

Pcounter for Windows

Printer Accounting for Windows

Version 2.61

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Introduction

Welcome to Pcounter for Windows

Pcounter is software that tracks usage of printers hosted on Windows computers. Features include:

- Counts pages on PostScript, PCL, Ricoh RPCS, Canon Bubblejets, Epson ESC/P, ESC/P2 (inkjet), and ESC/PAGE (laser) printers, including support for TIFF file printing.
- Tracks plot size on PostScript and HPGL/2 plotters.
- Separate pricing for color and monochrome/grayscale print jobs.
- Keeps a log file of all print jobs, from print queues located on any Windows computer, allowing the integration of print activity from all servers on the network.
- Maintains user account balances using database files, enabling a single location to be kept for users in each domain.
- Works with multiple/trusted domains.
- Configurable popup windows which appear after print jobs at workstations, allowing users to enter client codes and job numbers, usernames and passwords for shared logon printer accounting, network passwords for printing security, or network group names.
- Generate statistical reports on printing activity - by user, group, printer, or client code.
- Rules based printing for special job processing, based on maximum and minimum byte sizes and/or page counts – for example, jobs can be deleted, moved to the end of the queue, or moved to another print queue.
- Individual prices can be set for different paper sizes on the same printer, and print jobs can be discarded which use an invalid paper size.
- Banner (Separator) pages containing all information about the print job, including the page count and account balance. Banner/separator pages can be custom designed.
- Automatically pause all jobs if desired.
- Reject incorrect print job types such as Postscript on PCL printers.

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Pcounter program components and utilities

Pcounter Printer Control Service

A service running on the Windows print server, which monitors print jobs.

Pcounter Port Monitors

DLLs which work with the Windows spooler and Pcounter Printer Control Service to keep track of printing.

Pcounter Data Server Service

This Windows service can run on any machine - it manages all of the database and log file data collected from Pcounter-controlled printers.

PCONTROL.EXE

Printer/queue management and Pcounter configuration utility.

Pcounter Administrator: PADMIN.EXE

A management utility for user account balances, client code lists, shared logon accounts, user print histories, and a statistical printing report generator.

ACCOUNT.EXE

A command-line account balance management utility, which can also be used as a web CGI account balance manager.

WBALANCE.EXE

Utilities for users to check their own account balances.

BALANCE.EXE

A web CGI utility for users to check their own account balances.

PPopup.exe, PcounterClient.exe, PcounterClient.dmg (OS X)

Utilities that pop up a window after each print job, allowing users to enter additional information for the logging of the job, such as client matter numbers, job codes, or shared logon accounting.

PLOTMGR.EXE

Plot manager for batch processing of plot files, includes support for client codes and job scheduling.

WSManager.EXE

Administrative utility for managing/tracking local printers on workstations.

Requirements for running Pcounter services and port monitors

Windows 2000 Professional or Server through Windows 2008 R2 are all supported.
32 bit and 64 bit OS versions are all supported.

Any computer that can print to a Windows machine via LPR or Windows SMB printing is supported as a client.

Installation file locations

If Pcounter is being used for both NetWare and Windows, both versions can be installed into the same directory. PCONTROL.EXE is common for both versions and Setup will separate the platform versions properly so that a single administration point can be used for all NetWare and Windows printers.

File locations: (where `d:\Pcounter` represents the Pcounter installation directory)

`d:\Pcounter`

`PCONTROL.EXE, PCTRL-*.DLL, PCONTROL.HLP`

Pcontrol files, shared by Pcounter NetWare and Windows versions.

`d:\Pcounter\NT`

`PADMIN.EXE, PCOUNTER.HLP, ACCOUNT.EXE, PLOTMGR.EXE, WEBCLIENT.EXE, BALANCE.EXE`

Pcounter for Windows accounting management tools.

`d:\Pcounter\NT\Client`

`PPopup.exe, PcounterClient.exe, PcounterClient.dmg, WBALANCE.EXE`

Pcounter for Windows client tools.

`d:\Pcounter\NT\Server`

`*.EXE, *.DLL`

Services and Port Monitors.

Use Pcontrol for configuration

Pcounter is designed so that all of its printing parameters can be configured from any Windows computer on the network. Use Pcontrol to set Pcounter configurations on printers and print servers, in addition to managing print jobs.

60 day trial period

Pcounter comes with an amazing 60 day trial period. All features are enabled during the trial period; however, Pcounter will stop working entirely if the trial period has expired. The trial period is activated when one of the services is started. The trial period status can be viewed in Pcontrol by selecting a server and choosing **Pcounter configuration, Global Settings, Registration and trial period.**

Important Concepts

Windows 2000/2003/2008 and Active Directory

- Pcounter works on Windows 2000/2003/2008/R2 and Active Directory networks, in both native and mixed modes.
- Internally, Pcounter records user names using NT4 syntax, as DOMAIN/Username. However, Pcounter Administrator is able to navigate Active Directory trees and view users in organizational units, in addition to viewing NT4-compatible domains.

Pcounter and Windows 2003 or later

It is necessary to make a registry change and restart the Spooler service in order for Pcounter to work properly on Windows Server 2003/2008/R2. The same is true for Vista/7 if used as a print server (not as a client).

Key: HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Print
New DWORD value: DisableServerFilePooling (Should be set to 1)

Pcontrol will automatically offer to set this value and restart the spooler.

For more information please see Microsoft Knowledge Base Article 815913.
<http://support.microsoft.com/?kbid=815913>

How to determine whether file pooling is on:

Find the spool folder. Open the Printers folder, choose File, Server Properties, Advanced tab.
Look at the .SPL files in the spool directory.
If they are called FPxxxx.SPL then file pooling is on.
If they are called xxxxx.SPL (x=digits) then file pooling is off.

Windows XP as a Pcounter print server

It is necessary to make a registry change for each Pcounter printer (ie. printers which are using the Pcounter Port) and restart the Spooler service in order for Pcounter to work properly on Windows XP. This is not necessary for Windows XP clients which are printing to shares on other computers.

Key: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion
 \Print\Printers\<printername>

Modify string value: SpoolDirectory

Pcontrol will automatically offer to set these values to the default spool directory and restart the spooler. This method can also be used on Windows Server 2003 on a per-printer basis.

For more information please see Microsoft Knowledge Base Article 815913.

<http://support.microsoft.com/?kbid=815913>

Allowing access to the Windows Registry over the network

Pcounter keeps its printer configuration information in the registry of each Windows print server. If Pcounter printers are being configured remotely from another computer on the network, it is necessary to have access to the Windows print server's registry.

Using the Regedit utility, **permissions can be set** for the entire registry or individual keys so as not to compromise the security of the server.

For technical information on how to allow access to the Windows registry over the network, please read the Microsoft Knowledge Base Article (Q153183)

- <http://support.microsoft.com/?kbid=153183>

Print Spooling must be done to the server - not peer to peer

All jobs submitted to printers which are monitored by the Pcounter Printer Control service and port monitors must only be spooled to the Windows print server.

Users cannot be allowed to print directly from workstations to network printer addresses, or Pcounter will not see those print jobs (unless of course Pcounter services and monitors are installed on each workstation). Printers that are accessed in peer-to-peer modes by workstations using protocols such as Appletalk, LPR, and DLC should be setup like this:

- Configure the printer for the peer-to-peer mode on the server
- Setup sharing on the printer so users can spool jobs to the server's queue
- Reconfigure workstations to use the server's shared printers instead of peer-to-peer modes.

Tracking jobs by authenticated users

If it is required to keep track of print jobs from users who are logged on/authenticated to Windows servers, it is not necessary to import or create Pcounter database entries for these users. Pcounter automatically looks up usernames on a PDC or other server that contains user accounts.

If Pcounter is enforcing user account balances/quotas, then users who have had no printer activity are assumed to have an account balance and low balance limit of zero. However, default balances and low balance limits (for new users and users who have had no print activity) can be automatically set in PAdmin. Just select **Preferences, Automatically initialize balances to default values on startup/refresh**. The next time PAdmin is started, select another domain, or manually refresh, the default values will be set.

For tracking printing from users sharing logons, see the section **Popup - Enabling printer accounting while using shared logon names**.

Types of accounting

- At its lowest level, Pcounter tracks printing based on the logged-in user and records print data in a comma-delimited (CSV) file called PCOUNTER.LOG.
- The cost of each print job is determined from the Pcounter configuration of each queue. Pricing for printers are set on a cost-per-page basis, while for plotters they can be set on a cost-per-area basis.
- Pcounter can optionally maintain account balances (print quotas) for users, where the cost of the print job is deducted from the user's balance. If a user's balance is less than the cost of a print job, then printing access is denied.
- Pcounter can optionally allow users to enter client/billing codes which are recorded with each print job and can be used for billing to third parties/clients for printer or project usage. This is the only feature which requires software to be installed on workstations, and PPopup.exe is the only required file. It can easily be loaded in a login script or placed in a Startup group.

Jobs from Macintosh and LPR clients

LPR usernames

When LPR clients submit print jobs to Windows print queues using the Windows LPD service, the username typically shows up as a username followed by the client IP address in parentheses, such as **username (192.168.1.27)**. Pcounter automatically strips off the IP address portion and processes the print job based upon the username. It is recommended to use the Pcounter LPD server (built into the Pcounter Printer Control service) instead of the Windows LPD server (sometimes referred to as TCP/IP Print Server).

LPR authentication

There is no protocol for user authentication using LPR/LPD, so it is possible for LPR users to impersonate other users.

- Unknown users can be prevented from printing in each printing configuration.

Pcounter Web Client

Jobs from LPR clients can be authenticated using the Pcounter Web Client. Macintosh computers can also be configured to print via LPR. The Pcounter Web Client can also be used by LPR clients to apply print job billing codes as well as for authentication.

Pcounter Client for Mac

PcounterClient.dmg is included in this package for distribution to OS X machines, providing the same popup window prompts and notification message handling as PPopup and PcounterClient for Windows.

Networks with multiple/trusted domains

When a print job is processed by Pcounter, it verifies the existence of the print job owner by looking up the name according to the configuration in Global Settings - Get User Information From (typically the Local Domain or Directory). If the user is not found in the current domain, trusted domains will be searched next.

The print job owner's home domain is listed along with the username (DomainName\UserName) in the first field of the log file.

Unknown users can be prevented from printing in each printing configuration.

Error Logging

Any operating errors, such as configuration problems, jobs which cannot be counted, etc. will be recorded in the system event log and can be viewed using the **Event Viewer** utility (in the Administrative Tools program group). Select **Log, Application**, to see any messages issued by Pcounter.

Services and Ports

Overview

There are 3 major components of the Pcounter accounting system: the Pcounter Printer Control service, Pcounter Ports, and the Pcounter Data Server service.

The Pcounter Printer Control service and Pcounter Ports work together to manage printers and must be used at the same time on Windows print server. The Pcounter Data Server service manages all Pcounter printer accounting data and can run on any Windows computer.

These components allow Pcounter the flexibility to easily scale to the size of the network. For instance, if all printers are located on one Windows print server, the data can be kept on the same computer by using all components together. Likewise, in a distributed printing environment, the Printer Control service and Ports can be used on multiple Windows print servers, while running the Data Server service on another computer, or even one of the Windows print servers.

It is necessary to install (or uninstall) the services and port monitors by running **Pcontrol**. Select the Windows computer and press the **Pcounter** button or choose the **Server, Pcounter, Pcounter configuration** menu. Next, select the **Services/Ports** tab. Running Setup to install the software on the desktop does not automatically install the services and ports. Likewise, uninstalling the software from the desktop does not automatically uninstall the services and ports.

IP Port Configuration

An available TCP/IP port must be assigned for each of the services to use, in order to allow communication between the PcounterClient.exe and/or the Mac OS X client and the Pcounter servers. These IP ports are not required if only PPopup.exe is being used.

The Pcounter Printer Control service

Upon installation, the Pcounter Printer Control service will be configured with Startup Type: Automatic, which means that it will run at system boot time. However, it is possible to start and stop the service any time using Pcontrol from any computer on the network, if network permissions have been granted to do so.

If a printer's popup or pause all jobs setting is changed, then the service should be restarted. All other settings are dynamic (including adding new monitored printers), and the service need not be restarted.

The SYSTEM account should have Full Control permission on all Pcounter-controlled printers. In most cases it is not necessary to specify this permission.

The service software can be updated without needing to reinstall it. Any configurations that have been previously applied will not be affected.

Datatypes and Spooling

Often Pcounter is being used to determine the attributes of a print job before allowing it to print; for example, in rules, allowing paper sizes, ensuring that there is sufficient credit to print, and counting jobs in advance. In these cases it is necessary for the printer's **Spooling** setting to be set to **Start printing after last page is spooled**. This ensures that available print job information will be complete when the job starts printing. Jobs which begin printing before the last page is spooled are likely to be mishandled in the above circumstances.

The print job datatype is another important printer setting. The EMF datatype is a metafile, and the RAW datatype is the native driver format, such as PostScript or PCL.. RAW datatype is best for Pcounter operations - this allows Pcounter to read the exact data that will be sent to the printer and handle the job accordingly. If EMF datatype is used, then Pcounter has to rely on the spooler print job record settings before the job prints, which are not always accurate. RAW datatype will be used if **Enable advanced printing features** is **turned off** in the printer properties.

