the printer for installation.

iPrint Client Tray Icon on Mac

On Macintosh workstations, the iPrint Client adds an icon to the notification area. The iPrint icon lets you receive notification when a job has printed and access iPrint client settings quickly. If the iPrint icon does not appear in your notification area, run the command `iprntcmd -T` command from your terminal.

Left-clicking the iPrint icon displays the following menu options:

Printers

Displays the iPrint printer list, printer status, location of the printer, driver associated with the printer, and the description for the reason of printer status. You can also uninstall your printers from here.

To uninstall a printer:

1. Left-click the **iPrint** icon, then click **Printers**.
2. Select the printer that you want to uninstall.

   Press Shift to select more than one printer.
3. Click *Uninstall* to uninstall the printer.

   or

   Click *Uninstall All* to uninstall all the printers.

Job Status

Displays the name of the job, the status of the job, the size of the job, and the name and locationof the printer for the job. This option also allows you to clear the job information from the job status tab.

To clear job information:

1. Left-click the **iPrint** icon, then click **Job Status.**
2. Select the job that you want to clear.

   Press Shift to select more than one job.
3. Click *Clear* to remove the job information.

   or

   Click *Clear All* to remove all the job information.

Message Board

The message board stores all the information related to the status of the printers, the jobs issued, automatic removal of printer from the client, automatic redirection of printer, and automatic driver updates.

To remove the data from the message board:

1. Left-click the **iPrint** icon, then click **Message Board**.

2. Click *Clear* to remove the data from the message board.

Configuration

You can configure the following iPrint settings:

- "Managing Notifications" on page 180
- "Using a Menu Link URL" on page 180
- "Using a Proxy Server" on page 180
- "Uninstalling an iPrint Printer When You Uninstall the iPrint Client" on page 181
- "Setting the Trace Level" on page 181
- "Keeping Driver Files on Upload or Download" on page 181

Managing Notifications

iPrint notifies when your document has printed or your iPrint client needs attention.

To turn the iPrint notification on:

1. Left-click the **iPrint** icon, then click **Configuration**.

2. Select *Notify when jobs get printed or need attention.*

3. Click *Save* to save the settings.

Using a Menu Link URL

A menu link URL points you to the iPrint printer list or a customized printer installation page. You can find and install your printer from that page.

To specify the menu link URL:

1. Left-click the **iPrint** icon, then click **Configuration**.

2. Specify the menu link URL in the *Menu link URL* field.

3. Click *Save* to save the settings.

Using a Proxy Server

A proxy server is located between a client and another server that the client is trying to communicate with. Proxy servers are often used in conjunction with a firewall to keep internal addresses private by exposing only the proxy server's address to external users. If you have users that need to submit print

jobs through a proxy server, you can use the iPrint Clients Proxy setting. The Client sends all print-related requests to the proxy server. The proxy server then redirects the print job to the correct iPrint server.

For example, Juan is a laptop user who has installed and printed to a variety of iPrint printers at the company's headquarters. While he is on the road, Juan wants to submit a report to his boss. Rather than sending the report by e-mail or fax, Juan decides to send it to the printer near his boss. When he tries to send the report to the printer, he receives an error that the printer cannot be found. He knows that the company uses a firewall and a proxy server. He types the proxy server address in the iPrint Proxy settings, then tries to print the report again. This time the print job is accepted. The print job travels from his laptop to the proxy server. The proxy server redirects the print job to the printer's Print Manager, where the print job is spooled and forwarded to the printer.

To set the proxy server address:

1. Left-click the **iPrint icon**, then click **Configuration**.
2. Specify the URL in the *Proxy URL* field.
3. Click *Save to save the settings*.

> **NOTE:** If you do not want to use the proxy server, delete the URL specified in the *Proxy URL* field and save the settings.

Uninstalling an iPrint Printer When You Uninstall the iPrint Client

1. Left-click the **iPrint icon**, then click **Configuration**.
2. Select *Uninstall iPrint Printers on iPrint client uninstallation*.
3. Click *Save to save the settings*.

Setting the Trace Level

The trace level determines how much debugging information is displayed.

To set the trace level:

1. Left-click the **iPrint** icon, then click **Configuration**.
2. Select one of the following options:

   Off: No error tracing.

   Shell: Debug output is displayed on the shell where the application started.

   File: Debug output is sent to `/home/<user>/.iprint/trace.txt>`. If the user's home directory cannot be determined, the debug output is sent to `/var/opt/novell/log/iprint/client/<pid>-<uid>_trace.txt`.

   All: Debug output is sent to both the shell and the file.
3. Click *Save* to save the settings.

Keeping Driver Files on Upload or Download

This option allows you to store your driver files in the temporary folder when you upload or download the drivers for printer installation.

1. Left-click the **iPrint** icon, then click **Configuration**.
2. Select *Keep driver files on upload or download*.

3. Click **Save** to save the settings.

When you upload driversfor printer installation, temporary files are stored at `/tmp/iprint-<username>/tmp-xxxxxx`. This file is removed after upload, if the **Keep driver files on upload or download** option is not selected.

When you download drivers for printer installation, temporary files are stored at `/tmp/iprint-<username>/tmp-xxxxxx/download-xxxxxx`. This file is removed after download, if the **Keep driver files on upload or download** option is not selected.

About

Displays the version of the iPrint Client installed on your workstation.

Find/Install Printers

Opens a browser window to the menu link URL specified in the *Configuration* tab of the tray icon. The menu link URL points you to the iPrint printer list or a customized printer installation page.

You can find and install your printers from there.

Hide Tray Icon

Removes the iPrint icon from the notification area until the `iprint-listener-gui` process is restarted. To make the icon reappear in your notification area, run the `iprntcmd -T` command from your terminal.

Updating the iPrint Client

Periodically, users need updates to the iPrint Client. You need to decide how to manage this. If you want iPrint to automatically update the clients, see , or you can choose to distribute a newer client through a software distribution package.

You are allowed five times to reject the iPrint Client update. After that the iPrint Client is forcefully updated on your workstation.

Managing through iprint.ini

A configuration file named `iprint.ini` is located on each server where a Print Manager is running. The `iprint.ini` file should be synchronized across all servers where iPrint and a Print Manager are running. The `iprint.ini` file is located on the iPrint appliance at `/var/opt/novell/iprint/htdocs/`.

The file controls the following tasks only on a Windows OS:

IMPORTANT: When you apply a support pack, the existing `iprint.ini` file is saved as `iprint.bak` and a new `iprint.ini` is added. If you made changes to the `iprint.ini` file, you must delete the new `iprint.ini` file from the support pack and rename `iprint.bak` to `iprint.ini`. If you want the new functionality that is included with the latest `iprint.ini`, you should re-create the settings in `iprint.bak` in the new `iprint.ini`.

Automatically Updating the iPrint Client

When a workstation boots up, iPrint checks the default printer to ensure that the workstation is using the latest Novell iPrint Client. If necessary, a newer client is installed. You can use a configuration file to control how this update takes place.

An `iprint.ini` configuration file is located on each server where iPrint is installed. This file controls whether the user is prompted before the updated client is installed or the updated client is installed without user intervention. When the client is installed without user intervention, the user still sees the installation program.

1 Using a text editor, edit the `iprint.ini` configuration file.

  The `iprint.ini` file is located in `var/opt/novell/iprint/htdocs/`

2 Change the AllowAutoUpdate setting for the desired behavior.

3 Save the file.

IMPORTANT: The `iprint.ini` file should be synchronized across all servers where iPrint and an Print Manager are running.

After the iPrint Client is updated, Windows 9*x* users must restart their machines. Windows NT/2000/ XP users do not need to reboot immediately, unless they are using iPrint utilities to capture LPT ports.

Creating a Short Printer Name Profile

By default, the installed printer name on the client follows the full UNC/URL format: \\ipp:// *dns_name**printer_name*. For example, \\ipp://Printing.My_Company.Com\ColorPrinter. These printer names are often too long to fit in an application's display field for the printer name. You can use a Short Printer Name Profile to replace the UNC server name (or *dns_name*) for all printers on a Print Manager with any name you want to display. For example, if you want to display just the company name, you could use \\My_Company\ColorPrinter.

NOTE: You should keep the UNC path and printer name to fewer than 32 characters.

