



Print-Limit Implementation Guide

A Project Planning Guide for Network
Administrators and IT Managers



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Table of Contents

TASK 1: UNDERSTAND PRINT-LIMIT & DETERMINE PROJECT SCOPE	1
TASK 2: SELECT A CONTROL MODE	1
TASK 3: PREPARE FOR INSTALLATION	3
TASK 4: INSTALL PRINT-LIMIT IN TEST MODE	4
TASK 5: INSTALL PRINT-LIMIT WEB TOOLS	5
TASK 6: TEST PRINT-LIMIT	5
TASK 7: RESOLVE ANY REMAINING ISSUES	8
TASK 8: PREPARE FOR ROLLOUT	8
TASK 9: DEPLOY THE USER INQUIRY TOOL & PRINT-LIMIT WEB TOOLS	10
TASK 10: GO-LIVE	11
TASK 11: MONITOR PRINT-LIMIT	12

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A Guide for Network Administrators and IT Managers

Print-Limit is a server-side application that works as an integral part of your IT infrastructure. When you implement Print-Limit, it will impact many areas of IT management in addition to the typical technical realm. Of equal importance are the non-technical areas including usage policies and end-user relations. You should plan the deployment to ensure a smooth rollout and to minimize the impact on network users.

This document serves as a starting point for your to create an implementation plan. It is designed to assist network administrators and IT managers with the rollout process. In an effort to minimize disruptions and ensure a smooth transition, this guide addresses both the associated technical and administration tasks and outlines a series of tasks associated with a typical Print-Limit rollout.

TASK 1: Understand Print-Limit & Determine Project Scope

Before you install Print-Limit, consider the following questions:

- What are the reasons for implementing Print-Limit?
- How will we use Print-Limit to achieve these objectives?
- What affect will Print-Limit have on users and any existing IT usage policy?
- Who else should be involved in these considerations and the implementation process?

Print-Limit can be implemented in a number of different control modes that range from the minimalistic silent logging to a full user-pays environment. The choice of control mode influences internal policy and procedures and this should be considered prior to deployment. It may only take a few mouse clicks to install Print-Limit and use it at the technical level; however, policy changes at the management level may take longer to implement. Discuss this early on with the key stakeholders in your organization. It is important that everyone concerned understands the goals and outcomes of using Print-Limit prior to deployment. This ensures a successful project.

The *Print-Limit User Guide* outlines the installation procedures and day-to-day operation. Interested staff should read this document. All documentation is available at www.genevalogic.com.

TASK 2: Select a Control Mode

The control mode defines how Print-Limit interacts with the end-users and controls their printing. The control modes available listed in order of impact to users are:

- Silent monitoring
- Simple quota system (users are assigned a number of pages that they can print)
- Quota system with additional credit available for purchase
- Direct or up-front payment

Silent Monitoring

In the silent monitoring model all users have unrestricted printing privileges. Printer access is never denied. In the background, however, Print-Limit collects statistics on activity and its associated cost. All data is reportable and available via Print-Limit Web tools. Silent monitoring mode is popular in an environment where management needs information on user activity.

The Quota System

Under this model users are allocated a print budget on either a daily, weekly, or monthly basis. The users manage their accounts and allocated allowance. When a user exceeds his or her allowance, access to printing is denied. Some organizations allow users to request additional credit, which is given with management approval. Or, in an education environment, it is common to sell users additional credit in the form of PrintCards.

Example

Smithtown High School provides students with \$5.00 a week to cover printer use. If users need additional credit, they can purchase a PrintCard from the school cafeteria or library.

The Up-Front Payment Model

Full up-front or direct payment environments (user-pays) are used in some schools and universities. Users start with a balance of zero and must add credit to their accounts before they are allowed to print. Often PrintCards are used as a convenient way to manage the payment process.

The control model you choose is likely to impact your IT usage policies. You can change a control at any time. Changing from one control mode to another is an easy process and simply involves changing the way Print-Limit is configured. Print-Limit does not impose any restrictions on this policy decision; however, change of control policy may impact your organization. For example, if you move from a previously free service to a full user-pays model. A common compromise is to phase in the change. First, move to a quota system with a free quota allocation. Then move to a full user-pays model at a later date. Take the time now to consider the policy and political reproductions of the move.

TASK 3: Prepare for Installation

Print-Limit requires a correctly configured network environment. Most organizations with a Windows Domain network setup should be able to install and use Print-Limit without any network reconfiguration. Smaller organizations running simple peer-to-peer networks may need to plan some changes.