Each of these settings can be found on the **Advanced tab** of the **Printer Properties**.

The Pcounter Data Server service

The Pcounter Data Server service manages all of Pcounter's printer accounting data. It can run on any Windows Workstation or Server, even if it is not a Pcounter print server. Each Pcounter print server has a Data Server global setting, which can be pointed to the same server - this allows all printing data to be kept in one central location for easy access. The Pcounter Data Server service only needs to be run on one computer.

- Make sure that a Pcounter share is created, and save Global settings on that server.
- The Pcounter log file and account balance databases are kept in the \\DataServer\Pcounter\Data directory on the Data Server, where \\DataServer\Pcounter is the Pcounter shared directory.
- Users should be given read permission to the Pcounter share. This directory contains Global Settings and the popup client code database.
- Administrators, users who need to manage account balances, and users who need to get printing statistics should be given read/write permission to the Data directory. For privacy and security purposes, normal users should not be given any access to this directory.

Upon installation, the Pcounter Data Server service will be configured with Startup Type: Automatic, which means that it will run at system boot time. However, it is possible to start and stop the service any time using Pcontrol from any Windows computer on the network.

If the Pcounter Data Server will be collecting jobs from other Pcounter machines

It is possible that external Pcounter print servers and workstations configured via WSManger to track local printing, can log jobs to the same Pcounter data server. If this is the case, then after the first time that the Pcounter Data Server service has been installed, the Server service (and all dependent services) will **need to be restarted**, but **only if Pcounter is running on machines other than the data server**. This can be done manually using Control Panel, Services on the Pcounter data server, or the server can be rebooted. This only needs to be done once - it is not necessary to do it again if the Pcounter Data Server service is reinstalled or updated later. (**Windows Vista/7/2008/R2 Note** – It may also be necessary to make an additional change via the Group Policy Editor. Windows Settings → Security Settings → Security Options, Network access: Let Everyone permissions apply to anonymous users = Enabled.)

The service software can be updated without needing to reinstall it. Make sure that the service is stopped before updating, or an error will occur. Any previously saved configurations will not be affected.

Configuring the Data Server service

Create new log file and rename old log file

The Data Server can periodically rename the PCOUNTER.LOG file so that each log is separated by time intervals. A new log will automatically be created. If Never is selected, then the log file will grow infinitely and it will be necessary to monitor it manually.

Account balance notification

The Data Server can optionally send a broadcast message to users which informs them about their current account balances. This will only occur if Accounting is set to User account balances and log file in the printer's Pcounter configuration.

If the Data Server is down

- When a printer's Accounting setting is **User account balances and log file**, a job will not start printing if the Data Server is down. If the Data Server goes down after a job begins printing but before the job is logged, then Pcounter will store the job information locally until the Data Server is started again.
- When a printer's Accounting setting is **Log file only**, jobs will print normally and Pcounter will store the job information locally until the Data Server is started again.
- If the **ID and password** popup is being used, then popup passwords will not be verified.

The Pcounter Port

Each printer on which accounting is required needs to have a Pcounter Port installed. The Pcounter Port is a print monitor that integrates directly with the Windows spooler and controls transmission of data to printers.

Among the many advantages of using Pcounter Ports:

- Pcounter is able to see exactly what has been sent to the printer and will not charge for unprinted documents
- Pcounter can monitor the online status of the printer and handle jobs accordingly
- Pcounter can query the printer for exact page usage per job
- Pcounter can query the printer for color page usage on many printers
- Pcounter can efficiently load balance jobs between multiple printers with no CPU overhead

It is necessary for the Pcounter Printer Control service to be running on Windows print servers along with Pcounter Ports. If the Pcounter Printer Control service is stopped, printing will stop until it is running again.

Installing the port monitors

Unfortunately, Windows does not support port installation from remote computers, so it is necessary to install Pcounter on the print server, run Pcontrol, and then install the Pcounter Port locally. Using Pcontrol, install the port monitors in the Pcounter server configuration (Services/Ports tab).

Using the Pcounter Port Wizard

The Pcounter Port Wizard is found on the Printers tab of the Pcounter server configuration. It can be used to:

- Create new Pcounter ports - the wizard will make the best choice based on the current port configuration.
- Edit/configure existing Pcounter ports.
- Remove Pcounter ports and restore the original ports.

Manually adding/configuring Pcounter ports via Printer Properties.

Open any printer's **Properties**, select the **Ports** tab, and press the **Add Port** button. The Pcounter Port will appear in the **Available Printer Ports** list, so that it can be saved to the printer's configuration. Press the **Configure Port** button to edit existing Pcounter port settings.

Updating port monitors

It is necessary to stop the Spooler service any time the Pcounter Port software is updated. Pcontrol provides a way to update the Pcounter Ports by stopping the Spooler, copying the files, and then restarting the Spooler. Stopping the Spooler will interrupt current print jobs.

When updating from the previous (2.15 or earlier) 4 port types (AppSocket, LPR, Parallel, OtherPrinter), Pcontrol will automatically convert the ports to the newer Pcounter Port specification using the previously defined protocol, and uninstall the previous ports from the spooler.

Use SNMP to check printer status and/or retrieve page counts

The Pcounter port is able to use SNMP to do the following:

- Check a printer's online status and optionally move jobs to other printers and/or send notification to the user.
- Retrieve the actual page count from the printer after the job has been sent to the printer, which ensures that users are charged only for what comes out of the printer.
- Retrieve color page counts on many types of printers, so that the number of color pages in each job can be charged accordingly.

Pcounter Port Protocols and Settings

The following protocols may be used with Pcounter printing:

- **TCP/IP (Raw/AppSocket)**

This protocol is functionally equivalent to using the RAW setting with the Windows TCP/IP port. Most laser printers, plotters, and multi-function devices support raw TCP/IP printing on port 9100. External print servers can use separate port numbers for each physical port on the print server - for example, the HP JetDirect EX+3 uses ports 9100, 9101, and 9102.

Special setting for Pcounter Pro pull queues – if the print queue is being used as a dedicated Pcounter Pro pull queue that does not have an associated printer, set the target IP address to 0.0.0.0. Any print jobs that are resumed from a pause state or otherwise accidentally allowed to print will be automatically paused again.

- **LPR**

LPR/LPD is a print queuing standard that is supported by most network printers and operating systems, and also uses the TCP/IP protocol. It requires slightly more overhead than Raw/AppSocket. (LPR is the client and LPD is the server.)

Printer/Queue name

Enter the print queue name as specified by the LPD server.

Local port bindings

RFC 1179 compliant Use this only if the remote LPD host requires RFC 1179 compliance. The local TCP port numbers are restricted to the 721-731 range. This could result in conflicts with other LPR ports since only 11 local ports are available. Most devices do not require RFC 1179 compliance.

Typical Uses local TCP ports 512-1023.

Extended Uses local TCP ports 1024 and greater. The advantage here is that local port conflicts are less likely between other LPR ports and applications.

Count partially sent/interrupted print jobs

If the LPD server is a printer, then incomplete jobs are likely to print anyway, as most printers start printing as soon as they begin receiving data. However, if the LPD server is a computer, then incomplete jobs are likely to be deleted from its queue. Check this box if Pcounter should count incomplete jobs.

Enable LPR byte counting

Some LPD servers need to know the number of bytes in the print job being sent in advance. This may require extra processing. Many printers do not require byte counting, so this setting should be disabled as often as possible.

- **Local Port**

Use this setting if print jobs should be sent to a local parallel port or to a file.

- **OtherPrinter**

This setting is used to send jobs to other print queues on the same Windows print server. Its purpose is to support printers that use protocols not directly supported by Pcounter ports, such as Appletalk and USB, or if it is preferred to keep using currently installed ports. Each physical printer has 2 print queues, one for counting and one for printing.

The easiest way to setup the OtherPrinter protocol is to use the Pcounter Port Wizard, which creates an output print queue directly linked to the original Windows printer port. However, for manual configuration:

- Create a new printer using the same driver and the same port configuration as the current printer.
- Assign the Pcounter Port OtherPrinter protocol to the current printer, using the new printer as the Output printer name. This way, it won't be necessary to reconfigure any workstations to print to a different printer.
- Do not share the new printer, or else users will be able to print to it and bypass Pcounter printer accounting.
- Likewise, if necessary, remove any permissions for users to use the new printer locally.
- The SYSTEM account should have Full Control permission on the new printer.

Number of jobs counted ahead of printer

Since the OtherPrinter protocol is printing to a queue instead of to an actual printer, it may move jobs to the queue faster than they can actually print. Pcounter accounts for and logs the job as soon as it has been sent to the output queue without knowing whether the job has been printed. This setting controls the number of jobs that can be in the output queue at any time. For example, a setting of one means that no jobs will be moved until the output queue is empty.

- **Load Balance**

The Pcounter Port load balancing option is more intelligent than Windows printer pooling. Printer pooling allows multiple ports to be assigned to a single print queue. Ports in a printer pool are always used in the same order - the first job is always assigned to the first port, and the second port only receives a job if the first port is busy.

Pcounter load balancing differs from printer pooling in that each port should be assigned to its own print queue. An additional queue should be created (to which users should submit jobs) called the master queue, and should be shared. The print queues to which jobs are distributed are called child queues, and should not be shared. Generally, users should not be allowed to submit jobs directly to child queues.

The master queue should be configured with a Pcounter Port set to Load Balance, and the child queues added to its distribution list. The child queues should be configured with a Pcounter Port set to one of the other printing protocols.

- The load balancing configuration is dynamic. It is not necessary to restart the Pcounter Printer Control Service when changes are made.
- Jobs will be distributed to child print queues which have the least number of jobs waiting, or else distributed evenly to child print queues in a round-robin fashion.
- When jobs are distributed to a child print queue, no Pcounter rules or other processing will occur on the master queue. The Pcounter port on the child queue will handle all processing. Therefore, the Pcounter printer configurations should be set on the child queues as needed.
- Jobs will not be distributed to child print queues that are paused or have an error status. This makes it easy to manage if one of the child printers is down. If the child Pcounter Port detects that a printer is offline, then it will automatically set the error status so that no further load balanced jobs will be distributed to it.
- If the master print queue is paused, then no jobs will reach child print queues.
- If Pcounter Popup or Web Client is required, the Pcounter printer setting **Enable Popup Window** should be set only on the master queue, and not on any of the child queues.
- When Spooler notification messages are being used, make sure that messages are sent to users and not computers. This setting is found in Start/Settings/Printers/File/Server Properties/Advanced.
- Pcounter load balancing requires no additional CPU overhead, and spool files are not rewritten.

Pcounter on Windows Clusters

Pcounter server components (ie. Services and Ports) are used in a Windows cluster in a similar fashion to the typical usage on a standalone server. The main difference is that on a cluster, the Pcounter components are elements of cluster resources, allowing them to be associated with active cluster nodes and groups, and managed in Cluster Administrator. Pcounter cluster support requires Windows 2000 or later.

General cluster notes

- The Pcounter InstallShield setup should be run on each cluster node so that the software is available on each cluster node desktop.
- When managing cluster resources, Pcontrol will attempt to install/update software (in a single operation) on each node with which the particular cluster resource is associated. Please make sure that all nodes are running when doing install/update operations, and that software versions are in sync on all required nodes.
- Print management (via Pcontrol) can be done from a cluster node or from a remote workstation desktop on Win32 clusters. On x64 clusters, print management must be done from a cluster node desktop or terminal session.
- Global/Popup settings will be consistent across virtual servers, as they share the same registry locations on the cluster nodes.

PcounterPrint resource (Generic Service)

- The Pcounter Printer Control service is started and stopped along with this resource and a Print Spooler resource upon which it is dependent.
- Multiple PcounterPrint resources may be created and used, in an active-active mode. One PcounterPrint resource may be associated with (dependent upon) each Print Spooler resource in a cluster. Each PcounterPrint resource will be given the name PcounterPrint_XXXX, where XXXX is the network name used by the Print Spooler resource and cluster group.
- Pcontrol is hard-coded to work with specific resource names. Please do not rename the PcounterPrint_XXXX resource unless the network name of the cluster group has been renamed.
- The Pcounter Port is installed on each cluster node and on the virtual cluster server. Pcounter Ports can be managed as usual using the Port Wizard in Pcontrol, or in the printer properties via the virtual cluster server's Printers folder. Printers that are local to the cluster nodes are not supported, only printers on the virtual cluster servers are allowed.
- It will be necessary to take all PcounterPrint_XXXX resources in a cluster offline when updating the services and ports to future versions, because the Pcounter Port is installed on each cluster node, and the files are used in each virtual server.

Pcounter Share resource (File Share)

- The Pcounter Share resource is dependent only upon a physical disk cluster resource and allows the Pcounter share to be cluster-aware and moved between nodes as needed. Only one Pcounter Share resource is supported per cluster, since the cluster does not allow duplicate share names.
- Pcontrol is hard-coded to work with the specific resource name "Pcounter Share"; please do not rename it.
- (Windows 2008) File Share resources have been removed. File shares are now configurable outside the cluster management MMC. Pcontrol will configure the Pcounter share in the cluster in a similar fashion as it does on non-clustered servers.