The Short Printer Name Profile is available only on Windows NT, XP, 2000, 2003 and later workstations. When you implement a Short Printer Name Profile, printers that are already installed are not affected. Only newly installed printers after the change use the shortened name. For printers already installed, you must delete and reinstall the printers to implement any changes to their names.

1 Edit `iprint.ini` in a text editor.

  The `iprint.ini` file is located in `var/opt/novell/iprint/htdocs/`

2 Change the value of the ShortInstallName parameter to the value you want displayed.

  `ShortInstallName=`*your_name*

Replace *your_name* with the value you want displayed. To reset the parameter to its default setting, use `default` as the value.

Use only lower ASCII characters and do not use a slash, quote, space, or comma.

3 Save the file.

IMPORTANT: The `iprint.ini` file should be synchronized across all servers where iPrint and a Print Manager are running. The Installed Printer Name Profile affects all printers on a Print Manager.

User Printers

A printer can be installed as a workstation printer or a user printer. User printers can be installed and deleted only by the user who installed the printer. User printers are not available to other users on the workstation.

- "Enabling User Printers" on page 184
- "Deleting User Printers" on page 185

Enabling User Printers

To enable user printers, edit the `iprint.ini` file and change the value for `AllowUserPrinters = value` to one of the following:

Table 11-4   User Printer Settings

Value	Description
0	Follow Windows standards and only let users with sufficient permissions to install the printer to the desktop. This allows all users to see and use this printer. This is considered a global or workstation printer.
1	If the current user does not have permissions to add a workstation printer (option 0), automatically add the printer so that only the current user can install, view, modify, or delete this printer. This is considered a private or user printer.
2	Only add user printers. All users (including Administrators or Power Users) that add a printer can install, view, modify, or delete the printer they installed. All printers are private or user printers.
3	Only add workstation printers. No permissions are required. All users have rights to install, view, modify, or delete iPrint printers even if the Windows workstation has been locked down. Non-iPrint printers are not affected.

The user printer feature is now enabled for your users. For workstations above Windows 8.1 and later, an additional option `AllowWSACLPrinters = entry` must be set in the `iprint.ini` file for the User Printer feature to work.

Table 11-5 *User Printer Settings for Windows 8.1 and above*

Value	Description
0	The WSACL printers enables user printing feature on OS Windows 8.1 and later. Windows 2012 R2 with V4 driver support. By, default the setting is disabled.
1	Enable the `AllowUserPrinters` settings, then enable this setting. For operating systems below Windows 8.1, the User printer feature works in the legacy way.

IMPORTANT: If printers are created (legacy way) on Windows 8.1 or later workstations, you must delete the printers and install new printers. Enabling `AllowUserPrinters` settings on those printers will not enable the new User printer functionality.

Example: Three workers—Albert, Juan, and Carla—share the same computer during the day. Albert prints to an accounting printer, Juan prints to a plotter, and Carla prints to a printer in the CEO's office. The administrator set AllowUserPrinters = 2. Each worker can install the printer he or she needs but cannot see printers installed by the other users.

Deleting User Printers

To delete a User printer, do the following:

1 Start > Control Panel > Hardware and Sound > Devices and Printers.

2 Select the User printer that you want to delete and right-click:
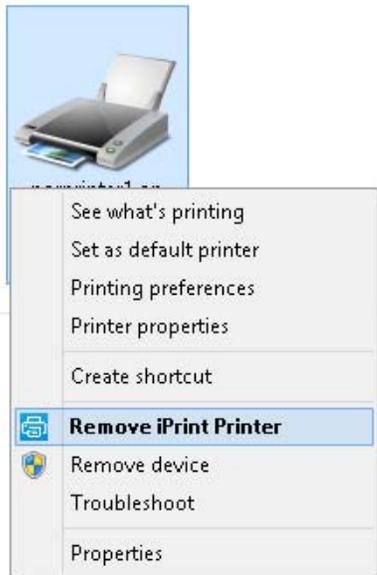
- ◆ **Remove iPrint Printer:** Click this option to delete User printers created on workstations Windows 8.1 and above. This option is available with iPrint client 6.07 and later.
- ◆ **Remove device:** Click this option to delete User printers created on workstations below Windows 8.1.

iPrint Client Management

Enabling and Disabling iPrint Client Management

You can use the `iprint.ini` file to enable and disable iPrint Client Management (iCM). Use the `iCMEnabled` value in the following ways:

- `iCMEnabled = 1`

  iCM is fully enabled. iCM attributes are identified from the full tree hieararchy.

- `iCMEnabled = 0`

  iCM is disabled.

  IMPORTANT: Using this command disables all iCM configurations created in the Novell Client.

Applying iCM

A new option **Refresh iCM** is introduced to apply the iCM changes made by the administrator.

Figure 11-3   Refresh iCM
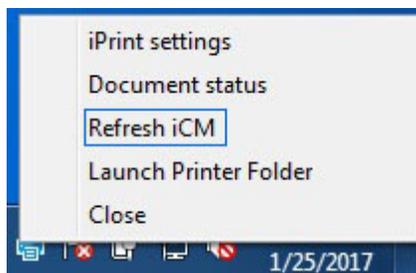
The user clicks **Refresh iCM** to immediately apply the iCM settings modified by the administrator. A window is displayed with results of settings that were modified.

When an user click **Refresh iCM** and if no window is displayed, then the user has to logout and relogin to the workstation to apply the changes.

Setting the Default Attributes Container for iPrint Client Management

You can use the `iprint.ini` file to set the default container that iCM should read values from. To configure this scope, use the following command:

- iCMScope = DEFAULT

  Using this command stops the system from reading iCM attributes beyond the container you specify. The iCM attributes are read on the full tree hierarchy. The iCM attributes are considered within the specified tree hierarchy.

  For example, you can use the `OU=UNIT,O=COMPANY` command to set the iCMScope to the Organizational Unit in the OU from the base of the tree. The user should be present within the specified container for iCM function to work.

  NOTE: Setting the attribute in this way does not work above the specified container.

Windows Terminal Servers

You can set up iPrint on a terminal server to allow terminal server clients to install the iPrint Client and print to iPrint printers.

-
-

Installing the iPrint Client on a Terminal Server

1 Log in to the terminal server with Administrator or equivalent rights.

2 Install the iPrint Client.

   You can download the iPrint Client from the iPrint Appliance Welcome page or copy and execute `nipp.exe` from the iPrint server in `sys:\apache2\htdocs\ippdocs`.

NOTE: On terminal servers, the client auto-update does not work. To update the client with a newer release, you must install it manually.

Configuring iPrint for Terminal Server Clients

You can configure iPrint to work in any of the following ways, depending on the rights the terminal server client has.

- **Install user printers only:** User printers can only be installed and deleted by the user who installed the printer. User printers are not available to other users on the workstation.
- **Install workstation printers only:** Workstation printers can be installed and deleted only by users with sufficient rights. After a workstation printer is installed, all users using the workstation can print to it.
- **Try to install workstation printer first:** If the user has insufficient rights to install the printer, the printer is installed as a user printer.

To configure iPrint for terminal server clients:

1 Log in to the terminal server with Administrator or equivalent rights.

2 Click **Start** > **Programs** > **Novell iPrint** > **iPrint Settings**.

3 Click **Terminal Server**, then select the configuration option you want.

4 Click **OK**.

Uninstalling the iPrint Client

Uninstalling the iPrint Client is dependent on your workstation's operating system.

-
-

Uninstalling the Macintosh iPrint Client

You can uninstall iPrint from your workstation.

1. Select **Go** > **Computer** > **Applications** > **iPrint Uninstallation**.

2. Double-click **iPrint Uninstallation**.

3. Click *Yes* to uninstall the iPrint Client.

Uninstalling the Windows iPrint Client

To remove the Novell iPrint Client, use the **Add or Remove Programs** option in the Windows Control Panel.

NOTE: When you uninstall the Windows iPrint Client, all iPrint printers are removed from the workstation.

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12 Mobile Device Management (MDM)

Managing the iPrint App with ZENworks Mobile Management 3.2.x

ZENworks Mobile Management (ZMM) 3.2.x is a mobile device management solution that provides organizations with centralized management and control of the wireless device platforms in their enterprise network.

The Micro Focus iPrint App available in the Google Play Store is enabled for ZMM. You can now manage the Micro Focus iPrint app using ZMM solution. For information about adding iPrint app for Android devices, see Adding and Managing Apps for Android Devices in the Managing User, Resources, and Applications guide.