Checklist:

Users have logon accounts and passwords

Print-Limit does not maintain its own users and passwords. Instead it tracks users by their Windows logon names. It is important that each user has his or her account and password and is aware that passwords should never be shared with anyone.

Additionally, system administrators must manage logon accounts and passwords for all services including file permissions, security, Print-Limit, and general network and computer access.

Printers are hosted on a server

In order to track printing, Print-Limit intercepts print jobs that pass through a Windows print queue. Typically the hosting of a print queue is called acting as a print server. The print server model provides a single point of control for printer permissions and queue management. In a typical network environment all printers are captured on a server and then shared to users as network resources. The print server can be an existing file server or a server running other software; however, in a large network a dedicated print server is usually required.

Although Print-Limit can centrally track print queues hosted on multiple computers, it is best practice to centralize printers onto the minimum number of systems or servers.

Typically this involves:

- Ensuring network printers (printers with a network interface) are centrally captured on the servers and shared using standard Windows printer sharing.
- Mapping network clients (workstations) to the shared printers on the network.
- Consider networking existing Parallel Port/USB printers by using hardware print server hub devices.

Additional information on the required setup is covered in the *Print-Limit User Guide*.

Printers use supported drivers

Print-Limit works with the majority of printer hardware without any additional configuration. Most printers use Postscript or PCL drivers (Postscript and PCL refer to the printer language used by the driver). Many high-end printers support multiple

languages, some of which may be proprietary languages that are not supported by Print-Limit. Technical staff should check which drivers are available. If a selection of drivers is available, select according to this order of preference:

1. Postscript (any level)
2. PCLXL or PCL6
3. PCL 5 or other

Schedule downtime and ensure required information is at hand

On fully patched servers, you should not be required to restart the server during installation. It is recommended that you schedule a 30-minute block of downtime in the event that you are required to restart the server. This downtime ensures that users are aware of the potential disruption of services.

Technical staff should also ensure they have technical information at hand including:

- Name of the domain server or an Active Directory node
- User name and passwords for both a network and local administrator account
- Access to the Windows installation CD in case an additional component is required (for example, Internet Information Server)

TASK 4: Install Print-Limit in Test Mode

It is recommended practice to first implement Print-Limit in silent monitoring mode, even if your immediate goal is to use Print-Limit to implement quotas or charging. Silent monitoring mode allows you to test and verify the setup without the potential risk of accidentally denying printer access to users.

How to set up silent monitoring mode

Silent monitoring mode assigns all users unrestricted privileges. In the event that an account drops to zero, that user is not denied printer access. We recommend the following installation procedure:

1. Install Print-Limit on your print servers.
2. Run Print-Limit for the first time to start the setup wizard.
3. Follow the directions to complete the setup wizard. Select your domain server and other settings.
4. After the wizard finishes and the **Print-Limit Administration Console** opens, set all users to unrestricted:

- a. Click the first user in the list, press and hold down SHIFT, and then click the last user in the list.
 - b. Select the **Unrestricted** checkbox. An open padlock appears next to each user to signify that the use is not restricted.
5. Add printers and define costs for services.

TASK 5: Install Print-Limit Web Tools

The Print-Limit setup wizard does not configure Print-Limit Web tools. Print-Limit Web tools require a configured Web server, such as Microsoft Internet Information Server (IIS) and must be set up manually. Print-Limit Web tools offer important management features such as:

- A Web-based interface for user account management.
- A Web page for users to check their account status.
- Tools that allow users to redeem PrintCards and transfer funds.
- Comprehensive reports on printer use.

For more information on how to set up Print-Limit Web tools, refer to the *Print-Limit User Guide*.

TASK 6: Test Print-Limit

Testing is an important step with any software deployment project. Use the following test plan to verify the setup, and confirm that the charging rules work as expected.

Printer-Related Tests

AIM: To verify that printers are correctly configured and supported by Print-Limit and that charging works as expected.

METHOD: Log on to a network workstation under a standard user account and print test documents for each test case. Repeat the test cycle for all printers.

Test	Test Criteria	Passed
Print a single page document.	Verify that the Print Job Log lists the job as a single page and the calculated cost is correct. Ensure no error messages are listed in the Print-Limit Application Event Log.	