Pcounter Data resource (Generic Service)

- The Pcounter Data Server service is started and stopped along with this resource and a Pcounter Share resource upon which it is dependent. Since only one Pcounter Share resource is supported per cluster, it is also only possible to have one Pcounter Data resource in the cluster. Therefore the Pcounter Data resource is only supported in an active-passive mode.
- Pcontrol is hard-coded to work with the specific resource name "Pcounter Data"; please do not rename it.
- (Windows 2008) Since File Share resources have been removed, the Pcounter Data resource will be made dependent upon the Network Name of the cluster server and the Disk Resource that hosts the Pcounter share.

Pcounter on Windows 2008 Server Core

Pcounter print and data services can run on Windows 2008 Server Core. However, all configuration must be done from a local workstation or server desktop that supports the full Windows user interface.

It will be necessary to install the Pcounter Port on the local machine in order to configure Pcounter Ports on the Windows 2008 Server Core. If the Pcounter Port is not installed, Windows Explorer will display “The request is not supported” every time an attempt is made to add/remove/configure Pcounter Ports on the Windows 2008 Server Core.

To configure printing on the Windows 2008 Server Core, run Pcontrol on the local machine, choose Pcounter → Configure Pcounter Server, and enter the Windows 2008 Server Core computer name, or browse to the server via the workgroup and right-click for a context menu. All configuration options are supported.

Quick start summary

Keep in mind that Pcontrol enables all Pcounter configuration to be performed from any station on the network (except for port setup, which must be done locally - however, port monitors can be updated from remote stations once they have been installed). Likewise, it is not necessary to run Setup to install the Pcounter software program group and icons on every desktop; it can be installed in a shared network folder so that programs can be accessed through network browsing.

Use Pcontrol to install (or uninstall) the services and port monitors. Running Setup to install the software on the desktop does not automatically install the services and port monitors. Likewise, uninstalling the software from the desktop does not automatically uninstall the services and port monitors.

In order to access the Pcounter configuration for an Windows computer, just browse the network in Pcontrol, select it, and press the **P** button or choose the **Server, Pcounter, Pcounter configuration** menu. Access the Server menu by right clicking on a computer.

Setup the Data Server

- In Pcontrol, select the Windows computer that will be the Data server and choose Pcounter configuration.
- Create the Pcounter shared directory - this is where all printing data is stored. Don't forget to set the appropriate permissions to the share and its contents.
- Set the Global and Popup settings.
- Select the Services/Ports tab and install the Data Server service.
- Press the Configure button if a new log file should be written periodically and/or configure custom account balance notification messages.
- Start the Data Server service.

Setup a print server

- In Pcontrol, select the Windows computer that is hosting printers and choose Pcounter configuration. A print server can also be the Data server.
- Set the Global and Popup settings - on the Global Settings tab, they can be imported from the Data server (or any other previously configured computer) so that they need not be entered again.
- (Optional) A default printer configuration template can be set, which will apply to all printers which do not have their own configurations.
- Select the Services/Ports tab and install the port monitors.
- Select the Printers tab. Configure Pcounter accounting settings, prices, and rules on the required printers. Press the Properties button to create and configure Pcounter Ports for the printers.
- Select the Services/Ports tab, install and start the Printer Control service.
- Start printing now!

Setup client utilities

- For PPopup and/or Wbalance, all which is necessary is to add an icon or shortcut to local Startup groups or login scripts.
- Users who will be managing user account balances and reports will need the PAdmin.exe utility.

Keeping an eye on what's happening

- Quick printer histories can be obtained by selecting the printer in Pcontrol, right-clicking, and choosing Pcounter, Print History.
- For more comprehensive reports and to view user print activity, run PAdmin from the program icon/shortcut, or in Pcontrol, right-click on a domain or server and select Pcounter, Accounting.

Tracking printers attached to workstations

The Pcounter Workstation Manager utility (WSManager) is used to setup print tracking on workstations that have local printers configured (ie. USB, Parallel, IP) without the need to setup Pcounter Ports on the workstations.

The full Workstation Manager documentation is accessible via the WSManager Help menu; for convenience, some general information is included here.

The Pcounter Printer Control service (PCOUNTER.EXE) can be used as a low profile print monitor to track local printers attached to workstations. All data is converted into Pcounter log format (CSV) and is integrated into the Pcounter reporting structure.

Hardware/Software Requirements

- Windows 2000 Professional, XP, Vista, 7.
- Pcounter running on a Windows data or print server.

Restrictions

- This usage of PCOUNTER.EXE is only supported on workstations. It is not supported on servers.
- The results may be unpredictable if this usage of PCOUNTER.EXE is deployed on workstations using Pcounter spooler ports.
- WSManager will limit management to 5 workstations during evaluation/trial modes.

General

- WSManager is used to distribute software and configuration data to workstations.
- Pcounter Popup and account balances are supported.
- Rules are not supported; however, configurable page count limits are available to prevent users from printing larger jobs on local printers.
- Printer configuration profiles are available to simplify configuration of common printers on workstations.

Global Settings

The computer where the Pcounter Data Server service is running needs to have a shared directory (named Pcounter) where the Pcounter utilities can read configuration information.

The Pcounter share should be readable by all users using Pcontrol (to configure Pcounter) and PAdmin. Pcontrol saves the file `PCOUNTER.INI` in the Pcounter shared directory.

Delete Paused/All Jobs After ? Minutes

Print jobs can be deleted if they are still in the queue after a specified number of minutes. Either paused jobs only, or all jobs can be deleted. A value of zero (0) disables this feature. This setting only applies to printers using Pcounter Ports.

Numerical Format

The numerical format determines how costs and balances are displayed.

- **Pages**
One accounting unit = One page. Use this if for allocation of printing quotas in pages.
- **Currency**
Accounting is kept in terms of local currency. The type and format of the local currency are determined from local Windows settings.

Get User Information from

If the Windows network is using:

- **Domains**
If the Pcounter server is a domain member or controller, the best setting to use is Local Domain or Directory. Otherwise, select Primary Domain Controller or specify another server where user accounts are located. If the user is not found in the current domain, trusted domains will be searched next.
- **Workgroups**
Select the Windows Server where user accounts are located.
- **Additional non-trusted domain**
Select the Windows domain or server where additional user accounts are located. This option is only necessary if non-trusted domains are used. Leave it blank if not required.

The remote server may need to have the string **Isarpc** added to the registry value **NullSessionPipes**, which is found under the registry key:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\lanmanserver\parameters.

Maximum move job rules

It is possible to setup compound rules where print jobs are moved repeatedly between printers. This setting controls the maximum number of job moves allowed due to rules.

Log rejected jobs

Print jobs which are rejected for any reason (insufficient balance, invalid paper size, etc.) can be logged to a text file called **REJECT.LOG**, on the Data server in the **\PCOUNTER\Data** directory. This file will grow indefinitely, so make sure it is deleted periodically.

Default Printer Configuration Template

All printers can be individually configured for Pcounter; however, if many printers need monitoring, it might be easier to setup the default printer configuration template once and let Pcounter use these settings for all printers. These default settings are also used when configuring new printers later.

When Pcounter loads, it looks for a printer's individual configuration. If one is not found, then it uses the server's default printer configuration template. If the default configuration template has not been saved, then Pcounter uses the following settings:

Accounting:	Log file only
Action if below low balance limit:	Delete job
Banner (separator) template:	Blank/None
Duplex Handling:	Ignore
Job size limit:	Zero/None
Job pagecount limit:	Zero/None
Disable print notification:	No
Pause all jobs:	No
Count jobs in advance:	No
Delete duplicate jobs:	No
Allow unknown users to print:	Yes
Reject job types:	None
Enable popup window:	No
Keep job paused after popup:	No
All paper sizes:	Allowed
All Prices:	Zero
Default paper size:	Letter

Messaging

Custom messages can be sent when Pcounter enforces rules or other events, such as when an invalid paper size is sent to a printer or when informing users about their account balances. Messages can be sent via network broadcast messages, SMTP email, or both.

Most messages support the following substitutions:

%P - Printer name	%U - User name
%D - Document name	%B - Account balance
	%F - Free quota

If a rule is enforced, then two message settings are combined into one message - one for the rule itself, and one for the action that was taken. For example, if the action taken on exceeding the byte size limit is to delete the job, the Above byte size message = "Your print document %D exceeded the maximum byte size limit on %P.", and the Job deleted message = "It was deleted.", then the message

Your print document AUTOEXEC.BAT exceeded the maximum byte size limit on PrinterName. It was deleted.

will be sent to the user.

Messages can also be sent to users, which inform them about their current account balances. This will only occur if Accounting is set to User account balances and log file in the printer's Pcounter configuration.

Network Broadcast messages

Send broadcast to User name:

- Requires the Messenger service to be running on both the Pcounter server and the client workstation.
- The Messenger service is often disabled as a security precaution.
- This is the only broadcast option available in terminal sessions.

Send broadcast to Workstation name:

- **Does not require the Messenger service** to be running on either the Pcounter server or the client workstation.
- If the Messenger service is running on the client workstation, then the message will be received as usual.
- If the Messenger service is not running on the client workstation, then Ppopup or Wbalance may be used to receive messages.
- This option is not available in terminal sessions.

SMTP Settings

- **Login name** - This is the name that is used as identification to the SMTP server. Some SMTP servers require a valid address or domain in order to relay messages.
- **Password** - Passwords may be optional for local email delivery, but are normally required for relaying email to other mail servers.
- **Reply address** - If users are to be able to reply to Pcounter email messages, then enter a valid email address for replies.
- **Subject** - enter an optional email subject, such as "Printer notification message". If left blank, the document name will be used.
- **Append domain** - (Optional) The domain is added to the end of the username before sending. For example, if a username is joe and the domain is company.com, then the full email address to which messages are sent will be joe@company.com. Appending a domain may not be necessary if the SMTP server relays messages to local usernames. Pcounter will attempt to look up the user's email address from Active Directory. If it is available, then that email address will be used instead.

Data Server

The Data Server is the computer where the log file is kept and where the user account balance and popup client code databases are stored. This server must run the Pcounter Data Server service.

The Pcounter Data Server service manages all of Pcounter's printer accounting data. It can run on any Workstation or Server, even if it is not a Pcounter print server. Each Pcounter print server has a Data Server global setting, which can be pointed to the same server - this allows all printing data to be kept in one central location for easy access. It is only necessary to run the Pcounter Data Server service on one computer.

- Make sure that a Pcounter share has been created, and save Global settings on that server.
- The Pcounter log file and account balance databases are kept in the `\\DataServer\Pcounter\Data` directory on the Data Server, where `\\DataServer\Pcounter` is the Pcounter shared directory.
- Users should be given read permission to the Pcounter share. This directory contains Global Settings and the popup client code database.
- Administrators, users who need to manage account balances, and users who need to get printing statistics should be given read/write permission to the `Data` directory. For privacy and security purposes, normal users should not be given any access to this directory.

LPD Server

The Pcounter Printer Control service can be used as a LPD server to accept jobs from LPR clients.

Advantages of using the Pcounter LPD server over the Microsoft LPD Service (LPDSVC)

- Pcounter exports only chosen printers as LPD printers. Simply check the boxes of printers which should be LPR accessible. The LPDSVC always exports all printers as LPR printers.
- Pcounter LPD can restrict access to printers based upon specified IP addresses or IP address ranges. The LPDSVC does not have this feature.
- Pcounter LPD can pause all jobs. The LPDSVC does not have this feature.
- The Pcounter LPD job pausing feature is integrated more efficiently with the Web Client than using automatic Standard Pause or Super Pause in the Pcounter printer configuration with the LPDSVC.
- Pcounter LPD interprets the document names of jobs from Apple OS X correctly, LPDSVC does not.

Printers that service LPD and authenticated Windows clients

There may be situations where the Web Client is required to authenticate LPD jobs on printers which are also used by authenticated Windows clients. In this case, the Pcounter LPD server should be set to pause all jobs, while the general Pcounter printer configuration should not have any pausing or popup set. This will allow Windows jobs to print straight through without pausing, while LPD jobs will be paused, pending input from the Web Client.

Printers that require PPopup and/or Web Client for all jobs

If all jobs to a particular printer require input from PPopup and/or Web Client, then make sure that **Enable Popup Window** is set in the Pcounter printer configuration, and that **Pause all jobs** is set in the Pcounter LPD printer configuration.

Anonymize User Names

LPR/LPD does not require user-level authentication to print. Normally the user name is provided by the LPR client as part of the job control headers sent by the client and used by the LPD server.

If Anonymize User Names is selected on any printer, then the print job owner name will be shown as:

pcounterAnonymous [IP address]

This can be useful to prevent unauthorized impersonation, and also to force an authentication mechanism such as PPopup, Pcounter Clients, or the Web Client to be used in before using an external print job release application such as Pcounter Pro, embedded MFP apps, or Pcounter Station.

Notes

- The LPD Service (TCP/IP Print Server Service on 2003 and earlier) should be set to Manual or Disabled startup if it is installed. Pcounter LPD cannot be activated if another process is listening on IP port 515, as the LPDSVC does.
- Once the Pcounter LPD server is running and activated, it is not necessary to restart the Pcounter Printer Control service if configuration changes are made.
- Only command code -f (plain text filter) as defined in RFC 1179 is supported. No other filters or banner commands are supported at this time.
- LPQ commands are supported, but LPRM commands are not.

