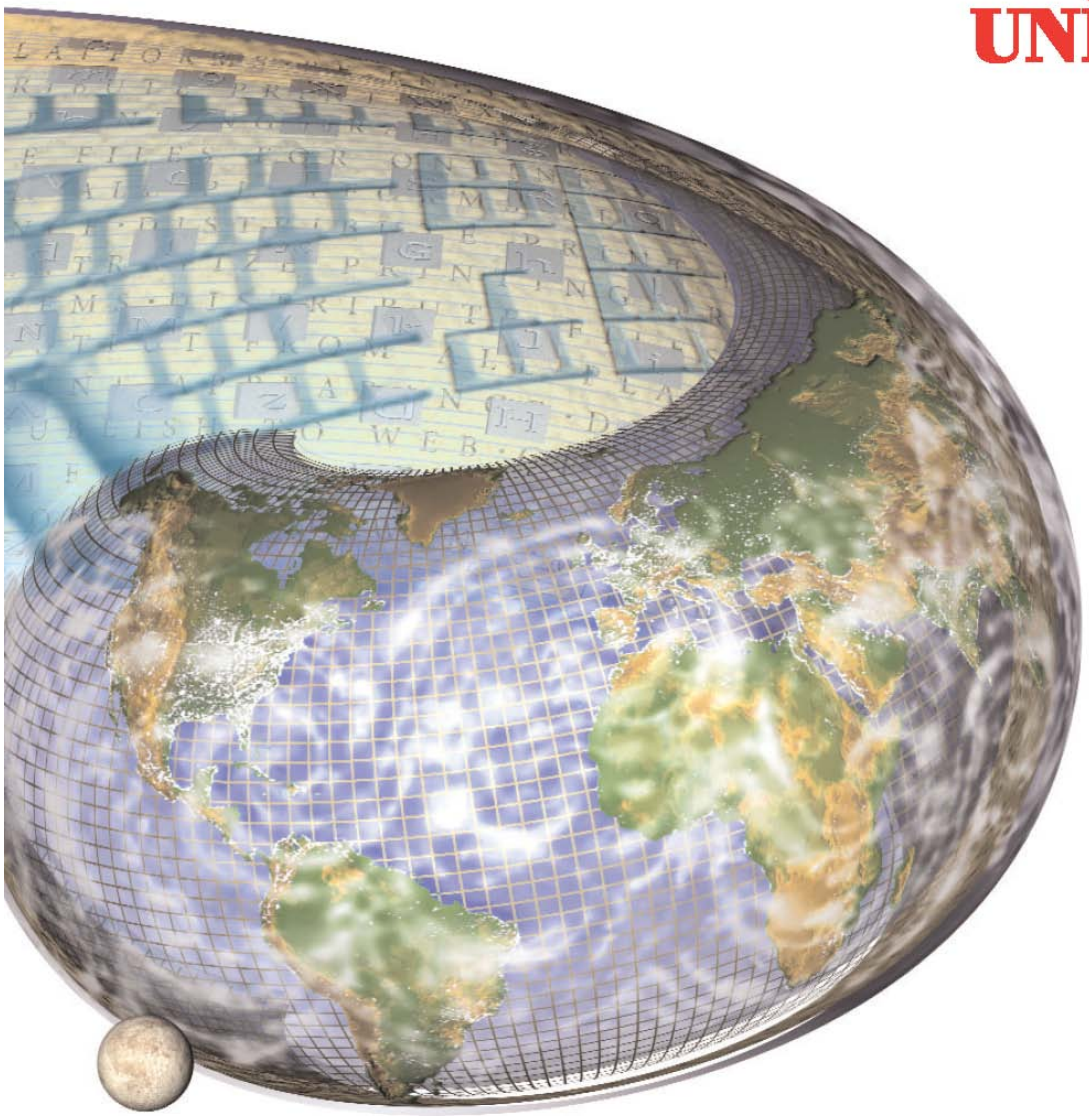
Enterprise Output Manager

Capabilities Overview



UNISYS

The Enterprise Output Management Solution

With all the other output management products available today, why choose this one?

- **Simple to set up and maintain**
  Multiple platforms (Unisys, Windows, IBM, UNIX/Linux, DEC, Sun, and Linux) can print to the same printer, so you get rid of platform-dependent printers and networks— and administration headaches.
- **More for your money—3 for 1**
  You get online print distribution, printing, and document reengineering in a single Windows-based application.
- **Total flexibility**
  It works as a print server or desktop toolkit for distributing data bidirectionally in a client-server environment—and it lets each remote user customize data according to local format, content, and language requirements.
- **Fits with your Internet strategy**
  As you explore new ways to take advantage of this worldwide network, this application fits right in with your Internet strategy—whether you're sending files across a local intranet or performing daily updates to a public Web site.
- **Supports current and future investments**
  This client-based solution runs on a Microsoft Windows platform, so it doesn't impact server performance or require special host software levels. What's more, it prints to virtually any printer and services any open systems platform, so you can upgrade and expand at your own pace.

Proven worldwide by the largest banks, airlines, telecommunications companies, stock exchanges, and government facilities for enterprise computing—since 1992.

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Part 1: Executive Summary
What Is Enterprise Output Manager?

Enterprise Output Manager (formerly DEPCON) is a Windows-based application that delivers information where you need it, in a format you can use. You can "unfreeze" application output files produced from most platforms, such as Unisys ClearPath Plus, Windows, IBM, Sun Microsystems, HP, UNIX, and Linux. With Enterprise Output Manager (also called Output Manager), you can automatically customize and send selected output file data to the destination of your choice: PC, file server, mainframe, e-mail system (for example, MS Outlook or Lotus Notes), fax, CD/DVD, XML file, printer, Web site, PDF file, customer-written program, or software application. In summary, the Output Manager information delivery strategy creates many opportunities to reduce costs and improve productivity.

Output Manager software gives you all the benefits of standards-based solutions. Used by sites around the world since 1992, the open Output Manager environment lets users easily and automatically distribute, access, and manipulate information in ways that maximize productivity and cost savings.

Output Manager distributes information directly to users from lower-cost distribution points. It accommodates both distributed and centralized print and data delivery needs. You can use Output Manager to customize and distribute your data to thousands of network locations. For example, you can send tailored messages and attachments to e-mail users, route customized invoices to a remote department's LAN directory, create indexed files to be shared among users, send individualized facsimiles to clients, post files to a Web site, and transfer portions of a master report to various departmental printers. To minimize high-volume printing and distribution costs, any Output Manager site can send large print jobs to high-speed printers that are located at the distribution centers. You can set up Output Manager so that, for files meeting your criteria, all such operations are automatic.

You need a solution for output management if

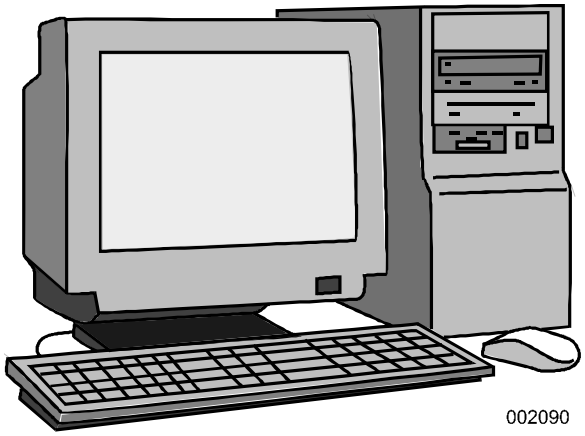
- You have separate software packages that are used for print distribution, print spooling, and documentation reengineering, each requiring separate maintenance, support, licensing, and training.
- You print to outdated host-connected printers, which cost more to operate and have less flexibility than network and desktop printers.
- You waste paper and labor costs rather than distribute reports and other information online.
- You purchase and store expensive preprinted forms, such as invoices and statements, rather than electronic forms templates.
- For large-volume print jobs, you pay standard postage costs, rather than presorted bulk mail rates, because you lack software that can interpret ZIP codes and insert bar codes.

Feature Highlights

- Prints to virtually any printer, including Windows printers, network printers, LPR/LPD and Raw TCP print queues
- Receives files from a variety of sources, including Raw TCP and LPR/LPD protocols, e-mail, file folders, and the Windows COM interface. Files can be transferred from most platforms, including Unisys ClearPath Plus, Windows, IBM, Sun Microsystems, HP, UNIX, and Linux systems.
- Configures automatic distribution of data to e-mail, fax, optical systems, Web sites, and network directories.
- Modernizes the look of output without modifying applications
- Uses electronic forms rather than preprinted forms
- Routes files to Windows-based applications
- Converts ZIP codes to PostNet and alphanumeric strings to bar codes automatically. (Numerous bar-code fonts, including two-dimensional fonts, are supported.)
- Previews files online before or instead of printing
- Searches many files or large files electronically and retrieves data quickly.
- Runs on Windows 2000,Windows Server 2003, and Windows XP Professional.

Print Processing with a Fully Integrated State-of-the-Art Tool

The primary benefits of Output Manager software are operational cost savings, improved operational discipline, document reengineering, and remote administration. If you answer yes to any of these questions, it is well worth your time to evaluate Output Manager software: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- Do users sort through volumes of paper to locate specific data?
- Is information frozen on paper, so it's impossible to distribute data electronically and automatically?
- Is all of your printed output used? Is much of your print file data printed just for archiving? Can you save money by NOT printing?
- Does your print environment prevent seamlessly passing data among your enterprise's systems, networks, and printers?
- Are programmers and administrators limited in the extent to which they can edit and modernize legacy application print file data?
- Do your reports, forms, and invoices lack a modern appearance?
- Do operators print and manually distribute internal reports?

Opening Your Doors to Cost Reduction and Improved Productivity

"Initially, we wanted [this product] to translate the output from our different computing platforms into a common language that our printers could work with, but as we began to play with [various] features, we found a lot of ways we could reduce costs, add value, and improve service."

Director of Information Services
Major Banking Institution

The Output Manager information delivery strategy creates many opportunities to reduce costs and improve productivity. Here are some examples.

Lower Software Costs

For each software package you use for print distribution, print spooling, and documentation reengineering, you likely pay for maintenance, support, licensing fees, and training. Output Manager minimizes your software costs because it's a single, full-featured solution that works with open platforms and virtually any printer.

Lower Overall Printer Costs

You can likely develop a more economical and efficient information delivery strategy that no longer requires, or reduces the need for, large, expensive, and outdated printers. Today's lower-priced printers use industry-standard printer languages, are faster, and have more memory. You can save workspace, reduce printer maintenance costs, and eliminate power and cooling expenses that are often hidden costs of using larger printers. By printing to network printers rather than host-connected printers, you have the flexibility to relocate printers anywhere on the network. As an added benefit, an efficient information delivery strategy reduces the need for expensive system resources, such as UNIX servers, at every location in a physically distributed organization.

Less Paper

By processing, routing, or archiving information electronically, you can dramatically reduce the need for printing information. Instead, you can send it to e-mail addresses or fax numbers, route it to another network location, or archive data to a network directory. By previewing before printing, users print only the portions they need to print.

For example, studies show that material and labor costs of printing reports amount to 6 cents a page. By distributing, accessing, and manipulating data online, thereby reducing the number of printed pages, an organization can save thousands of dollars per year on paper, printer maintenance, and paper storage and disposal. The following table gives two examples of paper usage, cost, and potential savings by reducing printing by just 25 percent.

Pages Printed	Current Cost	Cost If 25% Fewer Pages Are Printed	Savings
300,000	$18,000	$13,500	$4,500
1,200,000	$72,000	$54,000	$18,000

No Need to Purchase Preprinted Forms

By creating electronic form templates, you can reduce or eliminate the need for purchasing and storing expensive preprinted invoices, form letters, shipping statements, and so on. The data and form template can print simultaneously without impacting printer speed.

Minimized Mailing and Courier Costs

To avoid expensive courier service, you can use Output Manager to keep information online and to quickly send it to e-mail addresses, fax numbers, a Web site, or any network location. Rather than transporting print to distribution centers, subsidiaries can electronically send large-volume print jobs to high-speed printers at printing and distribution centers. To substantially reduce postal rates, Output Manager can automatically interpret ZIP codes and insert postal bar codes below an address.