Configuring MobileIron to Manage the iPrint App

iPrint App is enabled for MobileIron. You must configure MobileIron to manage the iPrint mobile app.

Supported Features

iPrint mobile app provides an additional feature to pre-populate the following fields on the iPrint login screen on both iOS and Android devices:

◆ **Server IP Address**
◆ **User ID**

Adding the iPrint App to MobileIron

Adding the Android iPrint App

To add the Android iPrint app to MobileIron, upload the `*.apk` file and then apply the Android label to the application:

1 Download the Micro Focus iPrint for MobileIron Appconnect (`*.apk`) file from the Novell downloads site (https://download.novell.com).

2 Upload the file to MobileIron:

   2a In the MobileIron Admin Portal, click the **Apps** tab.

   2b On the **App Distribution Library** tab, in the **Select Platform** drop-down list, select **Android**.

   2c Click **Add App**.

   The Add App Wizard is displayed.

   2d Click **Next**, then specify the following information:

   Distribution Type: Select **In-house App**.

   Silently Install: If your device supports a silent install, select **Yes**. If the device does not support a silent install or if you are unsure, select **No**.

   App Upload: Browse to and select the `.apk` file that you downloaded.

   2e Click **Next**, then specify the following information:

   App Name: `Micro Focus iPrint` is already specified for you. This cannot be changed.

   Display Version: The version is already specified for you. This cannot be changed.

   Code Version: The version is already specified for you. This cannot be changed.

   Description: Specify a short description for the app.

   Override URL: For information about this feature, see the blue information icon next to this field.

   Featured: Select whether you want to feature this app.

   Category: Select the category that most closely matches the app. You can add a new category as described in the dialog box.

   2f (Optional) Click Next, then click **Browse** to upload any screen shots that you have for the app.

   The mandatory image size is displayed in the dialog box.

   2g Click **Finish** to close the Add App Wizard.

3 Apply the Android label to your application:

   3a From the **App Distribution Library** tab on the **Apps** tab, select the Micro Focus iPrint app that you created, then click **Actions** > **Apply To Label**.

   The Apply To Label dialog box is displayed.

   3b Select the **Android** label, then click **Apply** > **OK**.

Adding the iOS iPrint App

To add the iOS iPrint app to MobileIron, import it from the Apple Appstore and then apply the iOS label to the application:

1 Import the app from the Apple Appstore:

   1a In the MobileIron Admin Portal, click the **Apps** tab.

   1b On the **App Distribution Library** tab, in the **Select Platform** drop-down list, select **iOS**.

1c Click **App Store Import**.

The App Store Search dialog box is displayed.

1d In the **App Name** field, type `Micro Focus iPrint`.

1e In the **App Store** field, select the country appropriate to your location.

1f Click **Search**.

1g Click **Import** next to the Micro Focus iPrint app, then click **OK** after it is imported.

1h Close the App Store Search dialog box.

1i From the **App Distribution Library** tab on the **Apps** tab, click the **Edit** icon next to the Micro Focus iPrint app that you imported.

The Edit App for iOS dialog box is displayed.

1j Make any desired changes to the app details and icon, then click **Save**.

2 Apply the iOS label to your application:

2a From the **App Distribution Library** tab on the **Apps** tab, select the Micro Focus iPrint app that you just created, then click **Actions** > **Apply To Label**.

The Apply To Label dialog box is displayed.

2b Select the **iOS** label, then click **Apply** > **OK**.

Pre-Populating Fields for iPrint Login

Pre-populate the server URL and user ID fields for both the iOS and Android apps.

You must modify the app configuration for Android, and create a new app configuration for iOS.

- "Creating the iOS iPrint App Configuration for MobileIron" on page 191
- "Key-Value Pairs" on page 192
- "Modifying the Android iPrint App Configuration for MobileIron" on page 192

Creating the iOS iPrint App Configuration for MobileIron

1 In the MobileIron Admin Portal, click the **Policies & Configs** tab.

2 On the Configuration tab, click **Add New** > **AppConnect** > **Configuration**.

The New AppConnect App Configuration dialog box is displayed.

3 Specify the following information:

Name: Provide a name for the configuration, such as `iPrint iOS Configuration`.

Description: (Optional) Provide a description for the configuration.

Application: Specify the iPrint iOS bundle ID, which is `com.novell.print`.

4 In the **App-specific Configurations** section, click the **Plus** icon to add a new field to the key-value pair table; you can then specify the key-value pair to be included in the configuration.

The key-value pairs that you can add are shown in Table 12-1, "iPrint Key-Value Pairs," on page 192. Key-value pairs that you add to the table represent the information that will be pre-populated for iPrint login.

5 Click **Save**.

Key-Value Pairs

Table 12-1 *iPrint Key-Value Pairs*

Key	Value
server	Specify the URL of your iPrint site. For example, iprint.acme.com.
server2	When specifying multiple servers, the subsequent servers will be `server2`, `server3`, and so forth. You can provide same or different user for each server.
user	Specify `$USERID$` for MobileIron to automatically populate the app with the users' MobileIron user ID. Alternatively, you can specify an individual user's user ID.
configlocked	The value is true or false. By default, the value is true and the app users will not be able to modify the iPrint app configuration on their devices.

Examples for Key-Value Pairs

- **Multiple Servers and Same Users:** If there are two iPrint servers and you want all the app users to print through both the servers, specify the server values and `user` as the key.

Table 12-2 *Multiple Servers and Same Users*

Key	Value
server	iprint.acme.com
server2	iprint2.acme.com
user	$USERID$

- **Multiple Servers and Different Users:** If there are two iPrint servers and you want different set of app users to print through each server, specify the server values and subsequent `user` as the key. Use the key-value pair as `server` and `user` and `server2` and `user2`.

Table 12-3 *Multiple Servers and Different Users*

Key	Value
server	iprint.acme.com
user	$USERID$
server2	iprint2.acme.com
user2	$USERID$

Modifying the Android iPrint App Configuration for MobileIron

1 In the MobileIron Admin Portal, click the **Policies & Configs** tab.

2 On the **Configuration** tab, in the **Name** column, click the name of the iPrint configuration for the iPrint app that you uploaded, as described in .

3 Click **Edit**.

The Modify AppConnect App Configuration dialog is displayed.

4 Specify the following information:

Name: Provide a name for the configuration, or keep the default.

Description: (Optional) Provide a description for the configuration, or keep the default.

Application: Select `Micro Focus iPrint` from the drop-down list.

5 In the **App-specific Configurations** section, keep or remove the key-value pairs that are shown in Table 12-1, "iPrint Key-Value Pairs," on page 192. Key-value pairs that remain in the table represent the information that will be pre-populated for iPrint login.

6 Click **Save**.

Distributing the iPrint App to Devices

You must distribute the iPrint app to devices in your organization via MobileIron if this is the first time your organization is using MobileIron with iPrint, or any time a new device enters the organization.

Some users might have independently download the iPrint app from the app store before their device is managed by MobileIron. Even in this scenario, you must push the app to their device via MobileIron. (These devices will lose any cached or downloaded files within the iPrint app after their device becomes managed and the iPrint app is pushed to their device.)

13 Troubleshooting iPrint Appliance

You might encounter the following issues when using iPrint Appliance.

NOTE: The iPrint Appliance print server maintains log files to help with debugging the server's activity. The log files are located at the following locations:

- Novell iManager: `/var/opt/novell/tomcat6/logs/catalina.out`
- Novell iPrint Mobile: `/var/opt/novell/log/iprintmobile/iprintmobile0.log`
- Management Console: `/var/opt/novell/jetty8/logs/jetty.stderrout.out`
- Export Backup: `/var/opt/novell/log/iprintmobile/backup.log`
- Upgrade Restore: `/var/opt/novell/log/iprintmobile/restore.log`
- Print Manager: `/var/opt/novell/log/iprint/ipsmd.log`
- Driver Store: `/var/opt/novell/log/iprint/idsd.log`
- eDirectory: `/var/opt/novell/eDirectory/log/ndsd.log`
- Apache: `/var/log/apache2/error_log`

Server Issues

Recreate the Print Manager Database

If you have accidentally deleted the Print Manager, then it can be restored by using the XML backup file. The `/var/opt/novell/iprint/<PrintManager.context>.psm/padbtxt.xml` file includes all the relevant information to restore the Print Manager database. When the Print Manager is deleted, the `padbtxt.xml` file is copied to the `/tmp` folder and renamed with the name of the Print Manager and timestamp.