Accounting

User account balances

If it is not necessary to enforce printing quotas for users, then skip this section, but make sure that Pcounter printer configurations are set to **Log file only**.

User account balances are stored in database files on the computer designated as the Data Server in Global Settings, in the `\\DataServer\Pcounter\Data` directory. It is not necessary for all users to logon to this computer, it is just a place where the information is stored.

Numerical formats

- **Pages**
One accounting unit = One page
- **Currency**
Accounting is kept in terms of local currency. The type and format of the local currency are determined from local Windows settings.

Account balances and Low balance limits

Each user gets an account balance and a low balance limit. The low balance limit is the minimum allowable account balance before printing access can be denied. Typically the low balance limit should be zero, and unlimited credit can be granted to special users.

Free quotas

Users may also be allocated a free quota, which may be refreshed periodically as needed, without affecting the account balance. The free quota may only be used on printers that have had the **Allow use of free quota** configuration option set.

Use Pcounter Administrator (Padmin) to modify user and group account balances and low balance limits.

The per-page cost for each print job is defined in the printer's configuration. If money is being collected for printing, and the cost of each print job should be deducted from a user's account balance, then use positive prices. Use negative prices to keep a running total of print activity in user account balances.

If **Accounting=User account balances and log file** has been set in the printer configuration, then Pcounter will maintain user account balances. For each print job, the account balance is charged (the number of pages printed) * (the paper size price). If low balance limit options should be enforced, then a user's account balance must not exceed the low balance limit, or else printing is denied.

If paper size price is:	then Pcounter	and Low balance limit must be:
greater than 0	subtracts from balance	less than balance
less than 0	adds to balance	greater than balance

If Windows users are logging on normally, there is no need to create special printing accounts for them. However, **if an Pcounter account balance entry does not exist for a user**, then both the account balance and low balance limit for that user are assumed to be zero. However, default balances and low balance limits can be automatically set (for new users and users who have had no print activity) in PAdmin. Just select **Preferences, Automatically initialize balances to default values on startup/refresh**. The next time PAdmin is started, manually refreshed, or another domain is selected, then the default values will be set.

If shared logon printer accounting is being used where users do not have their own accounts, please read the shared logon section in the Popup chapter.

The PCOUNTER.LOG log file

Pcounter keeps a running log of all print activity in the log file \\DataServer\Pcounter\Data\PCOUNTER.LOG. Users using PAdmin should be granted Read/Write privileges in the directory where PCOUNTER.LOG is kept.

PCOUNTER.LOG is written in ASCII delimited format. PAdmin generates reports and print histories by reading this file - it can also be imported into a spreadsheet or database program for more detailed analysis.

ASCII delimited field names:

- DomainName\UserName
- Document name (Pcounter) or Accounting Operation (PAdmin)
- Printer name (Pcounter) or User performing transaction (PAdmin)
- Date
- Time
- Computer from which printing or accounting transaction originated
- Client code
- Subcode
- Paper size
- Features (Duplex, Number of copies)
- Size in bytes
- Page count
- Cost
- Account Balance

Features field entries:

/Ts Time stamp
/D Duplex
/Cp Number of job copies
/C Color
/Cg Color pages
/Jt Job type (for internal use)
/Mt Media type
/NB Non-billable cost
/Nup Pages per sheet

Pcounter Administrator (PAdmin)

PAdmin is a Win32 utility for maintaining user account balances, viewing user print histories, and generating printing reports. PAdmin runs on any Windows version.

- PAdmin can browse user lists from Active Directory domains and organizational units, NT4-compatible domains, and local accounts on servers and workstations.
- All of the functions are within easy reach. Only users who have Read/Write permission to the \\DataServer\Pcounter\Data directory can modify account balances and the PCOUNTER.LOG file.
- Local preferences are kept in the registry. Functions can be assigned to double-clicking on users and groups, setting sorting options, and selecting which fields to view/print in print histories.
- Multiple users can be selected to perform various operations, but groups will be ignored if multiple selections are made. Operations on groups must be done one at a time.
- Account balance displays are updated only when users are selected.
- PAdmin can be launched by double clicking on the program icon or by right-clicking on a server or domain in Pcontrol and selecting Pcounter, Accounting. Multiple instances of PAdmin can be run for multiple domains.
- Right-click on any object for a quick popup menu.

Terminology

Deposit:	Add to an account balance
Charge:	Subtract from an account balance
Low balance limit:	Minimum allowable account balance
Print history:	Summary of printing activity

Creating print histories and reports

Just select the Print History or Reports button - calculate printing totals for various categories. PAdmin can read from the current PCOUNTER.LOG file, or any combination of log files. Reports can be saved in HTML, Comma-delimited text (CSV), or space-padded text files. Reports can also be sent by email using a MAPI-enabled program such as Eudora, Netscape Communicator, Outlook, and Outlook Express.

Database functions

Remove deleted records - will reclaim wasted space from the database file.

Reindex - will create a new index for the database file.

Import - please see the appropriate popup section.

Pcounter Pro

PAdmin is able to manage ID and PIN numbers which can be used with supported copier terminals (via alphanumeric entry or card swipe). ID numbers are mapped to user accounts on the network, so that users can identify themselves properly for access purposes.

It is possible to restrict the type of input that can be made to ID numbers.

- Edit `\\DataServer\Pcounter\Pcounter.ini`, and create a section **[PAdmin]** if it does not already exist.
- Create a new key, **ProIDRestrictions=X**, where X is one of the following values:
 - 1 Only numeric entries allowed
 - 2 Convert text to upper case
 - 3 Convert text to lower case

Automated setting of account balances

Any accounting transaction (Deposit, Set Balance, Charge) can be automated in PAdmin by selecting a day and time on which the transaction should occur. All automated transactions will run on the Data Server, and the Task Scheduler service must be running.

ACCOUNT.EXE is used to perform the transactions. If a transaction is scheduled by running PAdmin on the Data Server, then it assumes that ACCOUNT.EXE is located in the same folder as PADMIN.EXE. If a transaction is scheduled by running PAdmin on a remote computer, then it reads the **InstallDirectory** key from `\\DataServer\PCOUNTER\PCOUNTER.INI` and determines the relative location of ACCOUNT.EXE.

Scheduling option	Result
Now	No automation - the transaction will occur now.
Every month	The transaction will occur on the specified day of the month at the specified time.
Every day	The transaction will occur every day at the specified time.
Every "day of week"	The transaction will occur on the specified day of the week at the specified time.

For example, to reset the account balance of all users in a group to a certain level on the first day of every month, select the group, right-click, and choose Set Balance. Enter the balance, set Schedule = Every month, Day = 1, Time = 12:00 AM.

A list of scheduled transactions can be seen and managed from PAdmin by pressing the Automation button on the toolbar.

ACCOUNT.EXE

ACCOUNT.EXE is a Win32 console command-line utility which can be used to type in accounting commands or for automating batches of accounting operations, such as in a batch file.

Type **ACCOUNT** to list command-line options.

ACCOUNT.EXE uses the Global Settings information stored in **PCOUNTER.INI** on a Pcounter server.

Using ACCOUNT.EXE as a web CGI application

ACCOUNT.EXE can also be setup to run as a simple HTTP-based CGI account balance management application on any Windows web server. This is useful for users who need to manage account balances easily without requiring the full functionality of Pcounter Administrator.

ACCOUNT.EXE has been tested on IIS and Apache. Other web servers should also work.

Web server location

- The web server should run on the Pcounter data server. It may be possible to try running on an external server, but it is not recommended.
- Apache and others that run as a service using the SYSTEM account should run on the Pcounter data server.
- Apache and others that run in user mode or as a service using a user account can run on any server.

Installation in Internet Information Server

- **Copy ACCOUNT.EXE** to a new directory, such as **/pcounterWeb**.
- Type **ACCOUNT CONFIG** from a command prompt on the web server to setup the correct parameters.
- Type **ACCOUNT IISCFG** to automate IIS setup. Otherwise, for manual installation or to check settings, follow the steps below.

Manual configuration information for IIS

- Find the new directory in Microsoft Management Console, and open the Properties of the new directory.
- On the **Directory** tab, set **Execute Permissions = Read + Scripts and Executables**.
- On the Directory (or File) Security tab, set the authentication permissions and IP address restrictions accordingly. Browsers other than IE may have problems with methods other than Basic authentication. If Basic authentication is allowed, it may also be necessary to specify the default domain.
- User credentials are then used for access permissions to the Pcounter share for accounting transactions. Users who do not have write permission to \\DataServer\PCOUNTER\DATA will be able to view the web page but will not be able to modify or view account balances.

Additional manual configuration information for IIS 6

CGI applications are disabled by default. It is necessary to configure ACCOUNT.EXE as a CGI application.

- In the **Application Server management console**, find the web server computer, expand it, and choose **Web Service Extensions**.
- On the Action menu (or right-click), choose **Add a new Web service extension**.
- Set **Extension name** to ACCOUNT.EXE or some other descriptive text.
- Add the full path to ACCOUNT.EXE to the **Required files** list.
- Make sure that **Set extension status to Allowed** is checked/enabled.

Additional manual configuration information for IIS 7

The following server role services are required:

- CGI
- IIS 6 Metabase Compatibility (only required if running configuration script)
- IIS 6 Scripting Tools (only required if running configuration script)

Installation on Apache and others

- **Copy ACCOUNT.EXE** to an executable directory, such as **/cgi-bin**.
- Password protect the file or directory as needed.
- The credentials of the web server process (such as SYSTEM for a service) are then used for access permissions to the Pcounter share for accounting transactions. Since all users who access this web page will be allowed to modify or view account balances, it is important to keep it secure.
- Type **ACCOUNT CONFIG** from a command prompt on the web server to setup the correct parameters.

WBALANCE

WBALANCE is a small Windows utility for users to view their account balances quickly.

WBALANCE can be added to the Startup group or to any login script. It will update the balance display if it is left running; and will also display the balance when it is minimized.

WBALANCE can display in English, French, French Canadian, German, Spanish, Portuguese, Italian, Finnish, Dutch, Swedish, Czech, Danish, Polish, and Norwegian.

WBALANCE does not access the server's accounting database directly; it obtains balance information through communication with the Pcounter Data Server. This connection can be configured beforehand by creating PCOUNTER.INI in the same directory where WBALANCE.EXE is stored. Use the following format:

[Preferences]

DataServer=\\ANDYTRON

where \\ANDYTRON is the name of the computer running the Pcounter Data Server service. The double-backslash before the computer name is required.

Otherwise, the user will be asked to choose from a list of computers.

Network broadcast messages

If the Messenger service is disabled, then WBALANCE will automatically receive broadcast messages sent from the Pcounter server to Workstation names (but not to User names).

WBALANCE automatically runs minimized in the system tray.

- Just drag the mouse pointer over the \$ icon and the balance will be displayed.
- Double-click on the \$ icon to popup a window which displays the balance.
- Right click on the \$ icon to view the options menu.

Other WBALANCE options in the [Preferences] section of PCOUNTER.INI:

(Users should generally have only read permission to PCOUNTER.INI.)

DisableSelectServer=1	Prevent users from selecting another data server.
DisableFreeQuotaDisplay=1	Disable free quota in display.
DisableMSG=1	Disables reception of NET SEND broadcast messages.
RunNormal=1	Run WBALANCE in a normal window instead of minimized in the system tray.

BALANCE.EXE - Web CGI application for users to check their account balance

BALANCE.EXE can run as a simple HTTP-based CGI application for users to check their account balance on any Windows web server. It has been tested on IIS and Apache. Other web servers should also work. BALANCE.EXE can run on the Pcounter data server but can actually be located on any web server.

Installation in Internet Information Server

- **Copy BALANCE.EXE** to a new directory, such as **/pcounterWeb**.
- Type: **balance.exe /iisconfig** to automate IIS setup. Otherwise, for manual installation or to check settings, follow the steps below.

Manual configuration information for IIS

- Find the new directory in Microsoft Management Console, and open the Properties of the new directory.
- On the **Directory** tab, set **Execute Permissions = Read + Scripts and Executables**.
- On the Directory (or File) Security tab, set the authentication permissions and IP address restrictions accordingly. Browsers other than IE may have problems with methods other than Basic authentication. If Basic authentication is allowed, it may also be necessary to specify the default domain.
- A successful logon will display a web page showing the user's account balance.

Additional manual configuration information for IIS 6

CGI applications are disabled by default. It is necessary to configure BALANCE.EXE as a CGI application.

- In the **Application Server management console**, find the web server computer, expand it, and choose **Web Service Extensions**.
- On the Action menu (or right-click), choose **Add a new Web service extension**.
- Set **Extension name** to BALANCE.EXE or some other descriptive text.
- Add the full path to BALANCE.EXE to the **Required files** list.
- Make sure that **Set extension status to Allowed** is checked/enabled.
- On **IIS 7** make sure that the CGI server role service is installed.