Number of One Ounce Letters Mailed	Standard Postage Cost	Approximate Cost of Presorted ZIP Code Bulk Mail	Savings
100,000	$37,000	$22,500	$14,500
500,000	$185,000	$112,500	$72,000

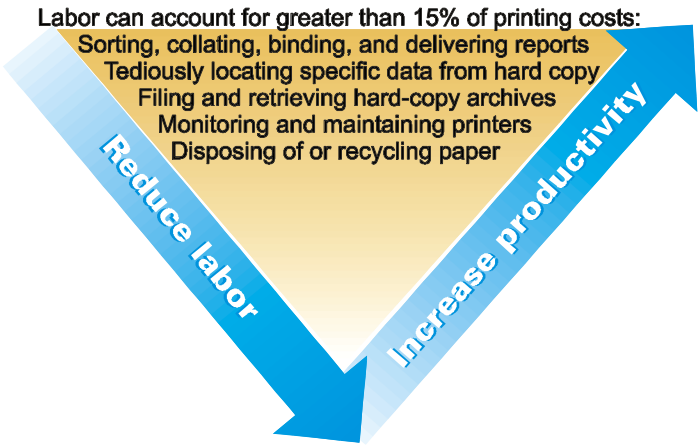
(The example above shows over 50 percent savings by using bar codes on presorted, ZIP+4 bulk mailings.)

Modernized Reports and Statements

Output Manager can reformat print files automatically. For example, it can receive print files with bank statements, update the statements' appearance, and print them automatically. By updating the print file output rather than the application program that produced the output, you can modernize reports and statements cost effectively.

Increased Employee Productivity

Since Output Manager runs on a Windows platform, it has the flexibility to meet site-specific needs and help users more quickly and easily process information. By distributing print to inexpensive and conveniently located printers, users no longer need to walk across the building or between buildings to pick up print jobs. By consolidating print jobs to a single high-speed printing center, subsidiaries no longer need to maintain and operate their own printing centers. Moreover, by accessing and manipulating reports and other data online, you can substantially reduce costs associated with printing.



How a Current Customer Uses This Application

A large midwestern university is using Enterprise Output Manager client/server software to solve one of the most vexing problems that organizations encounter when moving toward distributed multivendor computing: integrating legacy mainframe printing with new LAN and desktop systems.

Previous Print Environment

In recent years, the university has adopted a client/server paradigm, giving individual academic and administrative offices open distributed computing platforms to better serve its 6,300 students. The university supplemented its mainframe-class Unisys ClearPath OS 2200 enterprise server with Hewlett-Packard UNIX-based departmental servers for administrative applications and e-mail, a Digital Micro VAX for research, and numerous Novell LANs and Windows workstations for end-user productivity and file sharing. However, three printing environments—one for the Unisys mainframe, one for the UNIX platform, and still another for the Windows networks—emerged, preventing users in one location from printing files from the others.

"We had too many cases where an office on campus had to send someone down to the computer center to pick up print. This often happened even when they had a Novell LAN with a printer right in their area," said the Director of MIS. "There was no bridge between the mainframe print files and the print protocols that were becoming standard to the industry. This problem had to be solved. It didn't make sense to maintain three separate print systems."

Today's Print Environment

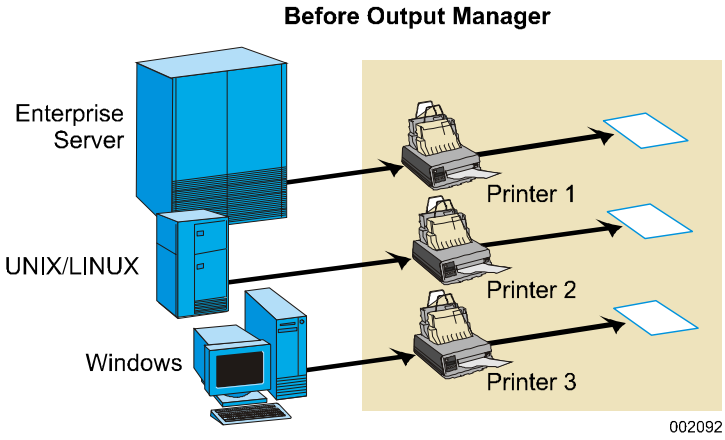
The university configured Output Manager, running on a Windows platform, to provide print queues to which users can send print files from any system on the network. In fact, Output Manager now provides bidirectional movement of print files among these computers, allowing users to easily share resources.

As a result, end users no longer walk across campus to pick up print files, and the university has eliminated redundant printers, thus reducing capital and support costs. The university also has reduced postal expense, using Output Manager to add PostNet bar codes to mailing labels. Plus, the university routinely changes print output without altering legacy applications, leveraging Output Manager's electronic form overlays and unique Data Dependent Attributes capabilities.

"With Output Manager, we can separate the printing functions from the application logic. By letting Output Manager handle the print formatting, the look of the output can be changed without having to alter the application program running on the mainframe. This substantially reduces the opportunity to introduce error," said the Director. "We're using Output Manager to handle the forms overlays and to integrate them with the data at print time. This gives us tremendous flexibility without having to alter any of the programs."

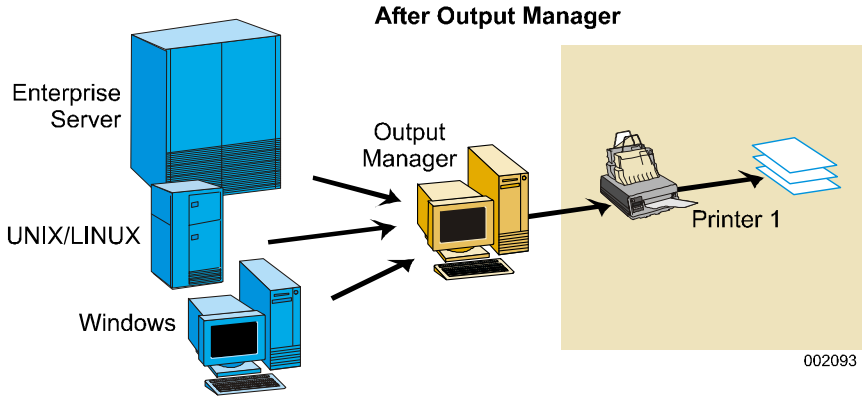
Costs

The following is a simple illustration of the print environment at each location before the university implemented Output Manager.



Costs included three printers, multiple network connections, multiple protocols, and time-consuming system installation, administration, and maintenance.

The following figure illustrates the print environment at each office after the university implemented Output Manager.



Costs include only one printer, one network connection, one protocol, and simpler system installation, administration, and maintenance.

Summary of Cost Savings

In summary, the direct cost savings of using Output Manager include the following:

- By replacing three existing printers with one printer at each location, the spare printers can be sold or placed in locations that need additional printers.
- For each new printer, the university no longer needs a separate printer for each of the one system types, which saves the cost of two additional printers (savings of $3,500/each x 2 = $7,000).
- The ongoing maintenance support for each new printer is less because of the reduction in the number of printers (savings of $180 x 2 = $360).
- The university needs only one (versus two) hub port connection (savings of $500 in network hardware).

Thus, each time a location needs a new printer for enterprise printing, the savings is $7,860. Similar savings were experienced by other Output Manager users, with savings as great as $650,000.

Other Real-Life Scenarios

Output Manager fulfills a wide range of information delivery objectives for businesses and organizations of all sizes. The following real-life scenarios illustrate just some of the benefits experienced by current Output Manager users.

Publishing: A large publisher of the world's most vital business and financial news needed a solution to print many thousands of labels in a short timeframe, on a regular basis, and at distributed print centers.

The customer chose Unisys Enterprise Output Manager and high-speed printers over the competing output management vendors. The Output Manager reformatting capabilities on the label output combined the customer addresses and a PostNet bar code designed to fit within the postal guidelines for white space.

Medical: A mid-sized hospital serving a population of over 100,000 people needed to enhance its patient administrative system. The hospital wanted patient information to be secure, yet accessible across all of the hospital's departments. When a patient was admitted, the hospital needed to generate a data file and various distinct information sheets from its IBM iSeries print file output and then print the appropriate sheet(s) at the respective printer stations throughout the hospital, with some of the sheets requiring bar codes.

The Unisys Enterprise Output Manager solution allowed the hospital to process the input data file, create department-specific reports, and distribute those reports simultaneously to multiple departments (for example, to the appropriate nursing station, labs, and department printer at a patient care office). In addition, Output Manager was able to create a bar code write-band for the patient, replacing an expensive embossing system.

Government: A very large state government agency uses Output Manager to do over 95 percent of all printing from a state-wide benefits application. The application prints to over 1,500 network printers across the state and has implemented over 300 Output Manager workstation installations to better manage the output. Aside from printing, the agency also uses the Output Manager e-mail capability, saving delivery time and money for various reports.

Banking: A large banking service bureau is using Output Manager to support its new laser printers and redesigned print jobs. As a result, customer banks receive better-looking, more-readable statements. In addition, since their statements can be routed throughout the network, the bureau now offers its customer banks the option of printing its statements locally on their own desktop printers.

Previously, with every merger, acquisition, or change in banking regulations, banks threw away thousands of dollars worth of preprinted forms because the names, addresses, and phone numbers were no longer valid. By using electronic forms, bar-coded ZIP codes, and other Output Manager features, banks save thousands of dollars on preprinted forms, paper, postage, and printer maintenance costs.

Public Service: A public service facility has an older high-speed laser printer and a newer one. They can send the same print file to either printer. The newer PCL printer handles print files originally designed for the proprietary printer because Output Manager inserts the necessary printer commands on the fly. The output looks the same on both printers.

Financial: A large financial institution had several employees dedicated to checking balances. Each night employees flipped through 450 batch job printouts to locate specific lines, noted and initialed them, and filed the reports in large storage cabinets. With Output Manager, operators use the online view and search functions to perform their tasks much more quickly. They display several reports at once, each in its own window, search for the specific lines, initial electronically, and archive the required information to a network directory. Reduction in printing and paper costs and space to store the printed reports are just a few of the benefits this client has realized.

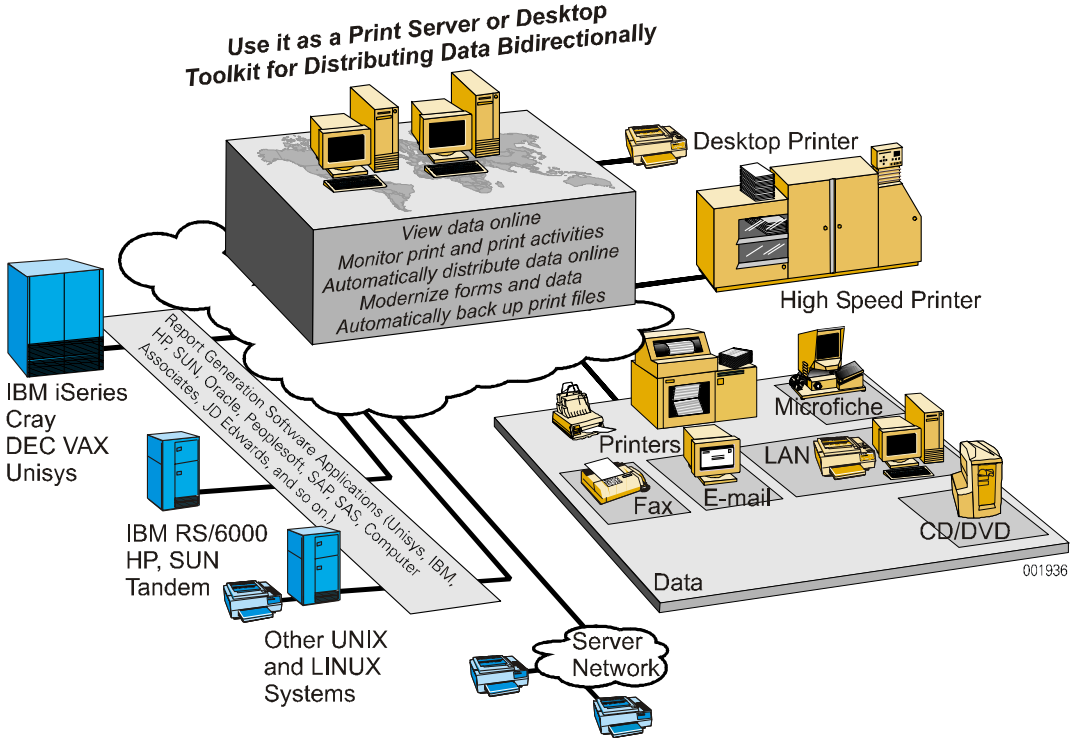
Output Manager is making it easier to distribute internal reports. Previously, they printed, burst, and distributed various report copies to respective internal users. They sent couriers to data processing centers to pick up printed reports and distribute them to various locations. Now, Output Manager acts as an automated courier by sending internal reports, generated on any of the network systems, to departmental printers around the country. The results are fewer printers, reduced printer service and maintenance costs, less paper usage, reduced mailing and courier costs, and improved productivity and data distribution.