Perform the following steps to restore the Print Manager:

1 Locate the XML file. It will be available in the `/tmp` directory.

- Syntax:

  `<Print Manager name>.<Context>_<Year-Month-Date>__<HR:MN:SEC>`

- Example:

  ```
  iPrintnew.iPrintAppliance_2018-02-16__22:58:48
  ```

2 Create the Print Manager object.

When creating the Print Manager, refer to the backup XML to ensure you are using the same information:

- Print Manager Name = first part of the <dn> within the XML
- Container Name = latter part of the <dn> within the XML
- eDir Server name = <dserver> part of the XML, however, browse to the object. Don't use the network address.
- Driver Store Name = <ids> part of the XML
- iPrint Service = <hostname> of the XML. It is very important this part is identical. Changing this value could result in all workstations auto removing and auto re-installing all printers installed to workstations.

3 Shutdown the Print Manager.

```
rcnovell-ipsmd stop
```

4 Import the data from the backup XML file:

- Syntax:

  ```
  /opt/novell/iprint/bin/ipsmd -x /tmp/systemd-private-<HEX Value>-
  apache2.service-<Characters>/tmp/<Print Manager name>.<Context>_<Year-
  Month-Date>__<HR:MN:SEC> -u cn=<eDir admin name>,o=<OrganizationName>
  ```

- ```
  /opt/novell/iprint/bin/ipsmd -x /tmp/systemd-private-
  ac0dbc6a87f24f2f940484c10937a5f0-apache2.service-WePGnZ/tmp/
  iPrintnew.iPrintAppliance_2018-02-16__22:58:48 -u cn=admin,o=MyContainer
  ```

  Provide the admin password

5 On successfully completing the import, start the Print Manager:

```
rcnovell-ipsmd start
```

The Print Manager is successfully loaded.

POODLE Security Vulnerability

LDAPS and HTTPS in eDirectory allow SSLv3 for secure communication, and SSLv3 has been found to have protocol vulnerability as per CVE-2014-3566. After installing the Appliance, ensure that you disable SSLv3 to prevent POODLE security vulnerability.

To disable SSLv3 through LDAP, add number 128 to the ldapBindRestrictions attribute on the LDAP server object.

Error When Configuring Secondary Hard Disk (/vastorage) on Xen

When installing the iPrint, search index, or database appliances on Xen, configuring hard disks (`/vastorage` or `/var`) during installation can result in the following error:

```
PCI: Fatal: No config space access function found.
Unable to read sysrq code in control/sysrq
i8042: No controller found
end_request:I/O error, dev xvda 18576
```

This issue can cause a small delay; however, the server will operate normally.

Verify that the disks are added as expected by running the following command from the appliance console:

```
df -h

/dev/xvda1      20G  5.5G   14G  30% /
/dev/xvdc1      12G  2.0G  9.4G  18% /vastorage
/dev/xvdd1     2.0G  257M  1.7G  14% /var
```

Processor Utilization Increases When 10,000 Users Are Imported from an External LDAP Source

When syncing users from an external LDAP source, the processor utilization increases if you try to import 10,000 users.

The reason for this behavior is that the User Sync is scheduled to run every 8 minutes, by default. Therefore, each time the User Sync is started, which is every 8 minutes, the processor utilization increases to around 50%, and remains in that state for up to 5 minutes. The utilization might further increase if you import over 10,000 users.

To workaround this issue, you can change the sync interval by editing the `crontab` file.

1 Launch the `crontab` file located at `/etc/crontab`.

2 Browse to the line where the sync interval is set to 8 minutes.

   `# run iprint migrate every 8 minutes`

   `*/8 * * * * root /usr/bin/python /opt/novell/iprintmobile/python/migrate/`
   `migrateUsers.pyc >> /var/log/ipmigrate.log 2>&1`

3 Change the time to the desired time interval.

For information on scheduling time intervals for cron jobs, see the article about Cron on Wikipedia.

LDAP Issues

Unable to Import All Users from the Active Directory Source Using LDAP Sync

You might not be able to import all users from the Active Directory source using LDAP sync. By default, in Active Directory, LDAP search returns only 1,000 objects. This issue is caused by a default setting in Active Directory that limits LDAP searches to 1,000 results.

To work around this issue, you can use the `Ntdsutil.exe` tool to modify the **MaxPageSize** value to expand or limit the search, depending on the size of the Active Directory tree.

For more information, see the Microsoft support article on How to view and set LDAP policy in Active Directory by using Ntdsutil.exe.

Active Directory Administrator Users Unable to Perform Administrative Tasks Post LDAP Import

Admin users migrated to iPrint Appliance through LDAP Import cannot perform administrative tasks such as managing iManager. This is because the LDAP Import feature imports only the user names but not the passwords. iManager fails to authenticate AD users with no passwords.

LDAP Import Fails to Import Administrator User from Active Directory Environments

When importing users from Active Directory environments, LDAP import fails to import the administrator user account.

The Active Directory administrator user is not required for iPrint Appliance. iPrint Appliance contains an in-built administrator account. The admin account of iPrint Appliance manages all users imported from Active Directory.

Renderer Issues

RPC Error is Displayed When Accessing Management Console

Certificate validation fails if the third party certificate is already configured and activated before configuring iPrint Appliance server.

To resolve this issue, configure the iPrint Appliance server again and then upload and activate the certificates.

Upgrading iPrint Renderer From 1.0 or 1.0.1 to 1.1 Corrupts the iPrintRenderer.conf File

If you have upgraded the renderer from 1.0 or 1.0.1 to 1.1, the `iPrintRenderer.conf` file gets corrupted. On corruption of this file, the renderer also fails to uninstall.

To resolve this issue, do the following:

1 Replace the contents of the `c:/NDPS/Renderer/Conf/iPrintRenderer.conf` file with the following:

    Word=doc,docx,rtf,docm,dotm
    Excel=xls,xlsx,xlsm,xlsb
    Powerpoint=ppt,pptx,pptm,ppsm
    inBuiltPDFRenderer=pdf
    #Adobe=pdf

2 On your client workstation, uninstall the Renderer.

3 Install the latest renderer. For more information, see "Installing and Configuring a Remote Renderer" on page 72.

PowerPoint Job Fails to Print

If the remote renderer configured with Microsoft Office 2013 is under continuous load, then it may fail to print PowerPoint jobs. This issue is not caused if the remote renderer is configured with Microsoft Office 2010.

To resolve this issue, stop and start the remote renderer.

Jobs Fails to Print

If the remote renderer is configured on Windows 8, Windows 8.1, Windows 2012, and Windows 2012 R2 server, then over the period of time, you might encounter consistent print failure. This is because the in-built pdf renderer might have stopped responding.

To resolve the issue, restart the remote rendering service using the following commands:

1 To stop the renderer, run `iprntrendcmd -q`

2 To start the renderer, run iprntrendcmd -l

Remote Renderer Status is Inactive

Sometimes the remote renderer status might change to Inactive and activating it from the Management Console also fails to change the status.

To resolve this issue, restart the renderer using the following commands:

1 To check the status of the service, run `iprntrendcmd -s`

2 To start the renderer, run iprntrendcmd -l

Remote Renderer Status is Inactive After Appliance Upgrade

If you have a remote renderer associated with the iPrint Appliance, then upgrading the iPrint Appliance changes the remote renderer status to Inactive. To resolve this issue, follow the steps from "Downloading the Remote Renderer" on page 73 to "Registering the Remote Renderer" on page 74 to download, install, and register the new renderer.

iPrint Rendering Service Hangs

The iPrint Rendering Service might hang with the service status "Stopping."

This issue is caused when the remote renderer fails to restart when using the configuration or registration commands.

To workaround this issue:

1 Launch the **Windows Task Manager**.

2 Click the **Processes** tab.

3 Check the **Show processes from all users** box.

4 Right-click **iPrint Rendering Service.exe**, then click **End Process**.

5 Start the remote rendering service by using the `iprntrendcmd -l` command or through the window services panel.

Printer Drivers are Missing After Registering the Remote Renderer

After registering the remote renderer, self-signed and un-signed drivers are not installed.

To resolve this issue, run the command, `iprntrendcmd -rt <FDN or IP Address>`

On the prompt, accept the certificate for each driver.