Installation on Apache and others

- **Copy BALANCE.EXE** to a new executable directory, such as **/cgi-bin**.
- Password protection should be done using an LDAP or other NT security package.
- A successful logon will display a web page showing the user's account balance.

Database Security

- BALANCE.EXE does not access the server's accounting database directly; it obtains balance information through communication with the Pcounter Data Server. This connection can be configured beforehand by creating BALANCE.INI in the same directory where BALANCE.EXE is stored. Use the following format:

```
[ Preferences ]
DataServer=\\DATASERVER
```

If BALANCE.INI does not exist, BALANCE.EXE will assume that the web server is the Pcounter Data Server.

Access URL

- **(Normal)** <http://webserver/pcounterweb/balance.exe>
- **(Small Window)** `Check your print balance
`

Using a custom balance web page

- Create **balance.html** in the same directory as BALANCE.EXE.
- Make sure there is automatic refresh, such as `<META HTTP-EQUIV="Refresh" CONTENT="60">`.
- Use the following strings for value substitutions on the web page:

%U - User name **%B** - Account balance **%F** - Free quota

Printer Configuration Settings

Accounting

None:	No page counting for this printer
Log file only:	Count pages, maintain log file, no user account balances
User account balances and Log File:	Count pages, maintain log file & user account balances

Action if below low balance limit

If a user whose balance is below his/her low balance limit submits a print job, Pcounter can:

- Print job anyway
- Delete job
- Pause job

Allow use of free quota

If Accounting = User account balances and Log File, this specifies whether users with free quota allocated can use it as print job credit.

- If so, any available free quota will be used as credit for the print job.
- If the available free quota is less than the cost of the job, then the remaining cost will be subtracted from the account balance, if available.

If the available free quota and account balance combined are less than the cost of the job, then the "Action if below low balance limit" option will take effect.

Banner (separator) template

Pcounter can optionally include a nice-looking banner with the print job.

Select from the following banner templates, or custom banners can be defined:

- **None:** No banner printed
- **PCL4 (Letter):** HP LaserJet Series II or equivalent - letter size paper
- **PCL5 (Letter):** HP LaserJet III or equivalent - letter size paper
- **PCL5/PJL (Letter):** HP LaserJet 4 or equivalent - letter size paper
- **Postscript (Letter):** Any Postscript printer - letter size paper
- **PCL4 (A4):** HP LaserJet Series II or equivalent - A4 size paper
- **PCL5 (A4):** HP LaserJet III or equivalent - A4 size paper
- **PCL5/PJL (A4):** HP LaserJet 4 or equivalent - A4 size paper
- **Postscript (A4):** Any Postscript printer - A4 size paper

How to customize banners:

- Use a word processor.
- For Pcounter to insert specific print job information, use the following variables (as they appear with the brackets) in the template:

```
<USERNAME> <MACHINE_NAME> <FULLNAME> <PAGES>  
<COST> <DOCUMENT> <PRINTER> <DATE> <BALANCE> <CLIENT_CODE>
```

- Generate the banner template by **printing to a file**, using a Postscript or PCL driver.
- Use internal printer fonts, and any fonts used should be printed as characters (not bitmaps).
- Make sure that printer language commands are not inserted between the characters. If this happens, Pcounter won't be able to recognize the information fields above nor place any information on the banner.
- Keep the banner templates as small as possible - obviously larger banner files take longer to print.

Include banner in pagecount

If a banner (separator) template for the printer has been selected, this setting determines whether Pcounter adds the banner page to the total page count.

Duplex Handling

When pages are counted on duplex (2 sided) printers, the page count will turn out to be the number of sides printed instead of the number of pages printed.

- **Ignore:** Pcounter leaves the page count alone.
- **Divide page count in half:** Pcounter will check for duplex print jobs and divide the total page count by 2.

Pcounter only detects duplex printing by looking at the print data. If the printer is setup to print duplex by default, and a print job (such as a plain ASCII text job) contains no information about duplex data, then Pcounter won't detect the duplex printing. The printer should be setup to print single-sided by default - then allow users to specify duplex options using printer drivers.

Pause all jobs

Pcounter can pause all jobs automatically. Users will have to release each job in order for them to be printed - this can be done from the Explorer Printers list or Print Manager.

- **Standard pause:** Pcounter pauses the job in the usual manner.
- **Super pause:** Pcounter changes the job so that normal users cannot resume them. Super pause is used automatically if the popup window is enabled.

Using Standard pause, users can be prevented from resuming their own print jobs which have been paused by Pcounter by setting certain security attributes of the printer. The CREATOR/OWNER object, users, and any groups in question must have only Print permission. Any users with only Print permission cannot delete, pause, or resume any print jobs. However, all job document names will likely only be called "Remote downlevel document", which is not very descriptive. This is a limitation of Windows. Also, in some instances, jobs are not removed from the print queue after they have printed - and have to be deleted manually. Therefore, it's better to use **Super pause** and give CREATOR/OWNER Manage Documents permission. This way, the job document names will appear as they should, and users will not be able to resume their jobs.

Count jobs in advance for display

When jobs are counted in advance, then page counts and costs can be displayed in the queue job lists of Pcontrol and Pcounter Station. This feature is required if the PPopup Information Message type contains substitutions for the page count and cost. Use the **Faster Performance** setting if page counts and cost are being shown in Ppopup information messages. Using the **Slower Performance** setting can save CPU cycles when multiple print jobs are being processed at the same time, and can be used if the page counts and cost are only being shown in Pcontrol and Pcounter Station.

The Windows Spooler may display a page count anyway without this feature enabled, but only if jobs are submitted from other Windows clients. However, this page count is not always accurate.

Enable popup, print release, etc.

This setting should be enabled if PPopup is being used for client billing and/or authentication on workstations, or if Pcounter Station or Pcounter Pro are being used for print job release. Jobs are automatically Super paused.

Keep job paused after popup

Typically the pause is removed and a job is released after the user processes the popup. However, the job can be kept in a paused state if it is necessary for an operator to release the job, or if Pcounter Station is being used.

Skip popup on jobs less than ? pages

This setting will allow jobs to print without pausing the job and requiring the workstation popup, if the number of pages in the job is below the specified number. The minimum allowable value for this setting is 2. This feature requires the **Count jobs in advance** feature to be used in the Pcounter printer configuration.

Skip popup on jobs less than ? copies

This setting will allow jobs to print without pausing the job and requiring the workstation popup, if the number of copies of the job is below the specified number. The minimum allowable value for this setting is 2. This feature requires the **Count jobs in advance** feature to be used in the Pcounter printer configuration.

Skip popup if job is not color

This setting will allow jobs to print without pausing the job and requiring the workstation popup, if the job is not color. The minimum allowable value for this setting is 2. This feature requires the Count jobs in advance feature to be used in the Pcounter printer configuration.

Information message

The PPopup window can display a custom message for each printer (instead of a single global message for all printers). This is useful in situations where instructions are necessary for each printer, such as “Pick up printouts at the circulation desk.”, or “Each page costs 25 cents.”.

Messages can include substitutions for the user name (%U), document name (%D), number of pages (%P), cost (%C), account balance (%B), free quota (%F), and printer name (%X). The number of pages and cost substitutions require the **Count jobs in advance** feature to be used in the Pcounter printer configuration.

Delete duplicate jobs

Setting this feature will cause all pending jobs from the same user, which have the same document name and byte size to be deleted. The job that is currently printing will not be deleted.

Disable print notification

If this box is checked, then Pcounter will clear the Notify name from the print job configuration.

Print smallest job (in bytes) next

This option will always schedule the smallest job in byte size to be printed next, after the job that is currently printing.

Delete unknown job types

This feature is present in order to prevent malicious users from sending garbage data to printers. Any data that is not from a recognized printer description language is considered to be an unknown job type. Use this setting with care.

Do not use this feature with GDI or host-based drivers.

Allow unknown users to print

If the server is handling print jobs from other platforms (such as Macintosh or Unix) where users are not required to logon to the server in order to print, it is possible that the print job owner name cannot be found in the Windows account database. Leave this box unchecked for Pcounter to delete these jobs.

If Pcounter has been configured to delete jobs from unknown users, an “Error getting user information” entry will be written to the application event log. Otherwise the job will be logged in the PCOUNTER.LOG file as a member of the ***Unknown** domain.

Prices

Each printer has multiple **per-page** prices that refer to a number of commonly used paper sizes. Each paper size has a check box (to allow the paper size) and price entry fields for black and color.

To allow jobs that use a particular paper size, check its corresponding box and optionally enter a price to charge for each page that prints with that paper size. Prices can be left at zero to track pages printed without cost totals.

If the price value is negative and Pcounter is configured to manage account balances, then Pcounter will add the number of pages in each print job (multiplied by the per-page price) to the user's account balance. Otherwise Pcounter will subtract the number of pages in each print job (multiplied by the per-page price) from the user's account balance.

Any print job using a paper size that is unchecked will be deleted, and a message will be sent to the user who submitted the job. This prevents users from requesting a paper size not supported or used by a particular printer, such as an A4 job on a Letter sized printer - which would cause the printer to pause and wait for user interaction.

Color detection

If the Pcounter Port is using SNMP to track color page counts on a printer, then color detection is automatic and color usage will be retrieved from the printer.

Otherwise, it is necessary for users to specify (in the printer driver preferences) whether print jobs should be printed as color or grayscale or monochrome. Pcounter does not render the print data stream down to the pixel level. Therefore, if color is requested in the printer driver settings for a job that contains only monochrome or grayscale data, Pcounter is likely to detect it as color anyway. If Pcounter detects color in a print job, all pages in that job are assumed to be color.

Plotter accounting

Area accounting - This feature overrides all paper size prices and a price is charged based on the area of the image. Plotter area accounting is supported on PostScript, PCL, Epson, and HPGL/2 plotters. If a default plotter width is specified, then it will be applied to all jobs. The default width should also be used if the application or driver (such as Epson) does not specify a specific image width. Otherwise, if the default plotter width is zero, then the width specified in the plot job is used.

Linear accounting – Similar to area accounting, except the price is charged based on the length of the plot job.

Feature price multipliers

Color - The color multiplier is used for plotter jobs and also as a guide for setup of the paper size prices. It is not used on color jobs once the color paper size prices have been set.

Duplex - This feature allows separate pricing to be established for duplex (2-sided) print jobs. When duplex is detected in the print job, then the cost of the job will be multiplied by the amount specified here.

Important note: Duplex job prices are also affected by the **Duplex Handling** printer configuration setting, which can optionally divide the page count in half.

Default Size/Price

In cases where the paper size cannot be determined, such as plain text print jobs or printer drivers which perform minimal page formatting, this (required) setting will tell Pcounter which paper size price to use.

Rules

Pcounter's rules allow special processing based on print job attributes.

Rules

- If byte size is greater than or less than a specified amount, then an action can be performed.
- If page count is greater than or less than a specified amount, then an action can be performed.
- If the number of job copies is greater than a specified amount, then an action can be performed.
- Jobs can be unconditionally moved to a different printer.
- If a job is color, then an action can be performed.
- If the job cost is greater than a specified amount, then an action can be performed.
- If a plot dimension is greater than a specified amount, then an action can be performed.
- If the print job document name matches a predefined pattern, then an action can be performed.

Actions

- **Delete job**
- **Pause job**
- **Move job to end of queue** - for smaller jobs to print before larger jobs, Pcounter can move the larger jobs to the end. However, jobs will only be moved once to the end of the queue.
- **Move job to another printer**
- **Reschedule job** - jobs can be rescheduled to print at a specified time of day.
- **Do not charge** - no charge will be made to the user's account balance (the job is free) and a cost of zero will be logged regardless of page count.

Order in which rules are processed

- | | |
|---------------------------------|-----------------------|
| • Unconditional move | • Job copies rule |
| • Document name pattern matches | • Color rule |
| • Byte size rules | • Job cost rule |
| • Page count rules | • Plot dimension rule |

When jobs are moved to another printer

- If jobs are printing using the RAW datatype, make sure that the printer drivers are compatible.
- Jobs may only be moved two times due to rule enforcement. This prevents jobs from indefinitely moving back and forth between printers.

Broadcast messages

Pcounter can send a broadcast message to print job owners if rules are enforced, so that they are kept informed of the status of their print jobs.

If a rule is enforced, then two message settings are combined into one message - one for the rule itself, and one for the action that was taken. For example, if the action taken on exceeding the byte size limit is to delete the job, the Above byte size message = "Your print document exceeded the maximum byte size limit on %P." and the Job deleted message = "It was deleted." then the message...

**Your print document exceeded the maximum byte size limit on PrinterName.
It was deleted.**

...will be sent to the user.

More rules are planned for a future release.

Using the Popup - Print job client billing and Password Security

Popup Overview

Any Windows machine on the network can be setup to have a window pop up after each print job, allowing users to enter additional information for the logging of the job. All that is necessary is to run PPopup.exe or PcounterClient.exe on each station where this feature is required.

PcounterClient.dmg is an install package for Mac OS X. Instructions for the Mac Pcounter client configuration are in a separate document.

Differences between PPopup.exe and PcounterClient.exe

Features and Functionality

PPopup and PcounterClient have identical features.

Network communication

PPopup uses SMB and should not require any specific external routing or firewall configuration.

PcounterClient requires a configurable IP port for client/server communication.