Technology: A large software engineering firm uses Output Manager to provide faster service and improve productivity by distributing print to local work areas. Programmers no longer need to pick up printouts at an inconveniently located computer room. With Output Manager, they distribute smaller jobs to desktop printers located in the programmers' work areas, while larger jobs are printed on high-speed laser printers connected to the server in the computer room.

Output Manager—The Glue That Connects Your Print Environment

Output Manager strictly adheres to an open print strategy—a strategy in which industry-standard protocols allow anyone in the network to print anything, from anywhere, to anywhere. Output Manager supports the bidirectional flow of data between hosts, servers, and networks.

In the following figure, each Output Manager Document Server acts as a print server or desktop toolkit for users to bidirectionally distribute data and produce desired data outputs.

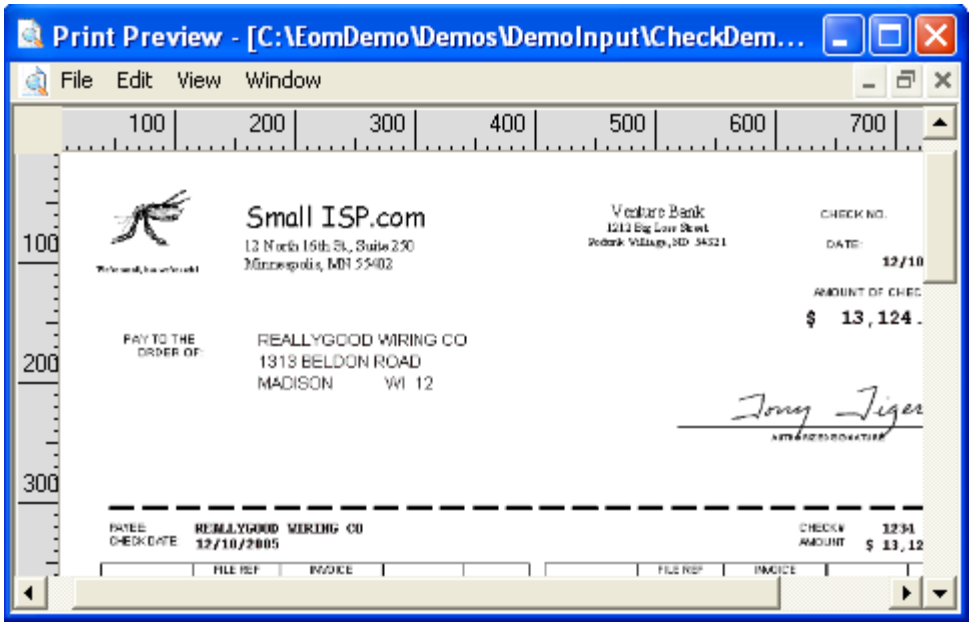


Tasks You Can Accomplish

Output Manager's point-and-click features let you perform many tasks on a single file. Here are some examples.

View Data Online

You can search quickly through online print files to locate information, such as a client's address, a component part number, or financial data. Online searching gives you an opportunity to decide what pages, if any, you need to print. Print Preview, the Output Manager file viewer, lets you view the updated or reengineered version of each document. It lets you zoom in/zoom out, view multiple files simultaneously, copy and paste data into other applications, and mark files as checked. Unlike other file viewers, Output Manager gives you extensive information about the files it manages—such as when and where the file was created, the original file name, and the file size—and provides easy-to-use interfaces to find the files you want to view. Below is a print file as viewed through the Print Preview screen of the Output Manager file viewer.



Print Preview saves time and eliminates unnecessary printing.

Monitor Print and Print Activities

Use Output Manager to monitor and report on print activities. There is no need to monitor printers through a host system. Output Manager maintains a running log of print-related events that you can display dynamically on screen. Using point-and-click operations, you can create customized reports that identify unneeded or under-used printers and other cost-saving opportunities. Reports you can produce from the log data include print job tracking and statistical reporting on paper usage, files handled, and so on, by printer, account number, sending system, or user code. Here is a print statistics report organized by account number.

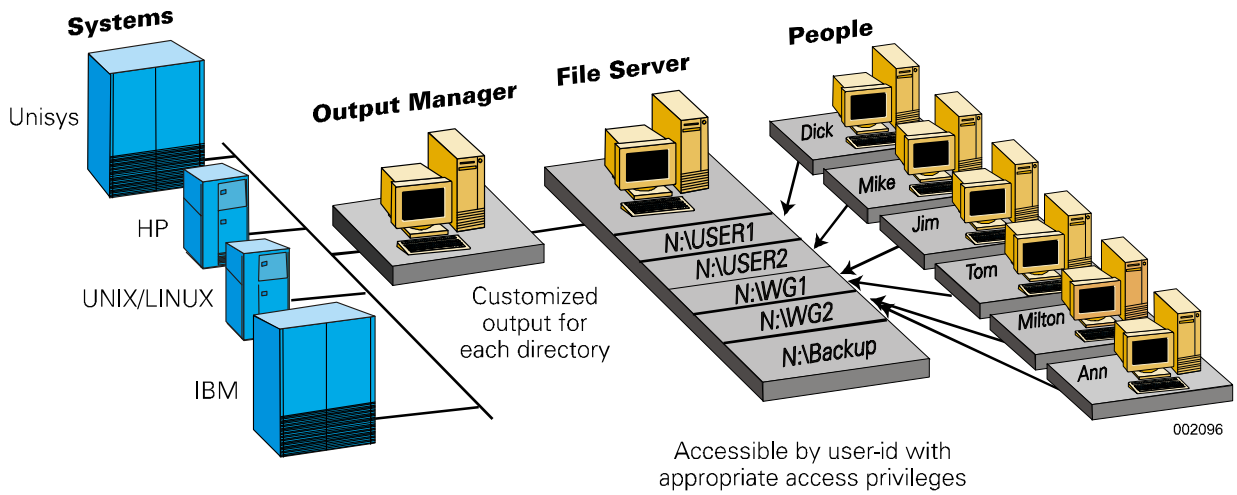
```
Log Processing Range: 12/31/2004 0:0:0 To 12/31/2004 23:59:59 Current Input Log: C:\OUTPUTMANAGER\PA960212.LOG
```

Report: Print Statistics by Account Number				
Account #	**# Files**	**# Logical Pages**	**# Physical Pages**	**# Bytes**
005442	159	1,522	1,522	9,061,030
005452	234	1,172	1,160	5,235,036
167584	2	20	20	90,470
326840	300	4,008	4,008	27,560,009
Unknown	55	360	360	3,220,000
Totals:	750	7,082	7,070	45,166,545

Automatically Distribute Data Online Through File Servers

You can automatically distribute print file information to thousands of network locations, getting information closer to users and to lower-cost distribution points. Output Manager provides an interface to route print jobs to different places, such as e-mail addresses, LAN directories, or host queues. By keeping valuable corporate data online and not printing volumes of sensitive data, you greatly reduce the risk of inappropriate use. Alternatively, you can print routed jobs differently based on characteristics such as the origin of the file, the size of the file, or who created the print job. Output Manager can also send a single print file to multiple printers, even printers of different types such as high-speed, desktop, and impact printers.

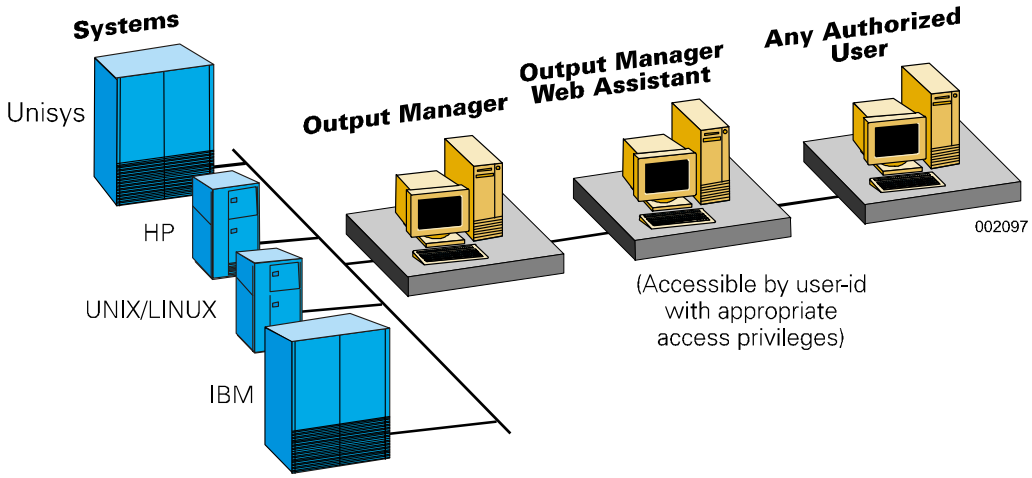
The following figure illustrates how print file information from various systems can be automatically routed through Output Manager to a network directory where specified users can access the information online when they need it. Users can also place data onto network directories for Output Manager processing.



You can place data on and take data off a network directory – automatically.

Automatically Distribute Data Through the Web

You can use the Output Manager Web Assistant to post PDF, HTML, text files, and other file types on a Web page. From there, the files can be downloaded and viewed. This method works well for automatically placing specific data processed through the Output Manager file-masking feature onto an intranet Web page, or for posting less-sensitive information to an Internet Web site where it can be accessed by the general public. There's even a search screen where your customers can find files based on one or more file characteristics, such as file name and/or file size.

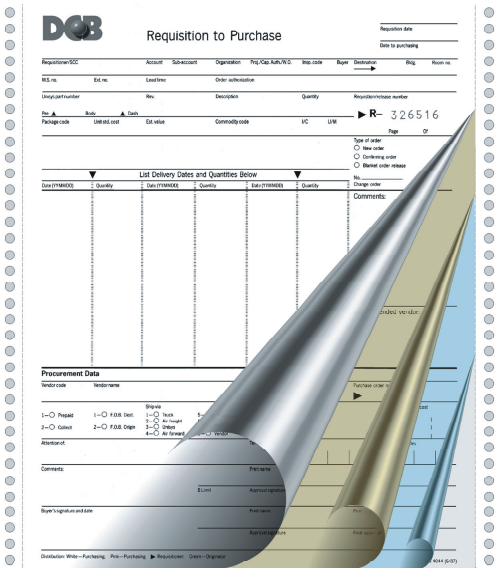


You can place data on and take data off a Web site – automatically.

Produce Electronic Form Overlays

If you currently use expensive preprinted forms, you can save time and money by creating electronic form overlays. A form overlay is easier to update, is less expensive, and lowers operational costs. Clients are finding that this feature alone justifies the investment in Output Manager.

Form overlays are the electronic equivalent of preprinted business forms. The following figure shows a sample carbon copy form that can be converted to a multipage online form.