Local Renderer Fails to Print the Password-Protected PDF Files

The local renderer fails to print password-protected or corrupt PDF files.

You might get a message in the audit page that the job is complete or success message for email printing, if the local renderer uses the pre-packaged driver for printing.

Printer Prints Junk Characters

When trying to print a document, the printer might print only junk characters in the following scenarios:

* This issue is caused because the local renderer does not support all the font types. To resolve this issue, you can install the Microsoft TrueType fonts on your iPrint Appliance server.

  1. Log in as `root`.

  2. Type the following command to navigate to the `fonts` directory, then press Enter:

     `cd /opt/novell/iprintmobile/fonts/`

  3. Install the supported RPM files by typing the following command, then press Enter:

     `rpm -ivh *.rpm`

     The RPM files are now installed on the iPrint server.

  4. Run the script to retrieve the fonts by typing the following command, then press Enter:

     `sh fetchmsttfonts-11.1-5.7.10-fetchmsttfonts.sh.txt`

     The fonts are downloaded from Sourceforge and installed on your iPrint server.

* Few of the Linux drivers might fail to print due to absence of certain filters. You can verify this information, using the command: `lpstat -p`

  The command displays the status of the drivers. Change the driver for which you have received the failure messages. This is applicable only for local renderer.

* If the remote renderer is registered with Built-in-PDF Renderer for processing the PDF jobs, it might print junk characters for PDF files.

  To resolve this issue, you need to reconfigure the remote renderer using `iprntrendcmd -c` command.

* If the remote renderer is not registered for PDF file processing, the printer might print only junk characters and not the actual content. This can be caused by an incompatible printer driver.

  To work around this issue, use the drivers that are compatible with your printer.

Remote Renderer Fails to Start Because of Login Failure

The remote rendering service might not start if the credentials provided are incorrect, or if the user account does not have the **Log on as a service** rights.

To resolve this issue, you must assign the **Log on as a service** rights to the user account with which you want to set up the renderer, on the local machine:

1 Go to **Start > Control Panel > Administrative Tools > Local Security Policy**.

2 In the left pane, double-click **Local Policies**.

3 Click **User Rights Assignment**.

4 In the right pane, under **Policy**, double-click **Log on as a service**.

5 Click **Add User or Group**.

6 Add the user account to the list, then click **OK**.

7 Click **OK**, then close the Local Security Policy window.

Adobe Acrobat 11 Pro Hangs While Rendering PDF Files

When rendering PDF files using Adobe Acrobat 11 Pro, Adobe Acrobat might stop responding and not complete the rendering process.

To work around this issue, kill Adobe Acrobat from **Windows Task Manager**, then try again.

Disk Space Gets Filled Up During Continuous Job Submission

When handling a large number of print requests, the remote renderer might not be able automatically delete the converted job data, and the disk space allocated for the remote renderer might fill up.

To work around this issue, you must manually delete the stored jobs.

1 Launch the command prompt.
2 Stop the iPrint Rendering Service manually using the command iPrntRendCmd -q.
3 Delete the files in the jobs folder located at `C:\NDPS\Renderer\jobs`.
4 Start the iPrint Rendering Service using the command iPrntRendCmd -l.

iPrint Rendering Service Fails to Start If the Windows User Account Password Changes or Expires

The iPrint Rendering Service might not work if the password of the user account associated with the service changes or expires.

To work around this issue, you must update the new password for the iPrint Rendering Service on the Services utility.

1 Click **Start > Run**.
2 Specify `services.msc`, then click **OK**.
3 Right-click **iPrint Rendering Service**, then click **Properties**.
4 Click the **Log On** tab.
5 Under **This account**, update the new password, then click **Apply**.
6 Click **OK**.
7 Right-click **iPrint Rendering Service**, then click **Start** or **Restart** to start the service.

iPrntRendCmd Stops Responding During Configuration or Other Command Line Operations

When configuring or modifying the remote renderer, the `iprntrendcmd` command might stop responding.

To work around this issue, close the command prompt that is currently open, launch a new command prompt window, and then try the `iprntrendcmd` command again.

Upgrade Option Missing for Remote Renderer

The remote renderer on iPrint Appliance does not provide an upgrade option.

This is a known limitation of the remote renderer in the iPrint Appliance 1.1 and earlier versions.

To resolve this issue, follow the steps from "Downloading the Remote Renderer" on page 73 to "Registering the Remote Renderer" on page 74 to download, install, and register the new renderer.

General Issues

Unable to customize iPrint maps

The existing maps cannot be modified on updating the iPrint Appliance server with the latest patches.To resolve this issue, edit the HTML tags in the existing maps and replace with the new tags.

1 Open the iPrint map file in any HTML editor. For example, firstfloor.htm

2 The snippet from the map file that needs modification:

```
<html>
  <head>
    <title>
    </title>
    <meta http-equiv="content-type" content="text/html; charset=UTF-8">
    <style id="iprint_style">
      #ipp_printer { color: windowtext; font-family: sans-serif; font-size:
10pt; font-style: normal; font-weight: normal; }
</style>
  </head>
  <body style="cursor: default;">
```

3 Replace only the above snippet with the new tags, do not modify any other tags in the file.

```
<html>
  <head>
    <meta http-equiv="content-type" content="text/html; charset=UTF-8">
    <style id="iprint_style">
      #ipp_printer { color: windowtext; font-family: sans-serif; font-size:
10pt; font-style: normal; font-weight: normal; }
</style>
    <link href="styles/iprintappliance.css" rel="stylesheet">
    <script src="scripts/iprint.js">
    </script>
    <script src="../ippdocs/nls/en/iprntmsg.js">
    </script>
  </head>
  <body bgcolor="#ffffff" onload="OnLoadPDisplay();">
    <div id="instruction">
      <div id="instructionHeading">
      </div>
      <div id="instructionContent">
      </div>
    </div>
    <div id="BodyMainDiv" style="position: relative;">
    </div>
```

4 Save the file and relaunch the map in the Map tool. You can now successfully modify the map.

Unable to upload Xerox GPD and HP UPD driver from iManager

The drivers cannot be uploaded due to out of memory issue. To resolve this issue, we recommend you to increase the Java heap size to 1GB for iManager.

Perform the following steps:

1 In the `/etc/opt/novell/tomcat6/conf/novell-tomcat6.conf` file append the variable `JAVA_OPTS` with the value `-Xmx1024M`.

```
# Use JAVA_OPTS to set java.library.path for libtcnative.so
#JAVA_OPTS="-Djava.library.path=/usr/lib"
#JAVA_OPTS="-Djava.library.path=/opt/novell/eDirectory/lib64"
#JAVA_OPTS="-Djava.library.path=/opt/novell/eDirectory/lib64:/var/opt/novell/tomcat6/lib"
JAVA_OPTS="-Djava.library.path=/opt/novell/eDirectory/lib64:/var/opt/novell/tomcat6/lib:/usr/lib64 -Xmx1024M"
# What user should run tomcat
TOMCAT_USER="wwwrun"
TOMCAT_GROUP="www"
#TOMCAT_USER="tomcat"
#TOMCAT_GROUP="tomcat"
```

2 Execute the following command to restart tomcat:

`rcnovell-tomcat6 restart`

Fails to Print Jobs With Conversion Failure Error

If the printer drivers are faulty the jobs might fail with a conversion failure error.

To resolve this issue, reinstall the driver for that particular printer.

iPrint Appliance Migration Target Server SSL Authentication Fails

iPrint Appliance Migration target server SSL authentication might periodically fail.

To resolve this issue, close the **miggui** application and launch it again.

RPC Error When Enabling Printers for Mobile Printing

When enabling printers for Mobile printing using the iPrint Appliance Management Console, you might encounter an RPC error.

To resolve this issue, you can log out and log in to the iPrint Appliance Management Console if the browser session is open for a long time, or you can refresh the Printers page. If you are still seeing the RPC error, restart the Print Manager service, and then try to enable the printer for mobile printing.

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click the **iPrint Appliance Configuration** icon.

3 Under **Configuration**, click **Services**.

4 Select **Print Manager**.

 The **Action** and **Options** drop?down menus are activated.

5 Click the **Action** drop-down menu, then click **Restart**.

Email Printing Fails When the Filename Includes Extended Characters Or Double-byte Characters

Printing through email fails, if the name of the file includes either extended characters or double-byte characters.

To resolve this issue, rename the file to include only supported characters.