Notification messages

PPopup may not receive notification messages across subnets.

PcounterClient receives notification messages regardless of location.

Non-domain computers

PcounterClient is recommended for use on non-domain computers.

Terminal sessions

PPopup is recommended for use in terminal sessions. Each session must have a unique logon user name, or else popups will occur in multiple sessions.

All references to PPopup below also refer to PcounterClient unless otherwise noted.

PPopup is activated for each printer by checking the **Enable popup window** box in the Pcounter printer configuration. Pcounter uses Super Pause automatically if PPopup is enabled.

When a print job is submitted, Pcounter pauses the job until the user enters the information, and then releases it.

It is not necessary to run SETUP on each machine where PPopup runs. The best distribution strategy would be to copy the latest version of `\PcounterInstallDir\NT\PPopup.exe` to a shared network folder, and then push the PPopup.exe to the local machine via login or startup script. Configuration options can be specified on the PPopup command line, or via PcounterClient.ini.

For PPopup to automatically run when a user logs on, create a shortcut to PPopup.exe in Start Menu, Programs, Startup, or add PPopup.exe to a login script. If PPopup is launched from a login script, use the following syntax:

```
START DRIVE:PATH\PPopup [/options]
```

PPopup can display in English, French, French Canadian, German, Spanish, Portuguese, Italian, Finnish, Dutch, Swedish, Czech, Danish, Polish, Norwegian, and Simplified Chinese.

Network broadcast messages (PPopup only)

If the Messenger service is disabled, then PPopup will automatically receive broadcast messages sent from the Pcounter server to Workstation names (but not to User names). See also the /msgonly command line option below.

HTTPS Port setting (PcounterClient.exe and OS X clients only)

This port should be configured to use the same port that has been assigned to be used by the Pcounter Printer Control service.

PcounterClient.ini options

PcounterClient.ini should be kept in same directory as PPopup.exe. If PPopup.exe is being copied from the server locally as part of a login script, then it is also possible to keep a copy of PcounterClient.ini on the server and copy it locally as part of the login script as well.

[Preferences] section

PollTime=X	The server poll time will be set to X seconds. (Default 3 seconds)
Bounce=X	PPopup will restart itself every X minutes. (Default 0, disabled)
HTTPSPort=X	Port on which popup server listens (PcounterClient.exe only, Default 443)
ProcessMultipleJobs=1	The local setting Process multiple jobs is enabled. (Default 0)
MatchUserName=1	The local setting Match Username on job is enabled. (Default 0)
HideIcon=1	PPopup runs hidden, without an icon. (Default 0)
NoExit=1	PPopup runs with the Exit option disabled on its popup menu. (Default 0)
Center=1	The popup window will always be placed in the center of the display. (Default 0)
Delay=X	PPopup will delay loading for X seconds. This is useful if the system is not initialized when PPopup runs. (Default 0)
ClearUserName=1	If the popup window type is ID and Password, then the user name field will be cleared before each prompt. (Default 0)
BroadcastOnly=1	PPopup should only receive broadcast messages, no popups for print jobs. (Default 0)
ShowPopupOnSingleCode=1	If client code associations are used and user has only one code assigned, popup window will be shown. (Default 0)
MaxAutoReply=X	The maximum value for users to auto respond to popups will be X minutes.
NDSID=1	PPopup should set the job owner on all popup print jobs to the locally logged in NDS/eDirectory name. The Novell Client is required for this feature. (Default 0)
AutoNDS=1	Similar to NDSID above, except that the job owner is automatically changed to the locally logged in NDS name without prompting.
DisableMessaging=1	Disables reception of broadcast messages. (Default 0)
ConfigProfile=profileName	PPopup uses the configuration profile specified by profileName. This option is not required to use the default configuration profile.
IdleCancel=X	If PPopup receives no response in X seconds, it automatically cancels the job. (Default 300 seconds)
Preload=serverName	PPopup reads its configuration from serverName, and loads the client code database if necessary. Normally these operations are not performed until the first print job, and there may be somewhat of a delay (after the first print job) due to the time it takes to read the client database. This option can save time by preloading large databases so that the popup response is fast for the first print job.
InputLength=X	If the popup window type is ID and Password, then this specifies the minimum length required for input to each field. (Default 0, disabled)
CustomDLL=path	If a custom DLL is being used, enter the path here.
DocNameJobID=1	If the popup window type is ID and Password using a Job ID option, then for sites that want the document name obscured at the release station, this option will set the document name to the job ID number when the user answers the popup. (Default 0, disabled)
LockUserName=1	If the popup window type is ID and Password, and the Job ID option is set to Use Computer Name as ID, then the username field will be set to the computer name and always locked so that it can't be changed, and the keyboard focus set to the password field. So instead of using the Pcounter Station "Display computer names instead of user names", the user name field will show the computer name and print job passwords can be used. (Default 0, disabled)

[Servers] section

Typically PPopup will automatically detect any "print servers" to which the workstation is connected, and include them in the job-checking cycle. However, this may include non-Pcounter servers and even NetBIOS-aware printers that have built-in Windows sharing. Multiple entries can optionally be added to this section in order to handle "print servers" appropriately.

Adding ServerName=1 ensures that PPopup will check that server for print jobs.
 Adding ServerName=0 ensures that PPopup will ignore the server entirely.

PPopup command line options:

/profile=profileName	PPopup uses the configuration profile specified by profileName. This option is not required to use the default configuration profile.
/hideicon	PPopup runs hidden, without an icon.
/noexit	PPopup runs with the Exit option disabled on its popup menu.
/preload=serverName	PPopup reads its configuration from serverName, and loads the client code database if necessary. Normally these operations are not performed until the first print job, and there may be somewhat of a delay (after the first print job) due to the time it takes to read the client database. This option can save time by preloading large databases so that the popup response is fast for the first print job.
/pmj	The local setting Process multiple jobs is enabled.
/matchuser	The local setting Match Username on job is enabled.
/httpsPort=X	Port on which popup server listens (PcounterClient.exe only, Default 443)
/poll=X	The local Poll servers setting is set to X seconds.
/server=serverName	PPopup adds serverName to its list of servers. This is useful in rare cases where PPopup is unable to automatically detect a server.
/delay=X	PPopup will delay loading for X seconds. This is useful if the system is not initialized when PPopup runs.
/msgonly	PPopup is used only to receive broadcast messages, and will not pop up for print jobs.
/disablemsg	Disable broadcast message reception.
/idleCancel=X	PPopup will cancel the job after X seconds if no input is made. (Default is 300 seconds)
/center	The popup window will always be placed in the center of the display.
/term	Terminate PPopup.

Custom Icon

If PPopup has been configured to use an information message, then the default icon will be displayed in the popup window. It is possible to substitute a custom icon by renaming the icon file to PPopup.ICO and keeping it in the same directory as PPopup.exe.

Running PPopup at startup

PPopup.exe can run at startup, from a login script or from a Start Menu → Program Files → Startup shortcut. It is recommended that PPopup.exe be run from a local drive. A good strategy for distribution is to use a login script to copy PPopup.exe to the local machine from a network drive and then running it from the local drive. This way, future versions of PPopup.exe can be easily updated for distribution to multiple machines later.

PPopup Local Settings

When the PPopup Preferences menu is selected, the user will see a list of servers to which printer connections have been made. PPopup will poll each of these servers for popup jobs once per specified interval (in seconds). Each poll consists of only one RPC request. However, any servers that are not running Pcounter or are hosting print queues where popups are not required can be deselected, in order to save network bandwidth.

Process multiple jobs - checking this option on the PPopup menu will allow multiple print jobs from the same workstation to be recorded with the same data (from a single PPopup response). This is useful for applications that generate many print jobs at once, such as image catalogs and mail merges.

Using Popup Configuration profiles

Popup configuration profiles are useful in situations where different configurations of PPopup are required for different types of users or locations, etc. For example, an academic site may require students to have a simple confirmation of the print job while staff is required to enter a client code.

The required configuration profile is specified on the PPopup command line:

d:\path\PPopup.exe /profile=profileName

If the profile is not specified on the command line, then the default profile will be used.

Here is a simple example VBScript that checks Active Directory group membership for the logged in user, and launches PPopup with the required profile. Please note that this script does not detect primary group membership, such as with "Domain Users".

```
Set adsInfo = CreateObject("ADSystemInfo")
Set objShell = CreateObject("Wscript.shell")
```

```
Set testGroup = GetObject("LDAP://CN=Domain Admins,CN=Users,DC=pcounter,DC=com")
If (testGroup.IsMember("LDAP://" & adsInfo.UserName) = True) Then
    objShell.Exec("d:\path\PPopup.exe /profile=Admins")
    WScript.quit
End If
```

```
Set testGroup = GetObject("LDAP://CN=AllStaff,OU=Staff,DC=pcounter,DC=com")
If (testGroup.IsMember("LDAP://" & adsInfo.UserName) = True) Then
    objShell.Exec("d:\path\PPopup.exe /profile=Staff")
    WScript.quit
End If
```

```
'just use the default profile!
objShell.Exec("d:\path\PPopup.exe")
```

Window type: Client code list

Users can choose from a pre-configured one-dimensional list of client codes. Each client code may also have a description which is also displayed. Client codes can be used to represent clients, projects, and departments. The client code information is kept in `\\DataServer\Pcounter\PPopup.DBF` and is managed using Pcounter Administrator. Users should have Read permission to this path. When the window pops up, all users need to do is double-click on the client code. Users can search the client code descriptions in order to find a match.

The length of **client codes** should be limited to 49 characters or less.

Information message type

Pcounter can include an optional information message in the popup window.

All printers: PPopup displays a single global message for all printers. Set this message in the server Popup configuration.

Individual printers: PPopup displays a different message for each printer. Set these messages in the printer's configuration.

Messages can include substitutions for the user name (%U), document name (%D), number of pages (%P), cost (%C), account balance (%B), free quota (%F), and printer name (%X). The cost and account balance substitutions require the **Count jobs in advance** feature to be used in the Pcounter printer configuration.

Client code only from list

If this box is checked, then users must select a client code from the list, otherwise they can either select a code from the list or type in a code manually.

Associate client codes with network user and group names

This feature allows different client code lists to be displayed for separate groups and/or users. Users will only see client codes which are associated with network groups to which they belong, or associated with their logon name.

- A separate database file is maintained for this purpose, called `PASSOC.DBF`.
- In PAdmin, select the **Client code associations** tab at the bottom.
- A list of users and groups are shown on the left, and the associated client codes are on the right.
- Right-click on any object in this view for a popup menu.
- It is possible to associate multiple client codes to multiple users/groups in one operation, or cut, copy, and paste associations from one user/group to another.
- Client codes can also be copied from the Client codes view in PAdmin, and pasted into an association list.
- If only one client code association is in the list for a user and Client code only from list is selected, then PPopup will automatically apply the client code to each print job without prompting the user.

Remember previous selections

PPopup can remember previous selections for user convenience. However, if it is required that users enter a new client code for each print job, then PPopup will clear the entry field each time.

Allow non-chargeable jobs

If some jobs require logging of client codes but not charging, users can be allowed to specify that individual jobs will not be charged. If a job is marked as non-billable, the cost field of `PCOUNTER.LOG` will be set to zero for the job, but the features field will contain an entry `/NB=x` where x=the real cost of the job.

Allow subcode form

When this feature is enabled then the subcode field is available for users to type in any notes they please.

Allow auto-respond

This feature allows users to have PPopup set client codes on print jobs automatically, based on the most recent input made in the PPopup window, for a specified period of time. If a user wishes to cancel auto-respond after it has been set, then it can be disabled in PPopup Preferences.

Window type: Entry form

PPopup displays a generic form where users type in a client code.

Information message type

Pcounter can include an optional information message in the popup window.

All printers: PPopup displays a single global message for all printers. Set this message in the server Popup configuration.

Individual printers: PPopup displays a different message for each printer. Set these messages in the printer's configuration.

Messages can include substitutions for the user name (%U), document name (%D), number of pages (%P), cost (%C), account balance (%B), free quota (%F), and printer name (%X). The cost and account balance substitutions require the **Count jobs in advance** feature to be used in the Pcounter printer configuration.

Verify entry in client code database

No: users can type in anything they want.

Normal: force users to validate a client code from **PPopup.DBF**

Display as password: same as Normal, except hidden like a password.

Remember previous selections

PPopup can remember previous selections for user convenience. However, if it is required that users enter a new client code for each print job, then PPopup will clear the entry field each time.

Allow non-chargeable jobs

If some jobs require logging of client codes but not charging, users can be allowed to specify that individual jobs will not be charged. If a job is marked as non-billable, the cost field of **PCOUNTER.LOG** will be set to zero for the job, but the features field will contain an entry **/NB=x** where x=the real cost of the job.

Allow subcode form

When this feature is enabled then the subcode field is available for users to type in any notes they please.

Window type: ID and password (Shared logon accounting)

This is useful for **printing security**. Users need to enter a user ID and password. If they fail, then the print job is deleted, otherwise the job prints. It can also be used for shared logon printer accounting.

If users are using shared logon accounts, such as GUEST or STUDENT, or if each workstation has its own logon that is being shared by users (such as STATION1 and STATION2), then PPopup can force users to enter their own private user IDs and passwords in order to identify print jobs.