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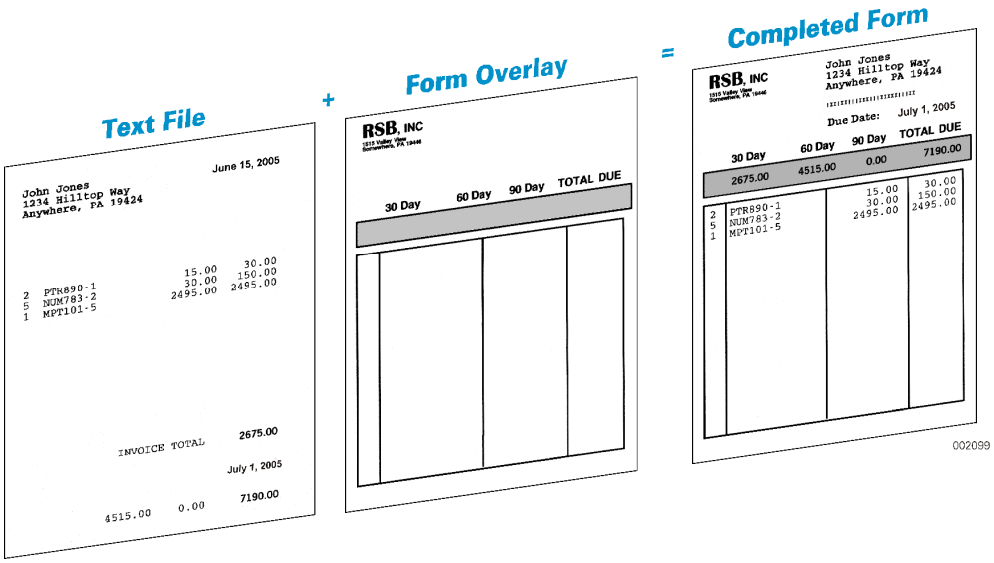
Converting a preprinted form, such as this carbon copy form, to an electronic form has many advantages.

To create a completed form, the Output Manager system automatically merges desired data from a text file to specified locations on the form overlay. You can even create a unique signature font and merge it to any location on the form. The completed form can then be printed to plain paper, as shown in the following example.



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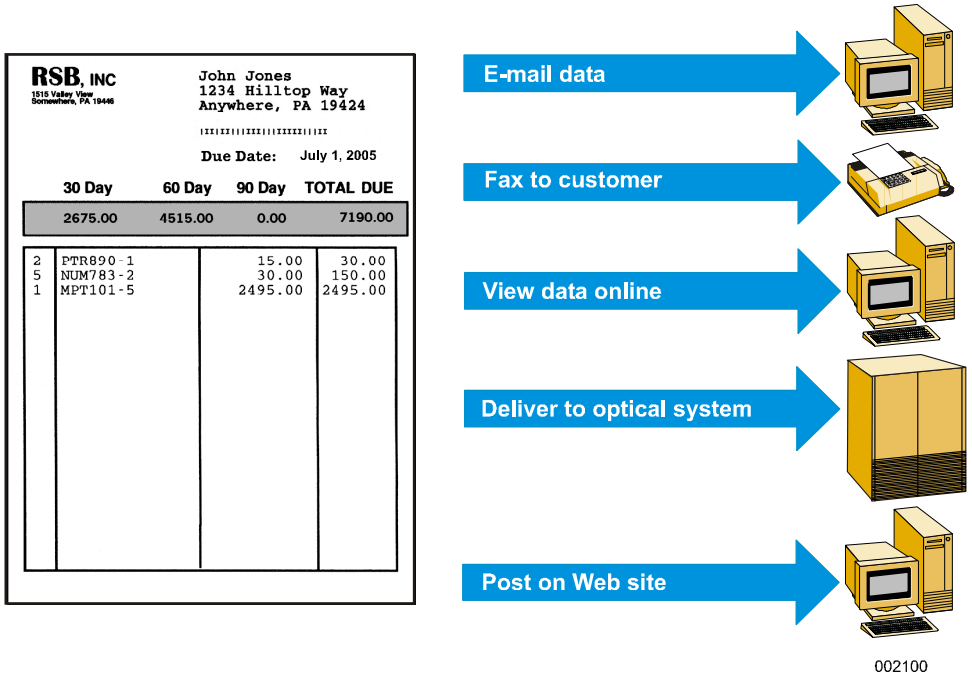
In addition to the cost-saving advantages of replacing preprinted forms with electronic forms, Output Manager lets you distribute the reformatted document, including its Windows metafile electronic form, to various online locations as illustrated below. For fax and online viewing, Output Manager can show the completed form (that is, data on the actual form) for Windows metafiles (WMF) forms described below. (For details on automatic distribution by using the File Mask, refer to Part 2 of this overview.)



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In addition to Windows metafiles, you can implement electronic forms as PCL macros. PCL macros generate fast and efficient electronic forms but are not applicable to online delivery methods.

Support Windows Metafiles

Electronic forms can be supplied to Output Manager as Windows metafiles. This format has the following advantages:

- WYSIWYG: Preview the completed form (what you see is what you get), rather than view the form and data separately.
- Printer Independence: Print to any Windows-supported device.
- Maximum Choice: Choose from the best and most affordable off-the-shelf tools for creating metafiles.
- Ease of Use: Use a forms design tool that creates metafiles so you don't have to process the output with additional tools, edit the output, or manually combine font and form information.

Create Special Electronic Forms

The Output Manager Form File utility creates a special type of electronic form, where the metafile and individual data field definitions are combined into a single file. Form File Utility offers all the advantages of Windows metafiles including

- Ease of Use: A graphical interface provides a simple yet effective tool for defining fields on a form.
- Familiar Interface: It uses familiar Windows actions like point and click and drag and drop.
- Convenience: Field definitions mean no more measuring with paper and a ruler to determine where to place data.

Avoid Network Congestion

Today's communication technologies benefit users in many ways; however, network administrators often struggle with overcoming network congestion caused by network-intensive technologies such as

- Internet World Wide Web browsing
- E-mail, fax, and other electronic communications
- New client/server applications
- Videoconferencing

To avoid network congestion, you need to minimize network traffic when possible. Electronic forms processing is no exception. The Output Manager strategy offloads the forms processing work from the host system to the Output Manager system. The host system's job is to send only the text across the network, so impact on network traffic is minimal. For example, when you send reports to multiple branch office Output Manager systems, each Output Manager can automatically apply the form overlay, add custom logos and local language fonts, and print the completed form. In summary, the Output Manager strategy not only minimizes network traffic, it gives local offices the necessary control and flexibility for automated forms processing.

Edit and Modernize Data and Forms

You can change the appearance and readability of printed output without changing the application program that generated the print file. For example, you can take a simple file of invoice data and reformat it to fit an electronic form overlay you designed. For any identified data, you can

- Change fonts, character size, and data format
- Relocate text; for example, move the Total Due amount to the top of a billing statement, even though the legacy print file has it at the bottom
- Move text from one page to another, or add text that appears on one page to pages that follow
- Add horizontal or vertical bar graphs that depict the range of values for data that appears in the input file
- Dynamically position graphics, such as signatures, in a report
- Perform tests on data to determine the actions applied to the data
- Perform computations on data and use the results to modify the actions applied to the data
- Exclude the data from the output
- Add company logos at the top of the page
- Add bar-coded ZIP codes below an address by having Output Manager interpret the ZIP code in the print file
- Apply many other types of bar codes to packages, cartons, bottles, and other commercial products.

Customer Mailing Address:

MARY SMITH
2470 HIGHCREST RD.
ROSEVILLE, MN 55113 1234

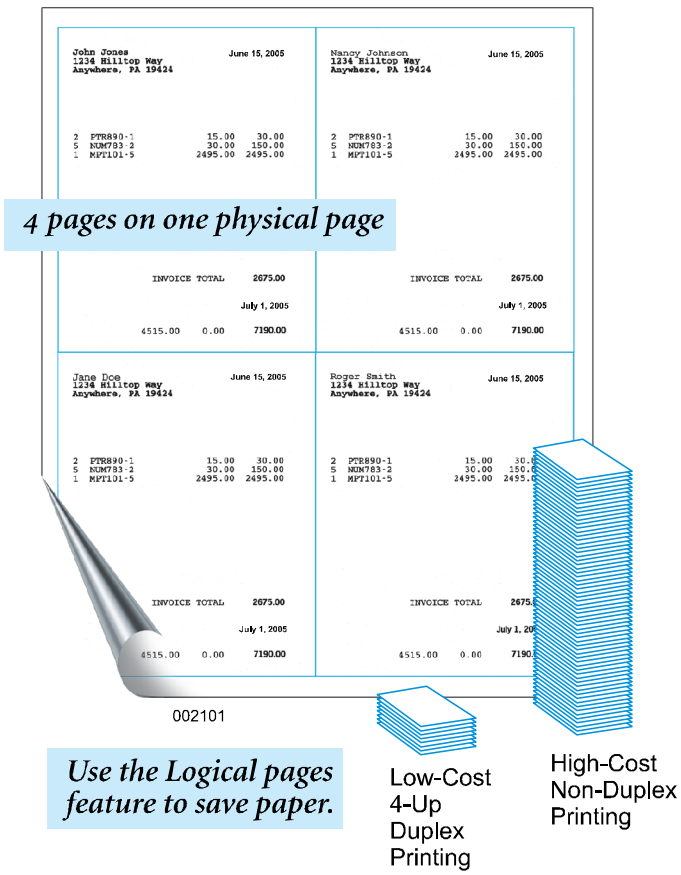
Bar-coded ZIP codes mean cheaper postal rates on your mailings.

Automatically Back Up Files

You can automatically back up files to online locations by specifying the path name to the desired location, such as a local hard drive or resident file server, and other configurable properties. You can consolidate file backups from multiple sites into fewer sites or even a single site. Online retrieval of archived data is virtually instantaneous; moreover, you avoid the costly "I can't find it so I'll just reprint it" syndrome that strikes when you search through file cabinets and stacks of paper.