Unable to Configure Email Printing When SSL Is Enabled for IMAP/POP on a Mail Server

If SSL is enabled for IMAP/ POP on a mail server, you might be unable to configure email printing using the iPrint Appliance Management Console.

To work around this issue, you must manually import the mail server certificate into iPrint Appliance using the Management Console.

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click **Digital Certificates**.

3 In the **Key Store** drop-down menu, select **JVM Certificates**.

4 Go to **File > Import > Trusted Certificate**.

5 Browse and select the mail server certificate, specify an **Alias** name, then click **OK**.

6 Click **Close**.

7 Click **Reboot** to reboot iPrint Appliance.

After iPrint Appliance reboots, configure email printing from the iPrint Appliance Management Console.

DataStore Creation Fails

When trying to create a DataStore, you might see a message: "Failed to parse the XML file: XML document structures must start and end within the same entity."

To work around this issue, run the configuration script located at `/opt/novell/iprintmobile/bin/config.sh`.

If you are still seeing the error, you must reinstall iPrint Appliance.

Garbage Characters Printed When Printing from Gmail on Internet Explorer

If you are using Gmail on Internet Explorer and you try to print an email, you might see garbage characters in place of line breaks. This is caused by a character encoding issue.

To work around this issue, you must change the default text encoding to UTF-8 in your Gmail settings.

1 Launch Internet Explorer, then go to www.gmail.com.
2 Sign in to Gmail with your user name and password.
3 Click the settings icon in the upper-right corner of the screen, then select **Settings**.
4 Under **General** settings, in the **Outgoing message encoding** section, select **Use Unicode (UTF-8) encoding for outgoing messages**.
5 Click **Save Changes**.

"Canceled by Operator" Messages in the Audit Logs

In the audit log files, you might see the following message:

`Canceled by operator`

This issue occurs if the files are not rendering correctly.

To work around this issue, ensure that the rendering service is active, and that the renderer is configured correctly.

Secure Printer Continues Printing after Changing the User Password (Local Appliance eDirectory Users Only)

When users change their passwords, secure printers might continue printing with the old password for up to 10 minutes. This is because of caching inside the iPrint LDAP authentication module, and affects only the users created inside the local eDirectory tree on iPrint Appliance.

To fix this issue, add the parameters `LDAPDNCacheTTL` and `LDAPDNCacheEntries` to the `iprint_g.conf` file, located at `/etc/opt/novell/iprint/httpd/conf/iprint_g.conf` as shown below:

To change the caching time to 30 seconds:

```
<IFModule mod_authnz_ldapdn.c>

    LDAPDNCacheTTL 30

</IfModule>
```

To disable caching:

```
<IFModule mod_authnz_ldapdn.c>

    LDAPDNCacheEntries -1

</IfModule>
```

After updating the `iprint_g.conf` file, launch the terminal window, and then restart the Apache service using the iPrint Appliance Management Console:

1 On a Web browser, use either the host name or the IP address to access the Management Console. For example, https://10.0.0.1:9443 or https://iprint.example.com:9443.

2 Click the **iPrint Appliance Configuration** icon.

3 Under **Configuration**, click **Services**.

4 Select **Apache server for Novell for iPrint**.

The **Action** and **Options** drop?down menus are activated.

5 Click the **Action** drop-down menu, then click **Restart**.

A Advanced Configuration for iPrint Mobile Service (Optional)

In addition to the Management Console, there are a few additional parameters that can be configured to fine-tune the iPrint service, based on your network and printing requirements. The iPrint Appliance Server Configuration file, located at `/etc/opt/novell/iprintmobile/conf/iprintmobile.conf`, allows you to customize the iPrint Mobile service per your requirements.

You must configure the `iprintmobile.conf` file manually. When assigning a value to any parameter, ensure that you uncomment the line, in order for the changes to take effect. After configuring the file, you must restart the iPrint Mobile service through the Management Console.

In iPrint Appliance 1.1 new parameters are added to the `iprintmobile.conf` file. The parameters are: stellent_conversion_thread_count, pdf_conversion_thread_count, convert_stellent_pdf_using_external_renderer, enable_client_login,and driver_update_interval.

NOTE: The newly added parameters in 1.1 might be missing when you upgrade from an earlier version. You can manually update the iprintmobile.conf file with these parameters.

The advanced configuration is optional. For most environments, the configuration does not require modifications.

The iPrint Appliance server configuration file contains the following information:

Table A-1 *iPrint Appliance Server Configuration File Contents*

Parameter	Default Value	Function
home_directory	/var/opt/novell/ iprintmobile	A directory on the file system that is used to store the data. This folder contains the service metadata and temporary job data.
conversion_wait_time	300	Duration of time (in seconds) that the job submission threads wait for the job conversion threads.
db_backup_interval	10000	Duration (in milliseconds) after which the database is backed up on the disk.
is_test_setup	false	Set this flag if the server is being set up for testing and no dedicated email address is available. Print job requests are read-only from the Cabinet folder.
job_submission_thread_timeout	60	Duration (in seconds) for which an excess idle thread waits before terminating.

Parameter	Default Value	Function
delete_completed_job_data	true	Deletes the converted email print job data stored at `/var/opt/novell/iprintmobile/jobs/`. Set the value to *false* to retain the converted job data for email print jobs.
		The /var/opt/novell/iprintmobile/jobs/ folder does not maintain the IPP job data. IPP job data includes job data from the Novell iPrint app and Airprint. The job data for apps and AirPrint are stored in the PA spool directory of the Print Manager.
		WARNING: If you set the value to *false*, you must ensure that you delete the print job data regularly to free up disc space. If the disk space gets full, then email print jobs are not processed.
fallback_to_local_converter	false	If the remote renderer fails, you can run the job through a local converter.
num_email_receiver_threads	0	Configure this parameter to the maximum number of threads to be used for processing multiple mailboxes. By default (when set to 0), the number of threads to email addresses ratio is 1:5 (1 thread per 5 email addresses).
use_global_address_for_notifications	false	By default, notifications are sent from the printer-specific email address. Change the value to 'true' if you want to send notifications to users using the global email address.
renderer_time_out	180000	Duration (in milliseconds) after which a registered renderer times out and moves to an inactive state.
verify_certificates	false	Disable certificate validation.
renderingOnlyServiceEnabled	true	RenderOnly Configuration
backendRenderingPollingInterval	500	Backend Rendering Polling Interval (in milliseconds)
incoming_mail_server_port	-	This configuration overwrites the default port information configured by Appliance for IMAP and POP mail protocols to communicate with the mail servers. For default port information, see "Incoming Mail Server Parameters" on page 213.
outgoing_mail_server_port	-	This configuration overwrites the default port information configured by Appliance for SMTP mail protocol to communicate with the mail servers. For default port information, see "Outgoing Mail Server Parameters" on page 214.
email_polling_interval	30000	Configures the interval (in milliseconds) at which emails are fetched from mail servers.
subject_optional_for_printer_specific_emails	true	Stops printing emails without the correct iPrint email print command. By default this value is 'true.' Emails forwarded to the printer-specific email address, with or without a subject line, are printed.

Parameter	Default Value	Function
email_reconnect_interval	30	If the email server is unavailable, iPrint Appliance tries to reconnect to the email server after the specified duration (in seconds).
stellent_conversion_thread_count	5	Number of threads allocated for job conversion.
pdf_conversion_thread_count	10	Number of threads allocated to PDF job conversion.
convert_stellent_pdf_using_external_renderer	true	If this is set to false the PDF job data is not send to the remote renderer, even if the remote renderer is configured and active.
enable_client_login	false	By default this value is 'false'. Set this value to 'true' if you require user authentication in apps for printer-based license.
driver_update_interval	60	Duration (in minutes) after which driver update is triggered.

B Email Service Parameters

Incoming Mail Server Parameters

iPrint Appliance uses POP3 and IMAP protocols to access email servers to poll for email-based print jobs. The default POP3 and IMAP protocol ports are listed below:

Protocol	Port
IMAP	143
IMAP4 over SSL	993
POP3	110
POP3 (Secure)	995

The information in this table is captured from an email provider support pages. This is not an exhaustive list. Please refer to your email provider for additional information and compatibility.