<p>Print a multi-page document.</p>	<p>Verify that the Print Job Log lists the job with the correct page count and the calculated cost is correct.</p> <p>Ensure no error messages are listed in the Print-Limit Application Event Log.</p>	
<p>Print a color document with images.</p>	<p>Verify that the Print Job Log lists the job with the correct page count and the calculated cost is correct.</p> <p>Ensure no error messages are listed in the Print-Limit Application Event Log.</p>	
<p>If you are using advanced charging options, such as applying discounts to grayscale or duplex (double-sided) print jobs, print pages that test those attributes.</p>	<p>Verify that the Print Job Log lists the job and the calculated cost is correct.</p> <p>Ensure no error messages are listed in the Print-Limit Application Event Log.</p>	
<p>User Accounting</p>	<p>Verify that all printed test documents are listed under the correct user account and that the page count and account balance associated with the user account have changed accordingly.</p>	
<p>Printer Accounting</p>	<p>Verify that all printed test documents have increased the printer's page counter.</p>	

Operational Tests

AIM: To verify that user management and related tasks work as expected.

METHOD: Perform common user management tasks and verify that the operations work and are logged as expected. Perform each of the following tests in the **Print-Limit Administration Console**, and then repeat the relevant tests using Print-Limit Web tools.

Test	Test Criteria	Passed
Assign user credit.	Select a test user in the Print-Limit Administration Console and add a non-zero amount to the account. Verify that the amount is applied and a transaction is recorded against the account. To do this, right-click on the user and select Transactions .	
Change a user restriction.	Select a test user, set the account credit to zero. Next change the user status from Unrestricted to Restricted. Verify that when this user tries to print, a WinPopup message appears and states the user has inadequate funds and the print job is denied.	
Create an automatic schedule.	Set up rules under the Groups section to allocate credit on a daily basis. For example, place a \$1.00 daily allocation on the Default Group. Check in 24 hours later and verify the credit was allocated to users and the event was recorded in the Transaction and Application Event logs.	
User Creation	Create initial credit rules under the Groups section that define how new users accounts are created. Add a test user to the domain. Print a document from the test user account. Verify that the account was created as per the defined rules. Delete the test account.	
Web Tools	Repeat the first two tests in the Print-Limit Web Tools interface. Test other user management operations in Print-Limit's Web tools. In addition test the Other Charges feature and the Web reports.	

Test	Test Criteria	Passed
User Transfer	Perform this test if your organization plans on allowing end-users to transfer funds to other users. Log on as a test user and open the Web tools. Click Transfer Funds and move credit from one account to another. Verify the transfer appears in the Transaction log.	
PrintCards	Perform this test if your organization plans on using PrintCards. Follow the instructions in the <i>Print-Limit User Guide</i> to create a test batch of 10 PrintCards. Import the PrintCard numbers (the *.tnd file) into the Print-Limit Administration Console . Log on as a test user, enter the card number, and verify that the correct monies are applied.	

Other Testing

We recommend that you test Print-Limit in silent mode for a period of one week. Regularly inspect the Print-Limit Application Event Log for error messages or reported problems. You can perform testing while technical staff trains to use the program.

TASK 7: Resolve Any Remaining Issues

If you experience any problems, need advice with setup or configuration, or have any general questions, contact the GenevaLogic technical support.

In North America

866-725-7803 (toll free)

Our hours are 7:30 AM–4:30 PM Pacific Time.

All Other Locations

Outside of North America, the technical support of our products is provided through our international network of distributors and resellers. Please contact the local GenevaLogic distributor in your area. For a list of distributors, visit our international support page at www.genevalogic.com.

TASK 8: Prepare for Rollout

After you install and test Print-Limit, address any policy related changes, user training, or other issues in your organization that should be resolved before you roll out Print-Limit.

Policy Change

Most organizations have a formal Acceptable Use policy or a general technology usage policy that covers the use of IT equipment. Smaller organization may have a usage policy that is informally conveyed by management. Print-Limit affects users and their use of the IT equipment. In a quota environment, it is important to formalize the policy of when the quota is allocated and how users are expected to use it. Consider modifying your existing policies or documentation.

Staff Training

Most organizations delegate the day-to-day user management tasks to selected staff. Day-to-day user management includes:

- Monitoring printer use and activity.
- Tendering money and adding credit to user accounts.
- Handling refunds or requests for additional credit.

Print-Limit provides a special Web browser-based management interface designed for non-technical users. Train your staff how to use these tools and explain how the tools relate to your departmental operations.

After you train a staff member, grant that person access to Print-Limit Web tools. This step requires modifying access permissions on selected administration pages. The process is covered in detail in the *Print-Limit User Guide*.

End-User Training

End-user training revolves more around explaining policy changes and general awareness of the system. From an operations perspective Print-Limit has a minimal impact on end-users. In most cases users will continue to use the network as they always have. Consider the following briefing points when addressing end-user training.

For Silent Monitoring:

- Consider informing users that monitoring is taking place. Typically organizations that announce such a policy change see a 10% to 20% reduction in printing use as users become aware that their printing use is monitored.
- Modify your IT use policy to ensure users are aware that all activity is monitored.