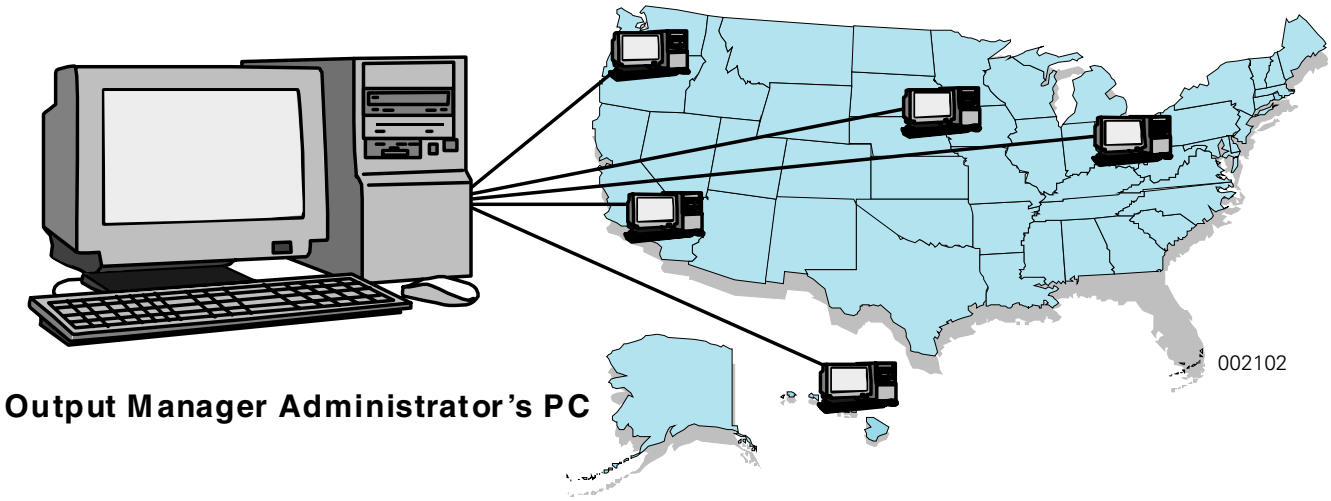
Other Key Features

- **Custom Job Attributes**—This feature gives you the flexibility to process any file according to site-specific needs. For example, assume you have a print file containing individualized reports to 100 field salespeople. You want to e-mail the appropriate report to each salesperson. The Custom Job Attributes feature lets you write a user application, such as a Visual Basic, C++, or C# program, that creates 100 unique output files. The Directory Monitor and COM interface capabilities of Output Manager can find the 100 output files, then e-mail each report based on the e-mail address placed in the file by the custom job—all automatically!
- **Directory Monitor**—This feature allows automated processing for files that were not sent directly to Output Manager through a communications transfer. For example, you can create or modify files on a PC, and then put them in a directory. Continuously or at defined intervals, Output Manager monitors the directory for files matching your criteria. When a match is found, it processes the files according to your predetermined specifications.
- **E-mail attachments with any file extension**—Output Manager can send any file as an e-mail attachment. The file can have any extension, such as .xls (Excel), .doc (Word), .txt (text file), or a user-defined extension. Files that you reformat and convert to PDF can also be sent as e-mail attachments.
- **Logical pages**—You can define logical pages, up to 200 logical pages per physical page. The figure shown here is 2 rows by 2 columns for a total of four logical pages on a physical page. If printed in duplex, this example would hold eight logical pages per physical sheet of paper. This feature is ideal for saving paper or for mailing label applications.
- **Receive e-mail**—Output Manager can receive e-mail and process the text, the attachments, or both. How would you like to have users send surveys or time cards to Output Manager, and then have Output Manager schedule your application to process the data automatically?
- **Add/remove printers**—From simple screens, a printer is easily added or removed while other printers continue printing. The centralized view of configured printers minimizes guesswork regarding printer locations.
- **Printer support**—You can control and send print jobs to virtually all of the commonly used printers as well as a large assortment of less commonly used printers. For example, Output Manager can drive any printer for which you have a Windows-configured driver, which gives you access to hundreds of different kinds of printers; by routing files to such printers, you have the added benefit of being able to incorporate Windows fonts.



- **Web Assistant**—With the optional Output Manager Web Assistant feature, files can be saved as PDF, HTML, and other text-based files, and then transferred to a Web page where anyone can view them.
- **File Expiration and Search**—The File Expiration and Search capability provides a means to easily and efficiently delete outdated backup or indexed files. Once the desired directory paths have been configured and established, the folders are automatically examined at regular intervals and expired files are deleted. You can also index the pages in your files based on key information on each page or group of pages. Output Manager can later be used to search for only the pages of particular files that match your search criteria. The results of your search can be submitted as a new Output Manager job.
- **Ease of administration**—Administrators configure their Output Manager systems to process incoming files automatically. These activities include formatting the output, configuring jobs to route the files to printers and other destinations, and configuring File Masks to identify incoming files and automate the process. More detailed functions include organizing printers into groups and choosing a strategy for distributing files among printers in the group.
- **Ease of operation**—Output Manager is designed to run automatically. Operators simply use the Output Manager client interface to monitor and manage incoming and outgoing files and jobs. For example, they can choose which files to print based on which paper is in the printer, and they can find and reprint all or parts of a file, as needed.

Output Manager Administration



Output Manager Administrator's PC

Here are some of the recent enhancements to Output Manager administration:

Automated operations and remote administration handled through a Windows service: The new Windows service design provides improved security, more flexible administration, support of multiple and simultaneous client applications, and other enhancements. The Output Manager client application can access the service from anywhere in a Windows-based network, allowing authorized users to remotely administer the service.

Enhanced security: Role-based security ensures that every request to the application is from a user who belongs to a role that permits the associated operation. For example, administrators can allow one set of users to start and stop printers, a different set of users to configure items such as Print Attributes, and perhaps another set of users to perform only a more limited set of operations.

Directory Monitors (formerly called Auto Directories): Directory Monitors can now be triggered by file system events as well as the traditional periodic scan.

Logging enhancements: With the new log and tracing mechanisms, users can determine the current Output Manager status, find any errors that may have occurred in their Output Manager client and/or server, and audit Output Manager actions that have occurred. In addition, the Log Viewing and Reporting tool is enhanced, and it is easier to write log analysis programs..

Integrated Backup and Index File Expiration capability: The Backup Manager utility has been replaced with a File Expiration and Search capability that is integrated into the Output Manager configuration, providing a means to automatically delete expired backup and indexed files without executing a separate utility; in addition, log entries for these files are written to the Output Manager log file, rather than to a separate log file. The overall result is easier maintenance, support, and improved reliability.

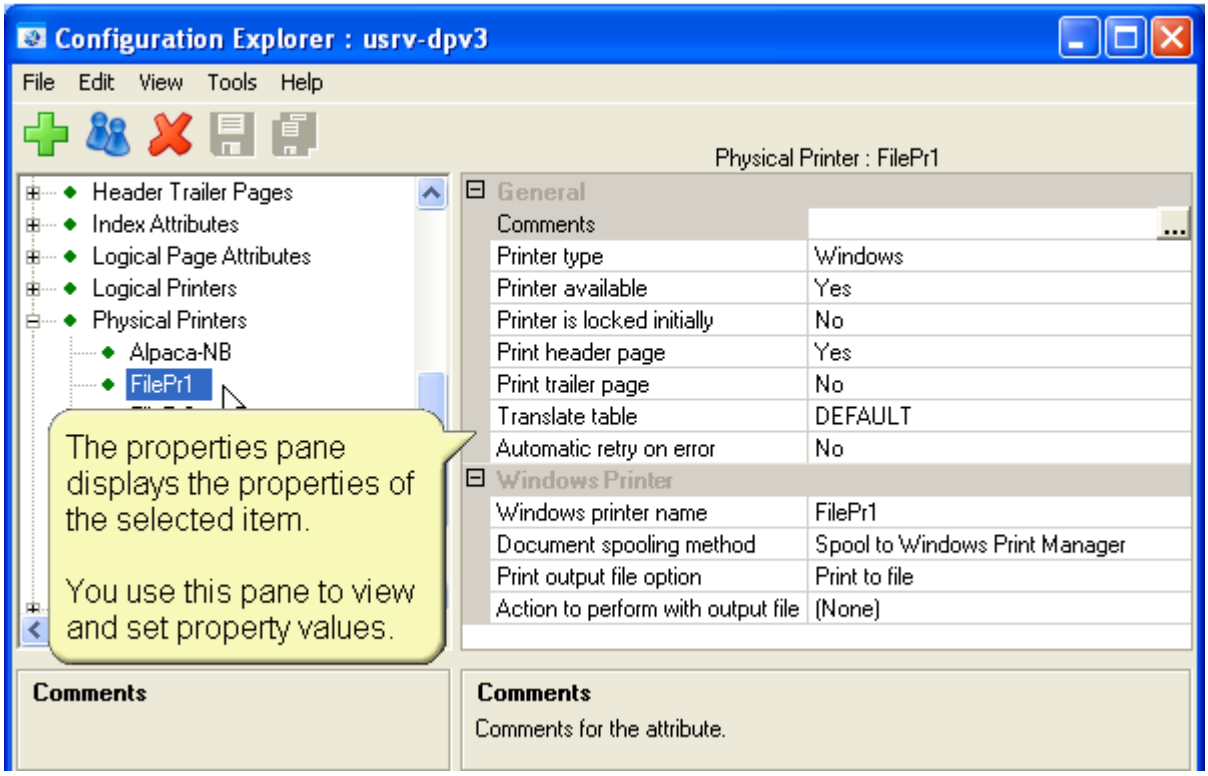
New examples provided on the release CD: The Tools subdirectory contains utilities, example source code, executable "custom jobs", and scripts that you can integrate into your Output Manager environment.

Configuration Explorer: Configuration Explorer is the new backbone of Output Manager administration. Its Windows Explorer-like interface lets administrators configure "Attributes" and other items that are necessary to allow Output Manager to receive files, print files, back up files, and so forth. You can easily select multiple items within or across entities and simultaneously modify common properties; helpful descriptions of configurable items are displayed onscreen.

In addition, the new Import/Export Configuration capability consolidates the capabilities previously available through Import Configuration, Print Configuration, and Batch Configuration, and it adds some very useful enhancements. For example, rather than providing only import capabilities and only for certain configuration entities, the new Import/Export capability lets you import as well as export all items or selected items for any configuration entity. From an easy-to-use interface, the administrator can also select items to import or export. In addition to being able to import the Output Manager configuration file type (.CFG), the Import/Export capability also supports the import and export of XML files.

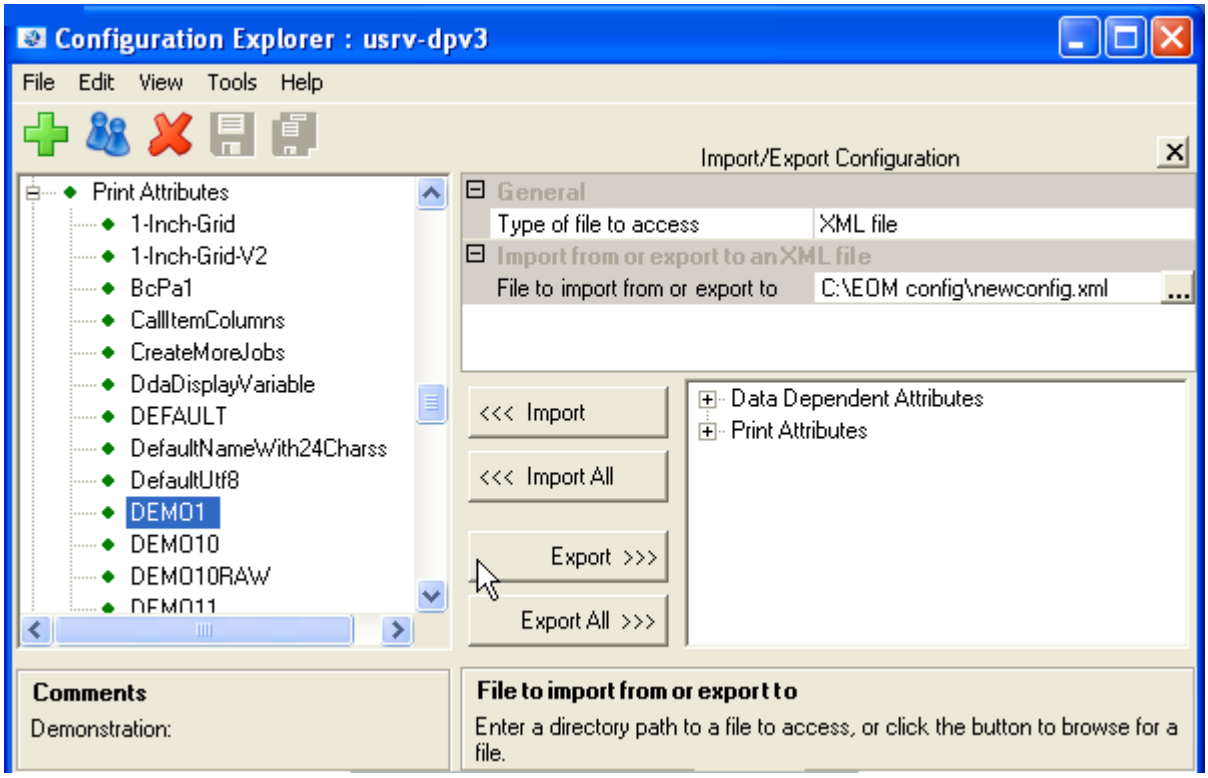
Configuring Your Output Manager Environment

Here is a sample window of the Configuration Explorer interface used to define configurable items in Output Manager:



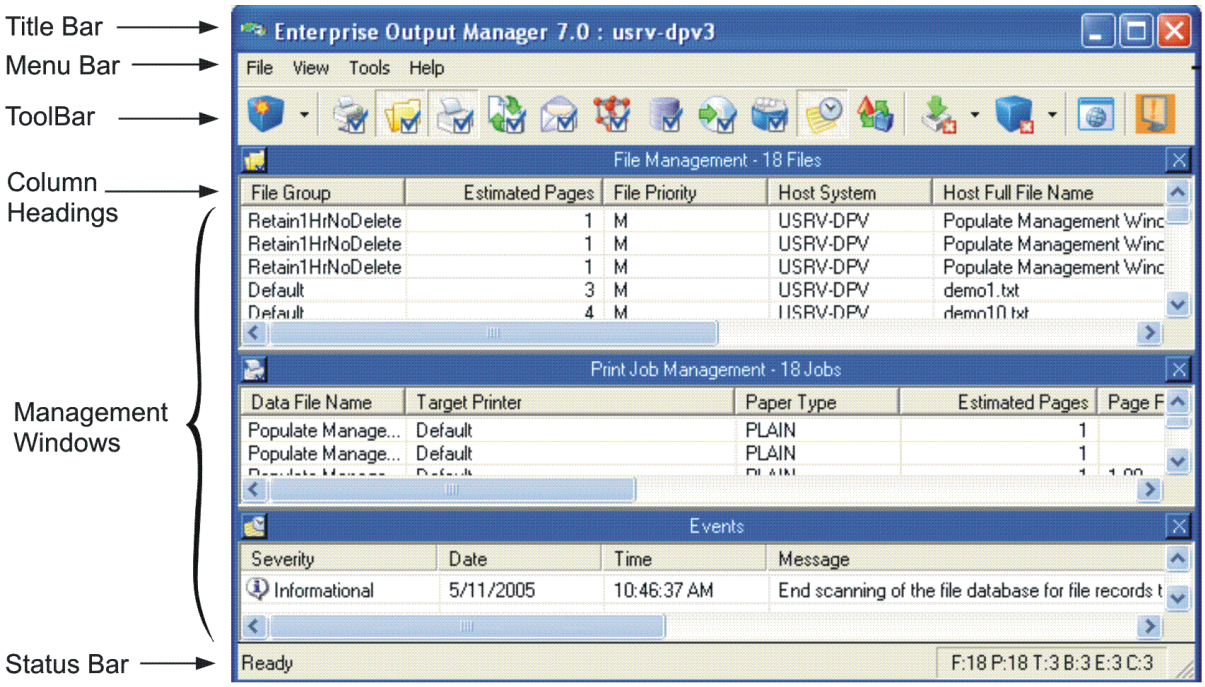
Migrating and Maintaining Your Output Manager Configuration

Here is a sample window of the Import/Export Configuration interface used to migrate and maintain your configuration:



A Closer Look at the Operator Interface

Here is a sample main window of the Output Manager client user interface from which operators monitor and manage incoming and outgoing files and jobs.



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Management Windows Interface

The enhanced Management Windows interface is easier for operators to use and offers additional capabilities. The following enhancements provide better usability, flexibility, and functionality:

- A new Printer Management window, with behavior similar to other Management Windows, such as the ability to select display fields, specify sort order, filter the displayed contents, and close the window.
- Separate windows for the Backup File Management and Indexed File Management (formerly combined as the Saved/Archived File Management Window).
- Multiple management windows that can be open simultaneously, allowing operators to more closely monitor activities. For instance, they can see a transfer activity in the Transfer Status window, printers start up in the Printer Management window, and the updated status messages in the Events window.
- Menus tailored to each Management Window. The menu is accessible through a button on the Management Window title bar as well as through a context menu.

Alert Explorer

The Alert Explorer window displays alerts that may require human intervention—for instance, a printer needs a particular paper type, needs realignment, or is not functioning; another example of an alert is that the Output Manager service has been started. With Alert Explorer, alerts are easy to view and manage.

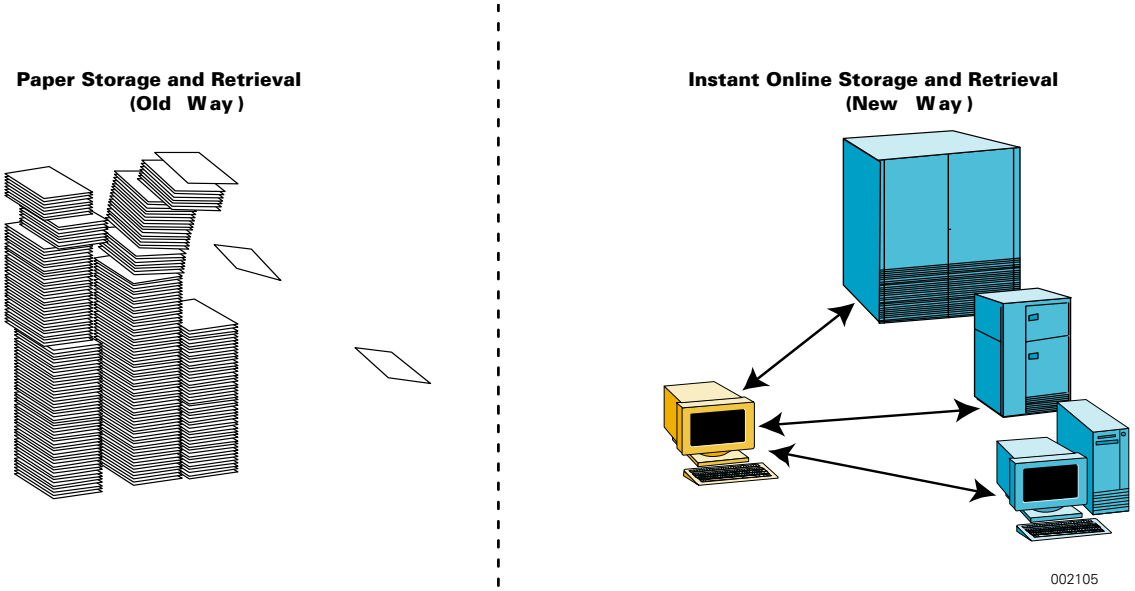
Online Help Enhancements and New Multimedia Demos

In addition to expanded context-sensitive (F1) help and onscreen help descriptions, the online help includes new multimedia demos that administrators and operators can view to quickly learn how to use new Output Manager capabilities, such as Configuration Explorer, Import/Export Configuration, Alert Explorer, Management Windows, and Legacy Interface Assistant.

Types of Output Supported

A key strength of Output Manager is that it supports many types of output. Data from each print file can be transformed into one or more of the following types of output:

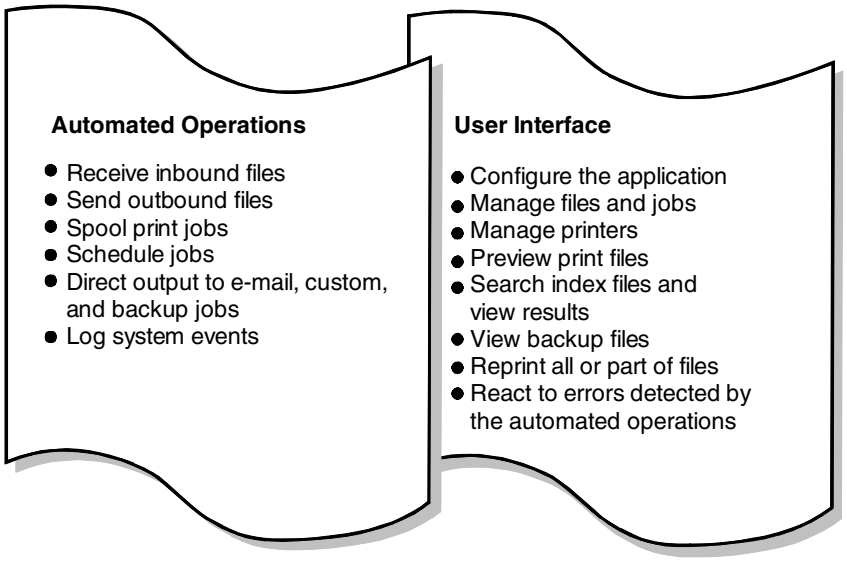
Output	Description
E-mail	Output Manager supports e-mail systems that are SMTP or MAPI/CDO accessible, including Microsoft Outlook, Microsoft Exchange, Lotus Notes, and Internet e-mail. To confirm that the e-mail was sent, the sender can either use the Save Sent Mail option of the e-mail system or view the Output Manager log via its Log Viewing and Reporting utility. The print file can be part of a mail message or included as an attachment to a mail message.
Fax	You can turn a print file into a fax by going through a supported e-mail system to a fax modem, or by printing to a Windows fax printer. The fax hardware requirements depend on the fax software application you are using. Note that Output Manager has no programmatic control over fax machines.
Magnetic readable images	Output Manager supports a variety of MICR printers (magnetic ink character recognition), which print magnetic readable images used, for example, to automate check processing.
Network directory files	You can automatically route a file to a LAN directory, where users with appropriate privileges can access it. Files can be TXT, PDF, HTML, XML, and so on.
Paper	For information that needs to be printed, Output Manager supports a variety of desktop, medium-range, and high-speed printers (for details, see "Support and Reference Information" in Part 2). For example, Output Manager can print to any printer configured through Windows.
Input to desktop tools and customer applications	You can route data to Windows applications, DOS applications, or user-developed applications. From such applications, a user can view and edit the data.
Web site or server	The Output Manager Web Assistant can post output files to a Web site so that Internet/intranet users can view the file using a Web browser. For example, Web Assistant can be used to integrate or replace a Web interface for monitoring folders and placing files on a Web page. The posted files originate from any standard source, such as a mainframe or a Linux system. Posted files are typically in PDF format, but other file types are supported, such as TXT and HTML.
File servers and mainframes	You can store files in Output Manager's backup file format and share these files with any other Output Manager user. This is a good way to give users electronic access to information files.



Part 2: Technical Summary
Client/Server Architecture

The previous release of Output Manager provided automated operations and a user interface in a single Windows application. The following figure lists operations that were automated through Output Manager, as well as tasks that were performed manually through the user interface.

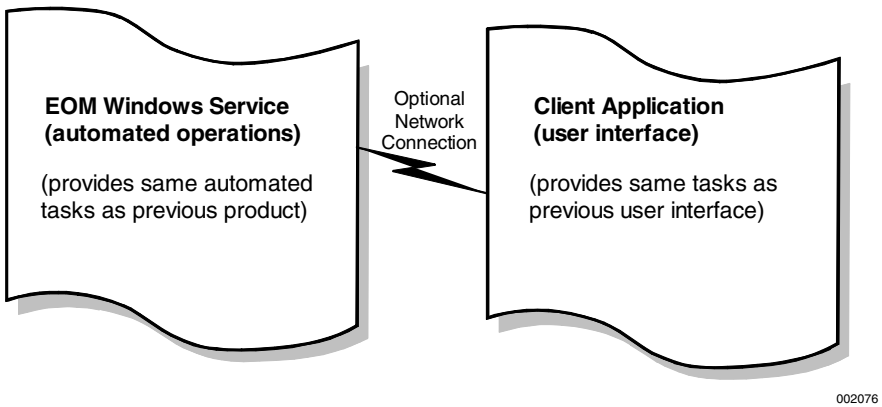
Previous Design: Single Windows Application



The tight coupling between these types of operations requires the user interface to always be active when the automated operations are being used. It is not possible to exit the user interface or log off the computer without terminating the automated operations. Leaving the user interface active is a security risk since it exposes the application to unauthorized users.

The benefits of a separate service and client in the new client/server design include improved security and more flexible administration. Output Manager is ideally suited to reap the benefits of a Windows service. The automated operations provided in the previous Output Manager design have been moved into a Windows service, which runs as a separate application but does not have a user interface. While the Output Manager client interface generally presents the same configuration items and features as the previous design, with improvements in appearance and ease of use, the interface has been moved into a separate Windows-based client application.

New EOM Design: Separate Windows Applications
(running on same workstation/server or connected by a network)



Printer Connectivity

Using the Output Manager application, you can specify a variety of printer connectivity.

Parallel-Port (LPT) and USB-Connected Printers

Output Manager drives parallel ports and USB-connected printers through the Windows Print Manager.

Serial-Port (COM) and USB-Connected Printers

Serial-port printers and USB-connected printers can use ports COM1 through COM4 on the Output Manager system. Output Manager drives the printers though the Windows Print Manager.