Mail Server	Protocol	Address	Port	Notes
1&1	POP3	pop.1and1.com	995	
	IMAP4	imap.1and1.com	143	
AT&T	POP3	pop.att.yahoo.com	995	SSL-enabled
AOL Mail	IMAP	imap.aol.com	143	
Comcast	POP3	mail.comcast.net	110	
Google Gmail	POP3	pop.gmail.com	995	SSL-enabled
	IMAP	imap.gmail.com	993	SSL-enabled
Hotmail	POP3	pop3.live.com	995	Secure Password Authentication (SPA)
Mac	POP3	mail.mac.com	143	
	IMAP4	mail.mac.com	143	
Netscape IMS	POP3	pop.3.isp.netscape.com	110	
Verizon	POP3	pop.verizon.net	110	
			995	SSL-enabled
Yahoo!	POP3	pop.mail.yahoo.com	465	SSL-enabled
			995	SSL-enabled

Mail Server	Protocol	Address	Port	Notes
Yahoo! Plus	POP3	plus.pop.mail.yahoo.com	995	SSL-enabled

Outgoing Mail Server Parameters

The iPrint Appliance uses SMTP protocols to send email to users who submit email-based print jobs in order to report their job status. The default SMTP protocol ports are listed below:

Protocol	Port
SMTP	25
SMTP (Secure via SSL)	465
SMTP (Secure via TLS)	587

The information in this table is captured from an email provider support pages. This is not an exhaustive list. Please refer to your email provider for additional information and compatibility.

Mail Server	Protocol	Address	Port	Notes
1&1	SMTP	smtp.1and1.com	587	
AT&T	SMTP	smtp.att.yahoo.com	465	Requires authentication
AOL Mail	SMTP	smtp.aol.com	587	
Comcast	SMTP	smtp.comcast.net	110	
Google Gmail	SMTP	smtp.gmail.com	465	SSL-enabled
			587	TLS-enabled
Hotmail	SMTP	smtp.live.com	587	TLS-enabled
Mac	SMTP	smtp.mac.com		
Netscape IMS	SMTP	smtp.isp.netscape.com	25	SSL-enabled
Verizon	SMTP	smtp.verizon.net	587	SSL-enabled
Yahoo!	SMTP	smtp.mail.yahoo.com	995	SSL-enabled
Yahoo! Plus	SMTP	smtp.mail.yahoo.com	465	SSL-enabled

C iPrint Appliance Support Matrix

This section provides information on the following.

Mobile Server Support

Table C-1 *Moblie Server Support*

Features	Version
Email	- Novell GroupWise 2012 - Microsoft Exchange 2010 - IBM Domino server 9 - Lotus Notes

Mobile Operating System Support

Table C-2 *Mobile Operating System Support for Apps*

Type	Version
iOS	9.*x* 8 7.*x*

Type	Version
Android	◆ Marshmallow (6.0)
	◆ Lollipop (5.*x*)
	◆ KitKat (4.4)
	◆ Jelly Bean (4.1.*x*, 4.2.*x*, 4.3.1)
	◆ Ice Cream Sandwich (4.0.*x*)
Amazon Kindle	Fire Phone OS 4.6.6.1
BlackBerry Phone	OS 10.2.x and later
Windows	Phone 8.1

Directory Services Support

Table C-3 *Directory Services Support*

LDAP Directory Service	Version
eDirectory	◆ 8.8.x or later
Active Directory	◆ Active Directory configured on Windows Server 2012 R2 Standard Edition
	◆ Active Directory configured on Windows Server 2008 R2 Enterprise Edition

Management Console Support

Table C-4 *Management Console Support*

Access	Version
Browser	◆ Internet Explorer 10 or later
	◆ Firefox 30 or later
	◆ Chrome 35 or later
	◆ Safari 7 or later
	◆ iOS with default browsers
	◆ Android with default browsers

MobileIron Support

Table C-5 *MobileIron Support*

MobileIron Core Version	iPrint Mobile App Version
8.5	2.0 or later mobile app for iOS and Android

MobileIron Core Version	iPrint Mobile App Version
7.5	1.1 or later mobile app for iOS and Android
6.0.x	1.1 or later mobile app for iOS and Android

Remote Renderer

Table C-6   *Operating Systems Support*

Support	Version
Operating System	◆ Windows 8.1 64-bit
	◆ Window 8 64-bit
	◆ Windows 7 SP2 64-bit
	◆ Windows 2012 R2 64-bit
	◆ Windows 2010 (32-bit and 64-bit) Standard
	◆ Windows 2008 R2 Enterprise 64-bit
	◆ Windows Vista (32-bit and 64-bit)

Table C-7   *Software Support*

Support	Version
Microsoft Office	Ms Office 2013 (32-bit and 64-bit) Standard
Adobe Acrobat	Adobe Acrobat XI Professional

Supported Document Formats By the Local Renderer and Remote Renderer

Table C-8   *Local Renderer Supported Document Formats*

Software	File Formats
OpenDocument	ODT, ODP, ODG, ODS
Graphics	JPG, BMP, TIF, GIF, PNG
Others	TXT
	HTML (Static)
	Static HTML content refers to the HTML content that does not change or have dependencies on external files such as MySQL database and JavaScript.

Table C-9   *Remote Renderer Supported Document Formats*

Software	File Formats
Microsoft Word	DOC, DOCX, DOCM, DOTM, RTF
Microsoft Excel	XLS, XLSX, XLSM, XLSB
Microsoft PowerPoint	PPT, PPTX, PPTM, PPTX
Others	PDF

iPrint Appliance Server and Client Support

Table C-10   *iPrint Appliance Server and Client Support*

Support	Version
Hypervisor	◆ Xen on SLES 11 SP4 and SLES 12 ◆ Citrix XenServer 6.x ◆ Hyper-V: Windows Server 2012 Hyper-V and Windows Server 2008 Hyper-V ◆ VMware ESX 4.x, ESXi 4.x, ESXi 5.x or higher ◆ VMware Workstation on Windows 7 or later ◆ VMware Workstation on SLES
Desktop iPrint Client	◆ Windows 10 ◆ Windows 8.1 ◆ Windows 8.1 Surface Pro tablet ◆ Windows 8 ◆ Windows 7 ◆ Windows Server 2008 R2 ◆ Windows Server 2012 R2 ◆ Mac 10.7 or later
Appliance Installer (virtual m/c format)	◆ OVF ◆ VHD ◆ XEN

Windows: iPrint Client Support

Table C-11   *Windows iPrint Client Support Matrix*

Client Version	Windows Vista	Windows 7	Windows 8	Windows 8.1	Windows 10
6.06	Yes	Yes	Yes	Yes	Yes
6.03	Yes	Yes	Yes	Yes	Yes

NOTE: Support for driver package on Mac is available from Windows iPrint client 6.06 and later.

Macintosh: iPrint Client Support

Table C-12   Macintosh iPrint Client Support Matrix

Client Version	10.6 or earlier	10.7	10.8 or later
6.04	No	No	Yes
6.02	No	No	Yes

NOTE: Support for driver package on Mac is available from Windows iPrint client 6.04 and later.

OES Source Platform Support for Migration

Table C-13   Source Platform Support for OES iPrint Service

Services	NW 6.5 SP8	OES 2 SP3	OES 11	OES 11 SP1	OES 11 SP2	OES 2015	OES 2015 SP1
iPrint	✓	✓	✓	✓	✓	✓	✓

If the source platforms are NW 5.1, NW 6.0 SP5, OES 1 SP2, OES 2 SP1 or OES 2 SP2, you must upgrade to the latest supported source platform as listed in the above table.

Clients for Email Printing

- Novell GroupWise 2012 and Novell GroupWise 2014
- Microsoft Outlook 2010
- IBM Lotus Notes 9
- iOS 5, 6. *x*, 7.*x* default mail client
- Mail clients on Android 4.x or later
- Windows Mobile 8
- Blackberry Phone OS 10.2.x and later
- Windows 8 Pro default mail client on tablet
- Gmail

Supported Browsers for iPrint

The section provides information on which Web browsers are supported for different iPrint tasks and operations.

iPrint Client Supported Browsers

The following table indicates which browsers are supported with the various iPrint Client platforms:

iPrint Client Platform	Supported Browsers
Macintosh	- Safari 8.6 or later - Mozilla Firefox 38.1 or later - Google Chrome 43 or later
Windows 7	- Internet Explorer 10 or later - Mozilla Firefox 3.0.*x* or later - Google Chrome
Windows 8/ Windows 8.1/ Windows 10	- Internet Explorer 10 or later - Mozilla Firefox 3.0.*x* or later - Google Chrome

Supported Browsers for iManager

The iPrint plug-in with iManager supports the following browsers:

- Internet Explorer 10 or later
- Mozilla Firefox 2.x.x or later

When you upload printer drivers and PPD files, you should use the following browsers for the operations indicated:

Uploading PPD Files Using iManager

iPrint Client Platform	Supported Browser	Upload PPD file to Driver Store on Linux
Windows	Internet Explorer 10 or later	Supported using the **Add from File** button.