For a Quota System:

- Explain why you are implementing the quota system.
- Detail when the system will be made available to users.
- List how much credit will be provided to users.
- Explain what the allowance covers and how they can use it.

- Provide instructions on what happens when users run out of credit. For example, how to purchase a PrintCard.
- Instruct users how to monitor their accounts and printer use with Print-Limit Web tools.
- Provide a general explanation of any changes to the IT usage policy.

For Direct Payment Systems

- Explain why you are implementing charging.
- Detail when the system will be made available to users.
- Instruct users how to add credit to an account.
- Instruct users how to monitor their accounts and printer use with Print-Limit Web tools.
- Provide a general explanation of any changes to the IT usage policy.

In small organizations it may be possible to convey this information in a single day. With larger organizations, or organizations where the policy change is perceived as substantial, consider giving users plenty of time prior to implementation.

Web Tools Configuration

You can tailor Print-Limit Web tools to fit local requirements. The main Web tools configuration file provides a convenient way to show or hide selected features. Take the time now to show features applicable to your situation or requirements. For example, if your organization does not intend to use PrintCards, the PrintCard link can be removed from the Web tools by modifying the option in the configuration file (config.inc). Additional details, including an explanation of options, are available in the *Print-Limit User Guide*.

Technical staff with HTML experience may also choose to tailor the appearance of the Web tools. Ideas include:

- A page design that adheres to the look of an existing Web site.
- Text on key pages to explain the organization's IT policies and procedures.
- Additional instruction text to assist users to manage their account.

TASK 9: Deploy the User Inquiry Tool & Print-Limit Web Tools

This task is undertaken by technical network staff and is usually run in parallel with testing and training. The User Inquiry Tool (UIT) is small application that displays the user account status at logon. It is useful in a quota or charging environment to inform users of their account status each time they log on to the network. There are three ways you can deploy UIT:

- **Manual Install:** Run the Print-Limit setup program (PrintLimit-Setup.exe) from each workstation.

- **Installation Scripts:** Run an installation script to install UIT to your workstations.
- **Imaging Software:** Using a program such as Norton Ghost, create an image you can use to set up Print-Limit on each workstation.

Additional information on deploying the UIT, including automated deployment methods, is detailed in the *Print-Limit User Guide*.

In addition to the UIT, all users should have convenient access to Print-Limit Web tools. Consider either placing a link to the tools on your Web site or adding a bookmark to user Web browsers.

We recommend that you install the UIT on permanent network computers only. From laptops or casually connected systems, users can access their accounts using Web tools.

TASK 10: Go-Live

Installation and testing is complete. Administration staff is trained in user account management, and all users have been informed of the policy changes. You are now ready to go live! In a charging or quota environment this simply involves changing the users (or the selected sub-set of users) to restricted mode and applying their initial starting credit.

To change the users' operating mode, consider assigning credit and privilege settings on an NT group level basis. Open the **Print-Limit Administration Console** and click the **Groups** icon. Under **Group Level Functions** click the **Allocate Funds** button. This provides a simple way to set the users' credit and privilege mode at the domain group level in one simple step.

Example:

Smithtown High School has completed testing, staff training, and all students are aware of the policy change. On the first day of this month the quota system will be turned on. Sally, the network administrator, will use the Group Level Functions to apply the following policy:

Junior Students:

- \$10.00 starting amount
- Restricted privilege
- Group rules allocate an additional \$10.00 per month

Senior Students:

- \$15.00 starting amount
- Restricted privilege
- Group rules allocate an additional \$15.00 per month

Teaching Staff:

- \$0.00 start amount
- Unrestricted privileges

- Amounts are tracked and later billed to faculty budgets in agreed proportions at the end of every semester.

TASK 11: Monitor Print-Limit

Print-Limit now controls and monitors your printers. As you monitor other important programs and network infrastructure, you should allocate time to check system health, perform maintenance, and create regular backups. Print-Limit is designed as a self managing system, however we recommend that you inspect and back up your files regularly.

Suggested Daily Tasks:

Using automated backup software, create a full backup of all files located under:

`C:\Program Files\GenevaLogic\PrintLimit\Backups`

This ensures all Print-Limit data files can be restored in the event of system failure or other unforeseen problems.

Suggested Weekly Tasks

- Inspect the Print-Limit Application Event Log for any important messages or error events.
- Inspect activity logs to ensure Print-Limit continues to record all activity.

Suggested Monthly Tasks

- Visit www.genevalogic.com for updates.
- Review resource costs against any changes in toner costs, and paper. Inform users of price changes.