Network-Connected Printers

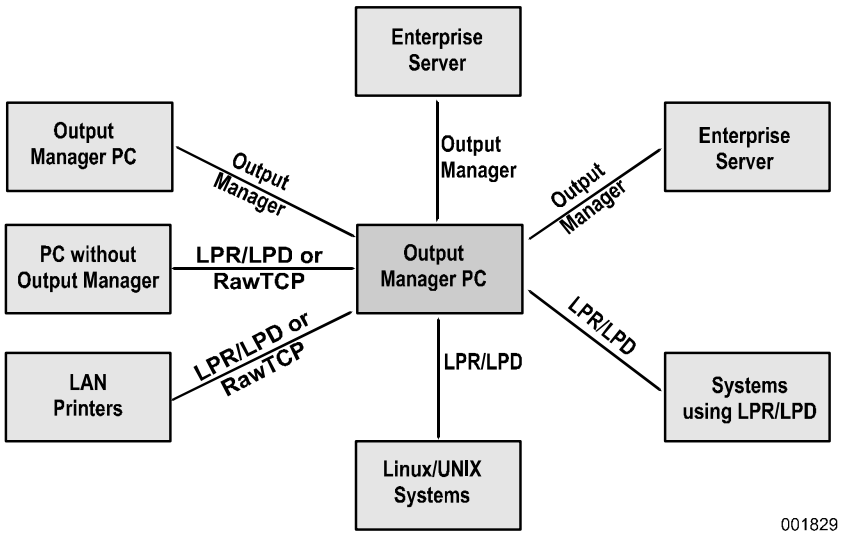
You can send print files to printers with TCP/IP network cards, LAN-connected printers, and printers connected by file servers. You can send print files to printers running through network software, such as LAN Manager and Windows networking. A key Output Manager feature is that it supports any network software and network printers that Windows supports. You can also send print to network printers through the LPR/LPD or Raw TCP protocol.

Printers Connected to Systems

You can send print files through Output Manager to system-connected printers as long as the system has LPR/LPD printing protocol software. Such software is built into most UNIX/Linux systems and many other systems. Output Manager sends files to system queues over a printer/communication path configured in Output Manager. You can also send files through TCP/IP to Unisys mainframes that are running the ClearPath OS 2200 or MCP host component of Output Manager.

Communication Paths in a Multisystem Environment

The following figure shows the protocols that enable file processing among multiple systems in the network through the Output Manager system (LPR/LPD, Raw TCP, and Output Manager protocols). In addition, systems installed with the Output Manager software can send data among such systems by using the Output Manager protocol. Refer to "Support and Reference Information" in this document for descriptions of the supported protocols.



Install Output Manager Where You Need It

Output Manager is made up of several components, including the Output Manager client application and the Output Manager service. All components or a subset of these components may be installed on a given Output Manager system. The Output Manager client application is installed on one or more systems from which you manage print files/jobs, printers, and print queues. For example:

- You can easily route designated types of print files to a LAN directory for access by specified user-ids, where the information can be viewed from a desktop tool but does not necessarily need to be printed.
- You can dynamically configure or remove desktop, midrange, or high-speed printers.

Installing Output Manager on end-user systems is not required. For example, assume a user does not need to manage print but needs to access a file that Output Manager placed in a LAN directory. If the user does not need any file characteristic information (such as file origin, file size, and print data) and does not need to use Output Manager features to manipulate or process the file, a file viewing tool other than Output Manager can be used. If the user needs to view the embedded file characteristics and print commands, then the Output Manager client should be installed..

The following editions of Output Manager are available:

Enterprise Edition

The Enterprise Edition, the most expensive edition, provides significantly greater performance capability than the other editions, especially when installed on a multiprocessor system. The Enterprise Edition manages printers of any speed specifically, high-performance Windows and TCP/IP printers that print more than 70 pages per minute (ppm). The Enterprise Edition provides the best performance and capability of the Output Manager editions. Remote client access is limited only by the capability of the system and communications of where the Output Manager service is installed. Similarly, given sufficient system resources, this edition can support up to 25 concurrent printers, 50 communication listening paths (inbound) and 50 communication sending paths (outbound), and thousands of enabled printers.

Department Edition

The Department Edition is more expensive than the Professional Edition but less expensive than the Enterprise Edition. This edition is used when more than one of a type of printer is required but doesn't have to support high volumes of data or high-speed printers. The Department Edition manages printers of speeds not to exceed 70 ppm, including Windows and TCP/IP printers. This edition limits client access to 5 concurrent remote applications*, 5 concurrent print jobs, 5 inbound and 5 outbound communications paths, and up to 50 enabled printers.

Professional Edition

The Professional Edition is the least expensive and the most restrictive. There are two primary uses for it: first, for end users who want to view and possibly reprint all or parts of backup files created by another Output Manager system, and second, for an administrator (the person who maintains the Output Manager configuration) may use it to test new configurations on a workstation before updating the production Output Manager system. The Professional Edition manages one of each type of printer configurable in Output Manager, including one Windows printer and one TCP/IP printer, where physical printers are not to exceed 40 ppm. This edition limits client access to one concurrent remote application.* There is no limit to the number of client applications that may run on the same PC as where the Output Manager service is installed. Further, this edition limits access to one concurrent print job, one inbound and one outbound communications path, and one of each type of printer.

* A "remote application" is defined as a single instance of a client application; two client applications started by one user on one remote computer count as two remote applications.

How an Incoming File Is Processed

What Is a File Mask?

Output Manager is designed to route and process files automatically. The Output Manager configuration entity that provides this function is the File Mask. A File Mask is a collection of criteria that determine how to process incoming files. File masks are used to determine the File Group and what kind of job or jobs should be automatically created. There are dozens of items to mask on, including user-embedded information.

Examples of File Masks

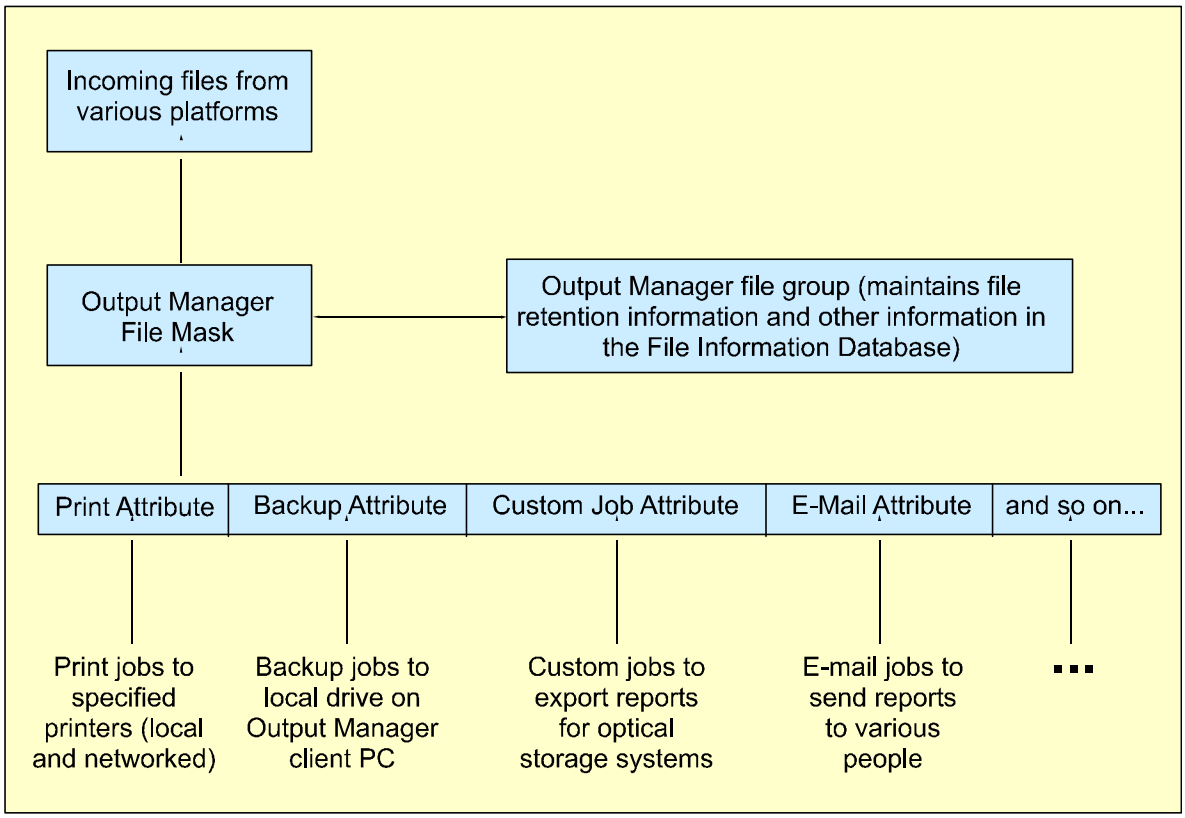
Here are some uses for File Masks:

- Sending large print jobs to faster printers ("If number of bytes > 20 MB, then ...")
- Identifying files with special formatting requirements ("If paper type = "pretty pink", then ..."
- Identifying files to convert to PDF and then e-mail the files to all vice presidents ("If banner-id = quarterly report, then ..."
- Distributing data according to their MCP print destination, IP address, priority, and so on

When a file arrives in Output Manager, it is compared against the File Masks configured in Configuration Explorer. If the file matches the criteria defined in any File Mask, Output Manager creates a job that performs the actions specified in the File Mask.

For example, a system application in New Delhi creates corporate report data that needs to be sent to Tokyo for printing. The Output Manager system in New Delhi would include a File Mask that automatically transfers these files to the network address of the Output Manager system in Tokyo. The Output Manager system in Tokyo that receives the corporate files would include a File Mask that automates local printing of information pertinent to their operation. Other files created in New Delhi might need to be printed and then transferred to a different server for archiving, so the New Delhi Output Manager system would define a File Mask for those files as well.

Once you understand the File Mask concept, you can easily grasp how Output Manager automatically processes data.



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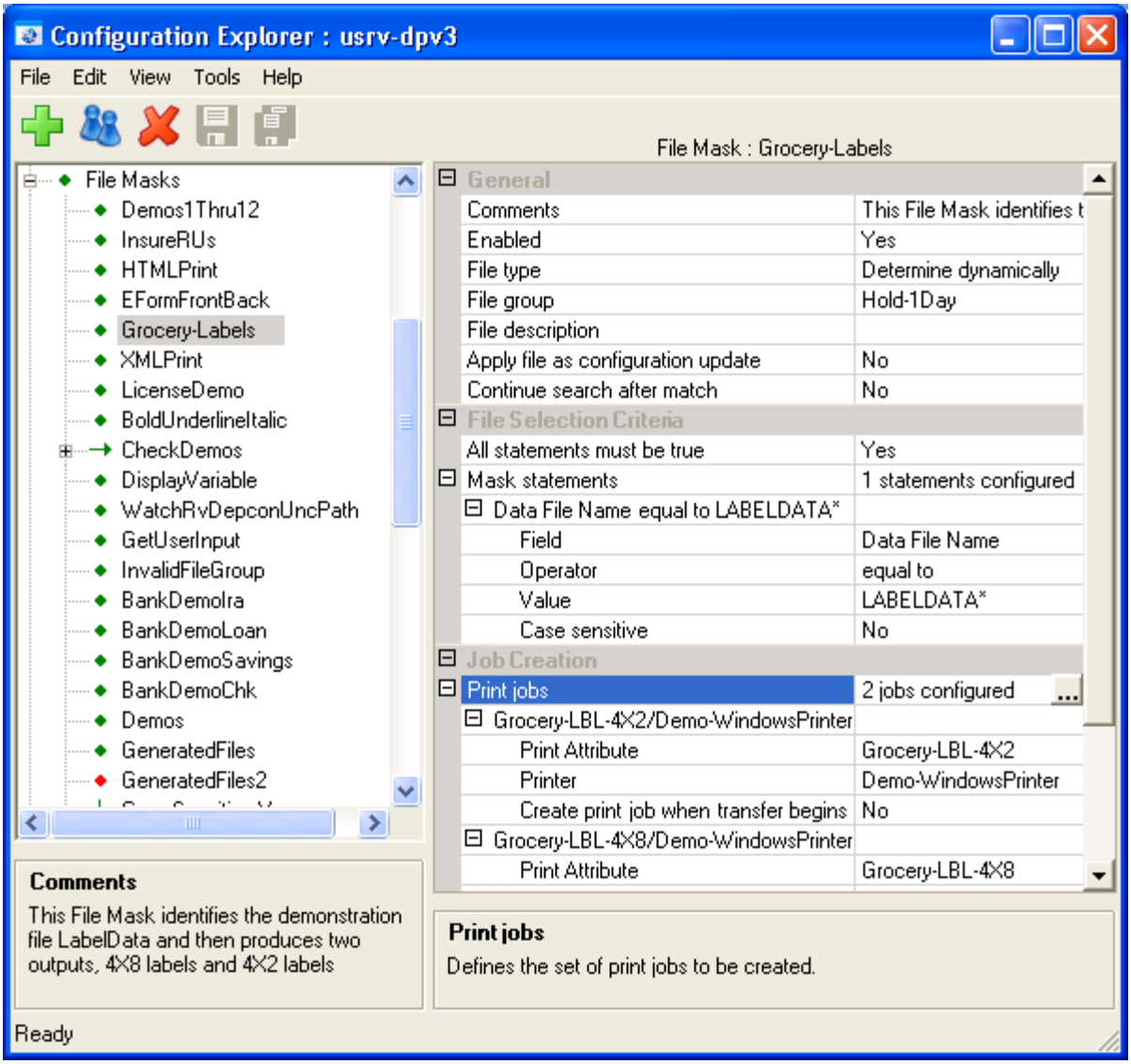
Configuring a File Mask