NOTE: On Mac operating systems, PPD upload is not supported. PPD files for Mac can be uploaded using Internet Explorer on Windows. Alternatively, you can also upload the PPD files for Mac using the `iprntcmd` command from a terminal session. For uploading the PPD files for Mac, refer .

Uploading Windows Printer Drivers Using iManager

Client	Supported Browser	Upload Windows Printer Driver to Driver Store on Linux
Windows	Internet Explorer 10 or later	Supported

Supported Browsers for the iPrint Map Designer

The iPrint Map Designer works only with Microsoft Internet Explorer 10 or later.

D iPrint Commands and Utilities

This section contains information about iPrint commands and utilities.

-

iprntcmd(1)

Name

`iprntcmd` - iprint administrative utility.

SYNTAX

`iprntcmd` *<options> <parameter>*

DESCRIPTION

iprntcmd provides command-line functionality for iPrint administrative tasks on a workstation.

OPTION SUMMARY

You must use quotes around parameters that contain spaces.

Most of the commands listed below are common for Windows and Mac operating system. If a command is valid for only Windows or Mac, we mentioned the specific operating system in that command.

OPTIONS

Option type

-a | --addprinter *<printer-uri>*

> Installs the specified printer.

-c | --clearallpasswords

> Clears all saved passwords.

-T | --tray-icon

> Displays an iPrint icon to the notification area and launches the `iprint-listener-gui` process, if it is not running.

-r | --run-listener

> Launches the `iprint-listener` process if it is not already running.

-d | --delprinter *<printer-uri>*

> Removes the specified printer.

-d | --delprinter all

> Remove all the printers. This option requires your confirmation before removing all the printers.

-d | --delprinter all --force

> Remove all the printers. This option removes all the printers forcibly without any user intervention.

-g | --getdefault

> Displays the default printer installed on the workstation.

-h | --help

Displays help for the command.

-j | --listjobs *<printer-uri>*

Lists the print jobs for the specified printer that are on the server in a pending or printing state.

-l | --listprinters

Lists printers installed on the workstation.

-L | -listprintersonserver *<psm-hostname or psm-address>*

Lists iPrint printers on the specified Print Manager, where *psm-hostname* or *psm-address* can be a host name or IP address.

-p | --printfile *<printer-uri> <file path>*

Sends a printer-ready file to the specified iPrint printer.

-P | --ppdlist

Lists the PPDs installed on this workstation.

-s | --setdefault *<printer-uri>*

Sets the specified printer as the default.

-t | --testpage *<printer-uri>*

Prints a test page to the specified printer.

-u | --uploadids *<ids-uri> <ppd path with/without wildcards>*

(Mac workstation) Uploads the specified PPD files to the indicated driver store, where ids_uri is the IP address or host name for the driver store, and ppd is the directory path and filename to the PPD files. You can use a wildcard in the PPD filename.

-U | --uploadbroker *<rms-uri> <rms-name> <ppd path with/without wildcards>*

Uploads the specified PPD files to the indicated Broker, where rms_uri is the IP address or host name for the Broker's associated Print Manager, rms_name is the username with rights to add drivers to the broker, and ppd is the directory path and filename to the PPD files. You can use a wildcard in the PPD filename.

-U | --uploaddriver [osx] <ids_uri> <username> <password> [INF-Filepath <model-name>] | [driver-Filepath]

Windows workstation: Windows Driver Upload

```
-U <ids_uri> <username> <password> INF-Filepath <model-name>
```

Uploads the Windows driver to the indicated Driver Store where *ids_uri* is the IP address or host name of the Driver Store, and *INF-Filepath* is the file path of the Windows driver.

Windows workstation: Mac Driver Upload

```
-U [osx] <ids_uri> <username> <password> driver-Filepath
```

Uploads the specified Mac Driver package (Mac PPD or PDE driver package) files to the indicated Driver Store where *ids_uri* is the IP address or host name of the Driver Store, and *driver-Filepath* is the path of the Mac driver file (PPD or PDE).

-v | --version *<psm-hostname or psm-address>*

Displays the server platform and version information, where *server_uri* is the URI for the server.

-i | --info *<printer-uri>*

Displays the printer information.

-S | --setprimarypsm <IP/DNS>

Sets the PSM address for iCM configuration.

-f | --fetchdriverlocal <printer-uri>

Fetches the printer driver on local machine.

EXAMPLES

Syntax

```
iprntcmd --<option> ipp://<host_address>/ipp/<printer_name>
```

Example to add a printer

```
iprntcmd --addprinter ipp://printing.MyCompany.com/ipp/Printer1
```

Example to delete a printer

```
iprntcmd --delprinter ipp://printing.MyCompany.com/ipp/Printer1
```

Example to get a default printer

```
iprntcmd --getdefault
```

Example to list the print jobs

```
iprntcmd --listjobs ipp://printing.MyCompany.com/ipp/Printer1
```

Example to get the list of installed printers

```
iprntcmd --listprinters
```

Example to get the list of printers on a server

```
iprntcmd --listprintersonserver printing.MyCompany.com
```

Example to print a file

```
iprntcmd --printfile ipp://printing.MyCompany.com/ipp/Printer1 /home/user1/
temp.txt
```

Example to get a list of local ppd files

```
iprntcmd --ppdlist
```

Example to set a default printer

```
iprntcmd --setdefault ipp://printing.MyCompany.com/ipp/Printer1
```

Example to test a print page

```
iprntcmd --testpage ipp://printing.MyCompany.com/ipp/Printer1
```

Example to upload driver <without using a wildcard> to ids

```
iprntcmd --uploadids printing.MyCompany.com /usr/share/cups/model/HP/
LaserJet_4V_4LJ_Pro-lj4dithp.ppd.gz
```

or

iprntcmd --uploadids 192.168.3.4 /usr/share/cups/model/HP/LaserJet_4V_4LJ_Pro-
lj4dithp.ppd.gz

Example to upload driver <using a wildcard> to ids

iprntcmd --uploadids printing.MyCompany.com /usr/share/cups/model/HP/LaserJet_4*

or

```
iprntcmd --uploadids 192.168.3.4 /usr/share/cups/model/HP/LaserJet_4*
```

Example to upload drivers (without using a wildcard) to rms

```
iprntcmd --uploadbroker printing.MyCompany.com rms_name /usr/share/cups/model/
HP/LaserJet_4V_4LJ_Pro-lj4dithp.ppd.gz
```

or

```
iprntcmd --uploadbroker 192.168.3.4 rms_name /usr/share/cups/model/HP/
LaserJet_4V_4LJ_Pro-lj4dithp.ppd.gz
```

Example to upload drivers (using a wildcard) to rms

```
iprntcmd --uploadbroker printing.MyCompany.com rms_name /usr/share/cups/model/
HP/LaserJet_4*
```

or

```
iprntcmd --uploadbroker 1.2.3.4 rms_name /usr/share/cups/model/HP/LaserJet_4*
```

Example to get iprint server version

```
iprntcmd --version printing.MyCompany.com
```

or

```
iprntcmd --version 192.168.3.4
```

Example to get information of a printer

```
iprntcmd --info ipp://printing.MyCompany.com/ipp/Printer1
```

E TIDs for iPrint

This section contains the list of TIDs that are available for iPrint Appliance. These TIDs are located on the Novell Technical Support website and are listed in this document to provide easy access for the users.

TID No	Description
7016720	How to renew server certificates with iPrint Appliance
7013074	Local rendered jobs are cancelled or improperly rendered
7015506	Unable to contact the remote renderer
7015857	Renderer is not using the modified printer driver
7013428	Unable to resolve domain <iPrintApplianceDomain> when printing from a mobile device
7013185	Error "Check the printer for errors" is displayed when printing from a mobile device
7015684	Copy printer driver profiles from one iPrint Appliance to another
7015896	How to install VMware Tools on the iPrint Appliance
7015913	How to install iPrint printers using AD tools