Information message type

Pcounter can include an optional information message in the popup window.

All printers: PPopup displays a single global message for all printers. Set this message in the server Popup configuration.

Individual printers: PPopup displays a different message for each printer. Set these messages in the printer's configuration.

Messages can include substitutions for the user name (%U), document name (%D), number of pages (%P), cost (%C), account balance (%B), free quota (%F), and printer name (%X). The cost and account balance substitutions require the **Count jobs in advance** feature to be used in the Pcounter printer configuration.

Password authentication

- **Pcounter Users only** - Passwords will only be checked from the shared logon PrinterPopupUsers database. Jobs are deleted after 3 incorrect attempts. The print job owner name will be set to ***username** after a PPopup logon is successful. This allows Pcounter to determine that the job owner is a PrinterPopupUser and not a standard domain user.
- **Pcounter Users and domain passwords** - Passwords will be checked from the domain and the shared logon PrinterPopupUsers database. Jobs are deleted after 3 incorrect attempts.
- **Job ID - No job password** - Changes the print job owner name for visual identification only. This is intended for use with Pcounter Station or for situations where users are sharing login accounts and additional information for identifying print jobs is required.
- **Job ID - Job password optional**
- **Job ID - Job password required** - If used with Pcounter Station, then this password will be required in order to release the job for printing.

Show confirmation after login

This feature will display a second window after the authentication is accepted. This allows a confirmation message to be shown displaying user-specific values such as account balance and free quota in addition to cost. (Normally these would be unknown prior to the users identifying themselves.)

Allow client code form

When enabled, users can manually enter text which will be recorded in the client code field of the PCOUNTER.LOG file. No validation will be made from the PPopup.DBF database and there are no restrictions on text entered here.

Local login username only

If this box is checked, then only the password of the user who is logged on to the workstation will be accepted.

Keep shared logon user account balances!

In the printer configuration, if Accounting=User account balances and Log File, account balances are maintained and enforced by Pcounter for Pcounter Users (PrinterPopupUsers database) in the same fashion as standard Windows user accounts. Use PAdmin (select Pcounter Users) to maintain the shared logon user database. It allows adding, deleting, and changing entries in the list, as well as standard accounting procedures, print histories, and reports.

Using PPopup/Pcounter Users with LDAP

In addition, the Pcounter Pcounter Users functionality can be enhanced with an optional LDAP authentication and browsing DLL which is available at <http://www.pcounter.com/download.html>. This DLL is useful in situations where there is no local domain, and accounts are already defined on an external LDAP server.

Importing users

In PAdmin, select Database, Import. Comma delimited text files can be imported into the shared logon user database. Each record occupies a line in the file. The format of each line should be:

Username , Fullname , Password

Only the Username field is required - the others can be left blank. Records with a matching Username will not be overwritten.

Window type: Matter number list

This is similar to the client code list - except that the database is 2-dimensional. Each client code can have an associated list of subcodes (matter numbers). When users select a client code, the relevant subcodes are displayed.

Users can choose from a pre-configured list of client codes and subcodes. Each client code and subcode may also have a description which is also displayed. Client codes can be used to represent clients, projects, and departments. The client code information is kept in \\DataServer\Pcounter\PPopup.DBF and is managed using Pcounter Administrator. Users should have Read permission to this path. Users can search the client code descriptions in order to find a match.

The length of **client codes** and **subcodes** should be limited to 49 characters or less.

Client code only from list

If this box is checked, then users must select a client code from the list, otherwise they can either select a code from the list or type in a code manually.

Subcode only from list

If this box is checked, then users must select a subcode from the list, otherwise they can either select a code from the list or type in a code manually.

Associate client codes with network user and group names

This feature allows different client code lists to be displayed for separate groups and/or users. Users will only see client codes which are associated with network groups to which they belong, or associated with their logon name.

- A separate database file is maintained for this purpose, called **PASSOC.DBF**.
- In PAdmin, select the **Client code associations** tab at the bottom.
- A list of users and groups are shown on the left, and the associated client codes are on the right.
- Right-click on any object in this view for a popup menu.
- It is possible to associate multiple client codes to multiple users/groups in one operation, or cut, copy, and paste associations from one user/group to another.
- Client codes can also be copied from the Client codes view in PAdmin, and pasted into an association list.

Remember previous selections

PPopup can remember previous selections for user convenience. However, if it is required that users enter a new client code for each print job, then PPopup will clear the entry field each time.

Allow non-chargeable jobs

If some jobs require logging of client codes but not charging, users can be allowed to specify that individual jobs will not be charged. If a job is marked as non-billable, the cost field of **PCOUNTER.LOG** will be set to zero for the job, but the features field will contain an entry **/NB=x** where x=the real cost of the job.

Allow auto-respond

This feature allows users to have PPopup set client codes on print jobs automatically, based on the most recent input made in the PPopup window, for a specified period of time. If a user wishes to cancel auto-respond after it has been set, then it can be disabled in PPopup Preferences.

Window type: Confirmation

The Confirmation window type does not require any input from the user, other than whether they want the job to print. This is useful in situations where users may need to be reminded of their balance and/or the cost of the job before they allow the job to print.

Information message type

Pcounter can include an optional information message in the popup window.

- All printers:** PPopup displays a single global message for all printers. Set this message in the server Popup configuration.
- Individual printers:** PPopup displays a different message for each printer. Set these messages in the printer's configuration.

Messages can include substitutions for the user name (%U), document name (%D), number of pages (%P), cost (%C), account balance (%B), free quota (%F), and printer name (%X). The cost and account balance substitutions require the **Count jobs in advance** feature to be used in the Pcounter printer configuration.

Allow rules to be ignored

If this option is enabled, then the popup window will have Yes, No, and Cancel buttons. If the user presses the Yes button, then rules will be processed as usual. If the user presses the No button, then rules will not be processed. The Cancel button deletes the job.

The intention for this option is for users to optionally allow large jobs to be printed on the target printer instead of the printer to which the job would otherwise be sent if the rule was enforced.

Users exempt from popup

When a queue is configured to support popups, all jobs will be automatically placed on hold. There may be reasons for print jobs from certain users to **not be paused**, such as incoming print jobs from a fax server. If the fax server software is logging into the network using a specified user account, then add it to this list. Pcounter will **not pause** the job, so that it can print right away without user intervention. Pcounter will still track the print job, but the client code and subcode fields will be empty in the `PCOUNTER.LOG` file.

Maintaining database files

- Use **PAdmin** to add and remove entries from `PPopup.DBF`.
- To see the list of client codes, press the pyramid button on the toolbar.
- Press the **Ins** key to add new entries and the **Del** key to delete entries.
- If client codes are deleted, then all associated subcodes will also be deleted.
- Select **Print History** to view a list of all print jobs for a particular client code.
- Select **Reports** to calculate totals for all client codes.
- All databases are indexed in FoxPro compatible format.

Database functions

- **Remove deleted records** - when client codes are deleted, the space is not reclaimed from the file. This operation compresses the file to eliminate space from deleted records and speeds up file load times, and also reindexes the file.
- **Reindex** - Refreshes the index for the database file. Reindexing is recommended after importing many new entries.
- **Importing data** - If client code lists are already in files, they can easily be imported into `PPopup.DBF`. When importing, if a record already exists, it will not be modified or overwritten.

Importing comma delimited text files

Each record occupies a line in the file. The format of each line should be:

ClientCode,Subcode,Description

- The description field is optional and can be left blank.
- If a subcode record is imported without also having imported its associated client code record, then records will appear to import correctly, but none of the subcode records will be seen.
- Do not import a subcode record unless its associated client code record exists.
- Reindexing is recommended after importing many records.

Example 1 : Importing only client codes without descriptions

(Imports 3 client code records.)

```
Client1  
Client2  
Client3
```

Example 2: Importing client codes, subcodes, and descriptions

(Imports 2 client codes with 3 associated subcodes each.)
(Note that the client code record should be imported first.)

```
RAZZL,,Razzle Gadgets  
RAZZL,ENG,Engineering  
RAZZL,MKT,Marketing  
RAZZL,ACC,Accounting  
CTHOS,,City Hospital  
CTHOS,RAD,Radiology  
CTHOS,PHA,Pharmacy  
CTHOS,CAF,Cafeteria
```

Importing an Equitrac Client number EQT file

If Equitrac is being used for cost control on copiers, the same data from the copier terminal can be used. An EQT file is similar in format to a Windows INI file:

```
ClientCode1=Description1
RAZZL=Razzle Gadgets
CTHOS=City Hospital
```

When Client number EQT file is imported, only client code records will be created in **PPopup.DBF**.

Importing an Equitrac Matter number EQT file

Make sure that the client code records have been imported first before performing this operation. The Matter number EQT file is similar to the Client number EQT file, except that client and matter numbers are both included.

```
ClientCode1MatterNumber1=Description1

RAZZLENG=Engineering
RAZZLMKT=Marketing
RAZZLACC=Accounting
CTHOSRAD=Radiology
CTHOSPHA=Pharmacy
CTHOSCAF=Cafeteria
```

It is necessary to tell PAdmin how many characters are in the client code before importing so that it can separate the client code from the subcode (matter number) in the EQT file and find the matching client code record in **PPopup.DBF**. In the above example, PAdmin would need to match a client code length of 5 characters.

When a Matter number EQT file is imported, only subcode records will be created in **PPopup.DBF**.

Using Auto Client Codes

Auto client codes can be assigned to users in Pcounter Administrator and automatically recorded in the PCOUNTER.LOG file. This is a useful alternative to having a popup window prompt users to enter a client code for each print job. For example, it is possible to assign departments, groups, or project numbers to each user's print jobs and have them appear in reports without any user intervention.

Note: if a client code is selected using PPopup for a print job, it will override the user's Auto client code setting for that job.

Auto client codes are stored in `\\DataServer\Pcounter\Data\DomainName_Autocodes.dbf`.

There may be situations where it would be advantageous for users to change their own Auto client codes on a periodic basis. It is possible for users to modify their own Auto client codes using PPopup by using the **/autocode=\\serverName** command-line option. PPopup reads its configuration from serverName, and loads the client code database if necessary. Using PPopup with this option only allows users to set their Auto client code, and **will not pop up** a window for any print jobs. Users can double-click on the PPopup icon to set their Auto client code.

The popup window shown with the **/autocode** option should be setup using Pcontrol (in the Pcounter server configuration) and is subject to the same features and restrictions as if it were appearing with each print job.

Typical users are not granted read or write permission to `\\DataServer\Pcounter\Data` by default if Pcontrol was used to create the PCOUNTER share. Users will need to have Read/Write permission to `DomainName_Autocodes.dbf` and `DomainName_Autocodes.cdx` in order to modify their own Auto client codes. Please do not grant ordinary users Read/Write permission to the entire folder or they will have access to the account balance databases and log files.

Pcounter Plot Manager

The Pcounter Plot Manager is a tool for batch submission of plot files which integrates support for client codes and job scheduling. Plot files are assumed to be printer ready (in HPGL/2 or PostScript format, for instance) and are sent directly to print queues without any driver processing.

- Plot files can be added to the list via the menu, toolbar, drag/drop, or copy/paste from Windows Explorer.
- Multiple plot files can also be added by selecting the **Batch, Add files from** menu. Here, a plot file list can be read from a text file. The text file should contain one plot file on each line - for example:

```
c:\plotfiles\project101a.plt  
c:\plotfiles\project157c.plt  
c:\plotfiles\project222d.plt
```

- If client codes are specified, then PPopup is not required and jobs will not be paused.
- Limitations of the Windows spooler allow only times (not dates) when jobs can be scheduled.
- Multiple copies can be specified in the Print dialog window, which will result in multiple print jobs.
- The order in which files are printed can be sorted by pressing the file column header button, and files can be dragged to new positions.

Web reports

PcounterReporting.exe is an HTTP CGI application that runs with IIS. It should be installed on the Pcounter data server.

To install:

- **Copy PcounterReporting.EXE** to a new directory, such as **/pcounterWeb**.
- Run PcounterReporting.exe from a command prompt or Windows Explorer to run the install script. The script will create a virtual directory from which the URL is defined.
- Anonymous access is not allowed. Select one of the authentication types before running the script.

Additional configuration information for IIS 7

The following server role services are required:

- CGI
- IIS 6 Metabase Compatibility
- IIS 6 Scripting Tools

Pcounter Web Client

Pcounter Web Client is an HTTP CGI application which runs on any Windows web server. It duplicates the functionality of PPopup in any web browser from any platform, including Macintosh, Linux, UNIX, and of course Windows. Pcounter Web Client has been tested on IIS 4-6, and Apache 2.0.43. Other web servers should also work.

The purpose of Pcounter Web Client is to allow any user to authorize, authenticate, and/or apply client billing codes to print jobs without any need for additional client software. Users are shown all pending print jobs, which can be authorized with a single button click.

Installation in Internet Information Server

- **Copy WebClient.EXE** to a new directory, such as **/pcounterWeb**.
- Type **WebClient CONFIG** from a command prompt on the web server to setup the correct parameters.
- Press the **Run IIS configuration script** button to automate IIS setup. Otherwise, for manual installation or to check settings, follow the steps below.