Each File Mask has two main parts that an administrator configures through the File Masks properties pane of Configuration Explorer:

- Part 1—File Selection Criteria that determine which files the set of actions applies to (for example, the file's creator, what host the file came from, the host queue the file came from, and the estimated pages)
- Part 2—A set of actions that the Output Manager application is to perform (jobs to be created), such as printing, transferring, or backing up the file

Here is a sample screen showing the configuration settings that an administrator specified for a File Mask called Grocery-Labels. The File Selection Criteria settings includes properties for identifying what files are to match on this File Mask, and the Job Creation settings includes properties with collection editors for defining the various jobs that are to be created for files matching this File Mask.



File Group

Each File Mask is associated with a File Group. The File Group name is specified on the File Mask configuration. In a File Group definition, you specify how long to retain the file, where to store it, and its final disposition. A list of all defined File Groups is available on the File Mask dialog box. Since several File Masks can be associated with each File Group, File Group definitions do not need to be repeated for similarly processed files.

Print Attribute

The Print Attribute list shows all the Print Attribute templates that are defined on the particular Output Manager system. Each individual Print Attribute defines how Output Manager should print a file that fits the specified mask, for example, paper type, header and trailer pages, which printer features to use, and how the print data should be formatted. The user who is setting up the File Mask just clicks on the name of the Print Attribute to be used, and all future print files that match the mask are printed using that Attribute.

Transfer Attribute

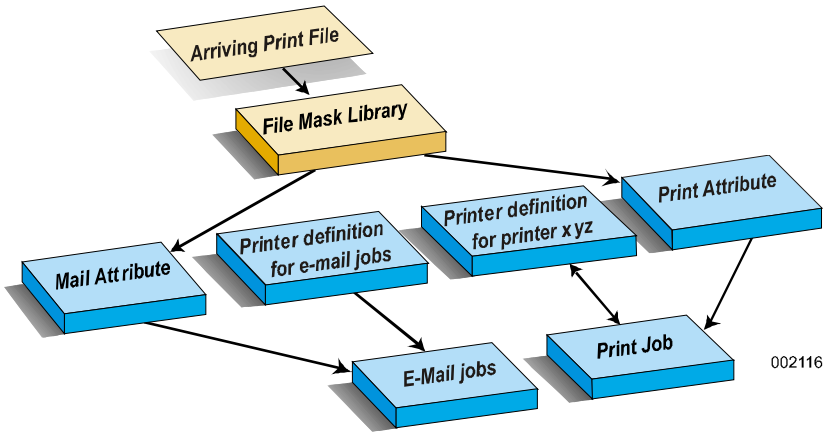
The Transfer Attribute defines a transfer job for print files to be sent to another system. Transfer Attributes tell Output Manager how, where, and when to automatically transfer designated files. When creating a Transfer Attribute, you specify the name of the Transfer Attribute, the path to the destination system and, if the destination system is a host/server, the print queue on which to place the file. For example, a print file can be routed from a UNIX system through the Output Manager system and on to an LPR/LPD protocol print queue.

Backup Attribute

A Backup Attribute defines how, where, and for how long a file is to be stored before Output Manager deletes it. By using Output Manager for file backups, there is no need to archive the files on the host system. As print files arrive, you can automatically save (copy) them to any online location; alternatively, you can create backup files manually using the File Management window. A backup file includes extensive information about the file (obtained from the Output Manager file database) such as where the file came from and the user that created the print job.

E-Mail Attribute

E-mail Attributes enable you to send or receive various types of files over any mail system that complies with the SMTP or MAPI standard. The E-mail Attribute specifies the e-mail address to which Output Manager should send a message (with or without attachments). The following figure illustrates the flow of a print file for which the File Mask specifies E-mail and Print Attributes. In this case, the E-mail Attribute creates a job that sends data to an e-mail address selected from a site's standard online directory, and the Print Attribute creates a job that is sent to a specified printer.



Support and Reference Information

Services and Training

The following summarizes the technical services and training opportunities that are available.

The Enterprise Output Manager Services group offers a full range of technical services, including

- Consultation services to answer site-specific technical questions.
- Installation and configuration services to create an information processing environment tailored to your site--for example, electronic forms or document reengineering assistance.
- Conversion services to get clients up and running immediately and to maximize cost savings--for example, help you set up the 20 percent of the print jobs that generate 80 percent of the output.

Output Manager specialists provide a variety of training options, including on- and off-site hands-on training workshops as well as customized training. The training workshops include a Basic Workshop, where students learn and experience the basic user functionality of Output Manager, and an Advanced Workshop, where students learn to apply the most advanced capabilities that, for example, improve print and file management productivity and efficiency. Onsite courses or customized training can be scheduled through your Unisys representative or with an Output Manager Services representative.

For more information on services and training, contact your Unisys representative or send inquiries to EOMservices@unisys.com.

Protocols

Output Manager can send files to or receive files from other Output Manager PCs/Windows servers, OS 2200 systems, MCP systems, LPR/LPD systems, and Raw TCP systems through TCP/IP connections referred to as communication or transfer paths. The following describes the communication protocols you can specify when configuring a communications path in Output Manager:

- Raw TCP—A transfer of data streams over TCP/IP to systems and devices with no protocol imposed. Sometimes this is referred to as the port 9100 protocol that many print devices support.
- TP0 (transport protocol class zero). RFC 1006 is the document that describes this special hybrid protocol stack consisting of OSI TP0 plus TCP/IP. The TP0 protocol is included with the Output Manager application.
- LPR/LPD—A de facto standard protocol used by Output Manager to connect to a variety of devices or systems implementing LPR/LPD protocol. RFC 1179 documents the LPR/LPD protocol. RFC 1179 is a protocol used for file transfer often found on UNIX and other modern platforms.
- Output Manager—A Unisys proprietary protocol used to send files to or receive files from other systems running Output Manager.

Output Manager allows transfers over dial-up networks or VPN, where systems connecting to the network can be dynamically assigned IP addresses. Output Manager provides a secure method of delivering print to systems with dynamic IP addresses.

Systems

Output Manager can process, print, and route files among virtually all major systems. In addition to ClearPath and ClearPath Plus, ES7000, Unisys 2200 Series, and MCP Series systems, Output Manager supports any system that complies with the LPR/LPD protocol—for example, IBM iSeries, IBM MVS, IBM RS/6000, DEC VAX, Novell, Tandem, Cray, and other UNIX and Linux systems. Output Manager Windows systems and Unisys ClearPath systems can route print files directly among such systems. Systems using the LPR/LPD or Raw TCP protocol must route their files through the Output Manager system.

Required Hardware/Software

The following hardware and software are required:

- Windows 2000, Windows XP Professional, or Windows Server 2003.
- The Windows .NET Framework 1.1 and the .NET Framework Service Pack 1.
- A system that meets the minimum requirements of the Windows operating system.
- A hard disk with a minimum of 100 MB available for the Output Manager software, plus enough space for the files that you want Output Manager to process.
- A CD-ROM drive.
- A network interface card to receive files from other systems through TCP communications.

Installation Components

Three separate components can be installed from the Output Manager installation CD:

Enterprise Output Manager Service: This component provides the core business logic of Output Manager. It provides all the printing, e-mailing, file transfer, and other powerful capabilities of Output Manager. It installs as a Windows service and has no direct user interface.

Enterprise Output Manager Client: This component provides the user interface to control the Output Manager service. It installs as a typical Windows application and provides the ability to configure and monitor the Output Manager service. The service must be started before the client can be used.

Sentinel Alert Service (SAS): This component provides the ability to report errors and other events detected by the Output Manager service to external programs. For example, when a printer is out of paper, an alert is sent to this component. SAS can then send the alert through e-mail, to a pager, or to the Output Manager client, where the Output Manager Alert Explorer interface can be used to easily view and manage alerts.

The preinstallation, installation, and post-installation steps for establishing an Output Manager system are provided in the *Enterprise Output Manager Help* (7833 3960) (included with the Output Manager software and available from the www.support.unisys.com Web site).

Printers

Output Manager controls and prints to virtually all the commonly used high- and low-speed printers as well as a large assortment of less commonly used printers. You can even print the same output file to multiple printer types.

Printer support includes the following (detailed information on printer support, printer capabilities, and Output Manager editions that support the capabilities is available from your representative and from the Output Manager online help):

- PCL, PostScript, Epson, and IBM Proprinter printer control languages. PCL, PostScript, and Epson are industry-standard printer control languages used on a wide variety of printers. IBM Proprinter is a proprietary language.
- Any printer that can be configured in Windows, which gives you access to hundreds of printers, including printers on any network that Windows supports. By routing files to such printers, you have the added benefit of being able to incorporate Windows fonts.
- Fax (preformatted "passthrough" files sent to a fax number via e-mail/fax software application).

These types encompass a variety of color printers and MICR printers (magnetic ink character recognition), which print magnetic readable images used, for example, to automate check processing.

File Types

Output Manager handles a variety of file formats, including

- Text files (ASCII, EBCDIC, and other formats).
- Passthrough files that are already formatted for a particular printer (from Windows or any other source). Output Manager sends passthrough files, such as PostScript and PCL files, directly to the printer without processing images in the file. A passthrough file name can have any extension (including a user-defined extension).
- Printer backup and data files supported by Unisys MCP Series systems.
- Systems data format (SDF) files supported by Unisys ClearPath OS 2200 systems.

Reference Material

- *Enterprise Output Manager Help* (6885 2698)—Provides all the information needed to install, operate, and administer an Output Manager system.
- *ClearPath Enterprise Servers Enterprise Output Manager for ClearPath OS 2200 and ClearPath MCP Configuration and Operations Guide (7850 4362)*—Gives procedures for setting up, managing, and using the Output Manager system with ClearPath OS 2200 and MCP Series systems.
- *Enterprise Output Manager Software Release Announcement (7845 0392)*—Explains product requirements, migration considerations, restrictions and limitations, support and services, and how to order Output Manager.

A variety of technical and marketing documentation for Output Manager is available from the Unisys Bookstore (http://www.bookstore.unisys.com/Bookstore/), the Unisys Support Web site (http://www.support.unisys.com), and the Unisys eCommunity Web site (http://eCommunity.unisys.com). To obtain Output Manager documentation or for more information, you can also contact your Unisys representative or send inquiries to EOMservices@unisys.com.

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