Manual configuration information for IIS

- Find the new directory in Microsoft Management Console, and open the Properties of the new directory.
- On the **Directory** tab, set **Execute Permissions** to **Read + Scripts and Executables**.
- On the Directory (or File) Security tab, set the authentication permissions and IP address restrictions accordingly. Browsers other than Windows Internet Explorer may have problems with authentication methods other than Basic authentication. If Basic authentication is allowed, it may also be necessary to specify the default domain.
- If **Anonymous access** is allowed, then the account used for anonymous access must have at least **Print permission** to the printers being monitored. Otherwise no jobs will be displayed.

Additional manual configuration information for IIS 6

CGI applications are disabled by default. It is necessary to configure WebClient.EXE as a CGI application.

- In the **Application Server management console**, find the web server computer, expand it, and choose **Web Service Extensions**.
- On the Action menu (or right-click), choose **Add a new Web service extension**.
- Set **Extension name** to WebClient.EXE or some other descriptive text.
- Add the full path to WebClient.EXE to the **Required files** list.
- Make sure that **Set extension status to Allowed** is checked/enabled.
- Find out about SelfSSL and IIS Resource Kit: <http://support.microsoft.com/kb/840671>

Additional manual configuration information for IIS 7

The following server role services are required:

- CGI
- IIS 6 Metabase Compatibility (only required if running configuration script)
- IIS 6 Scripting Tools (only required if running configuration script)

Installation on Apache and others

- **Copy WebClient.EXE** to an executable directory, such as **/cgi-bin**.
- Password protect the file or directory as needed.
- Type **WebClient CONFIG** from a command prompt on the web server to setup the correct parameters.

General Configuration Notes

- The web server must be running on the Pcounter print server.
- It is possible to have multiple Pcounter Web Client URLs, each serving a separate printer list and/or with a different configuration. Renamed copies of **WebClient.EXE** can be kept in the same executable directory without conflict, or multiple copies of WebClient.exe can be hosted in multiple directories. Configuration options for each URL are kept in an INI file with the same name as the associated EXE; for example, WebClient.EXE uses WebClient.INI, WebClient2.EXE uses WebClient2.INI, etc.
- Pcounter Web Client printers should be configured exactly as they would be for the Pcounter Popup. In the Pcounter printer configuration, **Enable Popup Window should be selected**, and jobs will automatically be SuperPaused. If the **Count jobs in advance** feature is selected, then print job page counts and costs will be shown in the Pcounter Web Client display.
- It is possible for Windows users to use PPopup, while non-Windows users use Pcounter Web Client, on the same printers at the same time.
- It is recommended that **non-Windows users print to the Windows server via LPR**, although Samba/SMB printing is also likely to work.
- Appletalk printing and **Services for Macintosh clients are not supported**.
- LPD services should be provided by Pcounter LPD server. Microsoft's LPD Service (LPDSVC) and third-party LPD servers generally should be avoided since the client IP address information is not preserved with the print job.

Access URL

- <http://webserver/pcounterweb/WebClient.exe>

Window Title

Text entered here will be shown on the title bar of the browser window.

Window Type

Generally these window types correspond with the Pcounter Popup equivalents. All window types except for Embedded Logon require URL authentication for LPR clients to be identified properly.

- **Client Code List** - Users can choose from a pre-configured one-dimensional list of client codes.
- **Entry Form** - Users enter client codes into a form with optional validation.
- **Job Validation** - Domain users simply authorize which jobs should print. (Similar to Popup Window Type = Confirmation)
- **Matter Number List** - Users can choose from a pre-configured two-dimensional list of client codes.
- **Embedded Logon** - Similar to the Job Validation window type, except that the web page also includes an ID and password prompt for domain users, or users in the PrinterPopupUsers database. Web server authentication for page access is neither necessary nor required. Since the connection is assumed to be anonymous, it is not possible to display the Username or Account Balance in messages. Unlike pages that require authentication, users must enter an ID and password each time.
- **Job ID** - Changes the print job owner name for visual identification only. This is intended for use with Pcounter Station or for situations where users are sharing login accounts and additional information for identifying print jobs is required.
- **Automatic Validation** – Requires authentication. The logged in web user name is automatically applied to the print job without user interaction, and jobs are checked during each web page refresh.

Language

Pcounter Web Client supports the same languages as Pcounter Popup.

Data Server URL

(Client Code List and Matter Number List only.)

If the Pcounter Data Server computer is not the current Pcounter print server, then the Pcounter data server must be setup with its own web server and Pcounter Web Client URL, so that client codes can be retrieved.

Windows client setting

This setting determines how print jobs are located and displayed from Windows clients.

- **Match by workstation** - In some cases the Windows client IP address will need to be resolved to a NetBIOS machine name via DNS or WINS name resolution.
- **Match by username** - Requires authentication. All print jobs from the authenticated username are shown even if they are submitted from different workstations. In order to preserve workstation/job relationships, workstation logons must be unique and not shared.
- **Terminal services clients** - Will automatically use **Match by username**, even if **Match by workstation** is selected. Terminal session logons should be unique and not shared.

Message Text

A custom message can optionally be shown above the browser print job display. Substitutions for Username (%U), Account Balance (%B), and Free quota (%F) are possible with all window types except for Embedded Logon and JobID. HTML tags can be inserted. Pcounter Web Client configuration will automatically convert line feeds to
 tags.

Printer list for URL

Adding specific Pcounter printers to this list can reduce overhead on busy servers. Otherwise all Pcounter printers will be checked if the list is empty.

Client code options

For more details please refer to documentation on Pcounter Popup.

- **Client code only from list** - users must select a client code from the list, otherwise they can either select a code from the list or type in a code manually.
- **Subcode only from list** - users must select a subcode from the list, otherwise they can either select a code from the list or type in a code manually.
- **Remember previous selection** - requires cookies enabled. Otherwise all fields are cleared for each new window.
- **Allow subcode form** - the subcode field is available for users to type in any notes they please.
- **Allow non-billable jobs** - users can be allowed to specify that individual jobs will not be charged.
- **Prompt** - how to prompt the user, such as "Enter client code:".
- **Client code/subcode name** - terms used to describe codes, such as "PIN number" or "Project code".
- **Client code/subcode length** - maximum input length for codes.
- **Code validation** (Entry Form)
 - ◇ **No** - users can type in anything they want.
 - ◇ **Normal** - force users to validate a client code from PPopup.DBF
 - ◇ **Display as password** - same as Normal, except hidden like a password.

Embedded Logon Options

- **Pcounter Users** - Users will be authenticated from the PrinterPopupUsers database.
- **Domain users** - Users will be authenticated from the domain. It is necessary for the print server to be a member of the domain in order to use this feature.

Job ID Options

- **No job password** - Changes the print job owner name for visual identification only. This is intended for use with Pcounter Station or for situations where users are sharing login accounts and additional information for identifying print jobs is required.
- **Job password optional**
- **Job password required** - If used with Pcounter Station, then this password will be required in order to release the job for printing.

Automatic Validation Options

- **Authentication is required** - The logged in user name must be known in advance before jobs are checked.
- **HTML can be customized** - Create webClient.html in the same directory as webClient.exe.
- Make sure there is automatic refresh, such as <META HTTP-EQUIV="Refresh" CONTENT="15">.
- Use the following strings for value substitutions on the web page:

%U - User name

%B - Account balance

%F - Free quota

Launching URLs at client startup

- **Windows**

Create the text file Webclient.url:

```
[InternetShortcut]
URL=http://webserver/pcounterweb/WebClient.exe
```

Save Webclient.url in C:\Documents and Settings\All Users\Start Menu\Programs\Startup (for all users)
or

Save Webclient.url in C:\Documents and Settings\All Users\Start Menu\Programs\Startup (for a single user).

- **OS X**

Create the text file Webclient.url:

```
[InternetShortcut]
URL=http://webserver/pcounterweb/WebClient.exe
```

Save Webclient.url in a user-accessible folder

Open System Preferences, Accounts

Add Webclient.url to Login items

- **Linux**

Edit or create the .xinitrc file in users home directories.

Add the line:

```
/usr/bin/firefox http://webserver/pcounterweb/WebClient.exe &  
(or substitute the path to the desired web browser executable)
```

Configuration options not in the UI

Add the following options to the [Settings] section in Webclient.ini:
(Default values are 0)

DisplayAllJobs=1

All available jobs will be displayed, regardless of username and/or IP address.

JobSelectNone=1

All job check marks are not selected.

DisableCost=1

Cost column is not shown.

Debug=1

Display debug information for troubleshooting.

Troubleshooting

- Add the line **Debug=1** to the [**Settings**] section of Webclient.ini located in the same directory as Webclient.exe. Status messages will be shown either in the top message area or in a Javascript popup window. Remove this line when finished troubleshooting.
- If **Error 5** is shown, this means **Access Denied**. If IIS is being used with anonymous access allowed, ie. no authentication, this means that the account used for anonymous access requires at least **Print permission** to the printers being monitored.
- If no specific printers are specified in the configuration (which means that all Pcounter printers will be checked), any printers not shown in the debug message require at least Print permission for the anonymous access account as indicated above.

NetWare/OES Integration

Introduction

Pcounter for Windows can now be integrated into Novell NetWare/OES environments running Novell Directory Services (NDS). The following enhancements have been made:

- Pcounter NetWare Helper service added to the product release
- Pcounter services are able to recognize NDS users, use NDS account balances and auto client codes
- Pcounter Administrator is able to browse NDS trees and manage NDS account balances
- Pcounter Popup is able to validate NDS passwords and will pass NDS user names to identify print jobs
- Wbalance is able to view NDS account balances

Requirements

NetWare/OES specific support requires the Novell Client to be running on Pcounter servers. The Novell Client is also required on workstations in order to run PPopup and/or Wbalance with NDS support.

Pcounter NetWare Helper service

If the Pcounter NetWare Helper service is installed, then the Pcounter Printer Control and Data Server services will automatically integrate to NDS. The Pcounter NetWare Helper service will need to run on all Pcounter print and data servers.

If the Novell Client is installed, then a link to NetWare/OES Support will be shown in Pcontrol, on the Global Settings tab of the Pcounter server configuration.

Service Login Account: This is the user account that the service will use to access NDS. The Novell Client allows all Windows services to share an NDS credential that is separate from the Windows desktop. However, if other NetWare-aware management services such as ZENworks are installed, the service log will show ErrorCode: 8890 [34960] error messages, because multiple credentials for services may not be used. In this case it will be necessary to remove ZENworks from the Pcounter print server in order for the Pcounter NetWare Helper service to be used.

Default server: This should specify the server where users are logged in, if possible. Pcounter can use this server to resolve Windows clients to their associated NDS names.

Top level user container: Specify [Root] or the highest Organization or OU where Pcounter users are located. Using a lower container can optimize NDS queries in many configurations.

Schema extensions: Auto client codes in NDS are stored in custom attributes in the directory. If auto client codes are required then it is necessary to extend the NDS schema in order to create the attribute.

Account Balances

If the Pcounter NetWare Helper service is installed, then the Pcounter Printer Control and Data Server services will use NDS account balances instead of the database files normally used by Pcounter for Windows.

Job logging

The Pcounter.log file is written as usual in the DATA subdirectory of the Pcounter share. The usual syntax for the first field is domain/username. In NetWare/OES mode, the domain/username is written as NDS_EDIR/username.org.ou.etc.

Using PPopup with user prompts

If the PPopup NDSID command line option is used (ie. d:\path\PPopup.exe /ndsid), then the system can be used in two ways:

If the popup Window Type is ID and Password, then the password will be validated in NDS and the print job owner will be set to the NDS name that was successfully validated.

If the popup Window Type is not ID and Password, then the print job owner will be set to the NDS user name that is currently logged in on the workstation. Other data such as client codes will be recorded as usual.

The NDSID option may be used with other command line options such as /server=, /pmj, etc.

The NDSID option will also cause client code associations to be read from NDS group membership.

Make sure that Enable Popup Window is set in the Pcounter printer configuration.

Using PPopup to automatically populate NDS user names

If the PPopup AUTONDS command line option is used (ie. d:\path\PPopup.exe /autonds), then the user will not be prompted and PPopup will automatically reply to triggered popups and set the print job owner to be the NDS user name that is currently logged in on the workstation.

Make sure that Enable Popup Window is set in the Pcounter printer configuration.

Using the Pcounter server to automatically populate NDS user names without PPopup

If Enable Popup Window is not configured on printers when using NetWare/OES mode, then the Pcounter server will attempt to find the associated NDS user name based on the following criteria:

- IP address match from the default server connection table
- Network Address search from NDS
- Simple name search from NDS

Using an additional print job release function

If Pcounter Station or Pcounter Pro is being used as an additional print job release mechanism, then it will be necessary to use PPopup as the method of authentication, so that the NDS user name can be set while the job is still in the queue.

Make sure that Keep Job Paused After Popup is set in the Pcounter printer configuration.

Using Wbalance with NDS

Wbalance can be configured to recognize the local NDS logged in user name and NDS account balance by editing

Pcounter.ini in the same directory as Wbalance.exe as follows:

```
[Preferences]  
UseNDSID=1
```