
TECH e-NOTE



- PrintRoom -

Automating Packetized Information

*Shop Floor Packages, Document Folios,
Work Orders, Job Packets, Sales Orders*

Confidentiality Statement

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Introduction

This document contains information defining a system for automating the release of a product packet to production. Company procedures and nomenclature may identify these as a Sales Order, Work Order, Production Release Packet, or other identifier. Throughout this document we will refer to it as a “Sales Order” which we define as having the following attributes:

1. It is a text document generated by a MRP, ERP, Order Entry, or other system and
2. It contains a series of part numbers or name identifying items relating to the order
3. This list of part numbers may alternately be generated directly within CWEB

Additionally the Sales Order packet may contain:

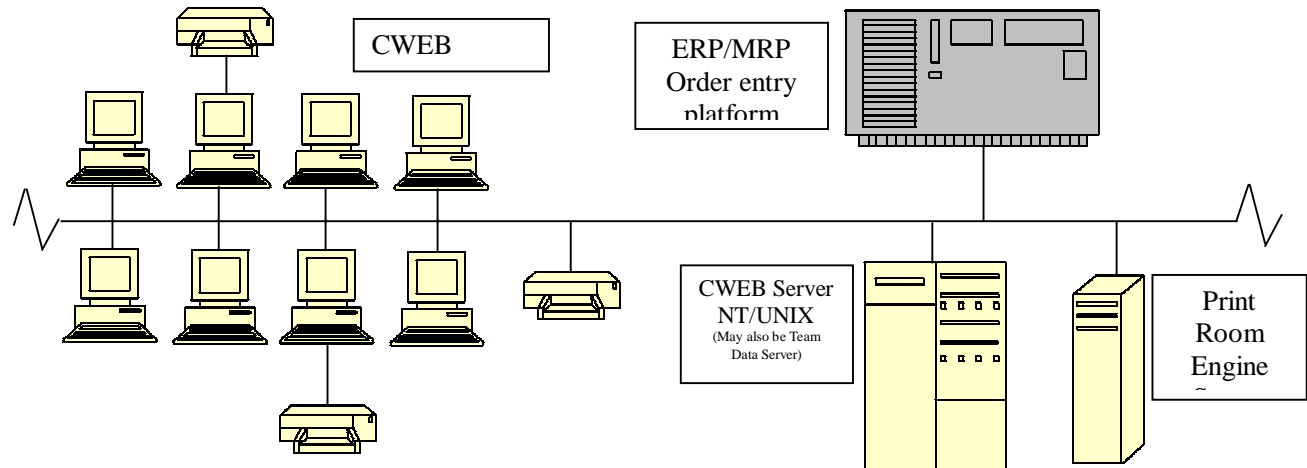
1. A series of work instructions or routings
2. A bill of material data for the product
3. Material control relations for identified component parts

Overview

This document has been divided into the following sections, each providing background on a specific portion of Print Room:

- Section 1: The CWEB Print Room Interface
- Section 2: The Print Room Engine Component
- Section 3: A Fully Automated Release Cycle

The Diagram below explains the basic configuration and traffic flow of a PrintRoom installation.



Scenarios:

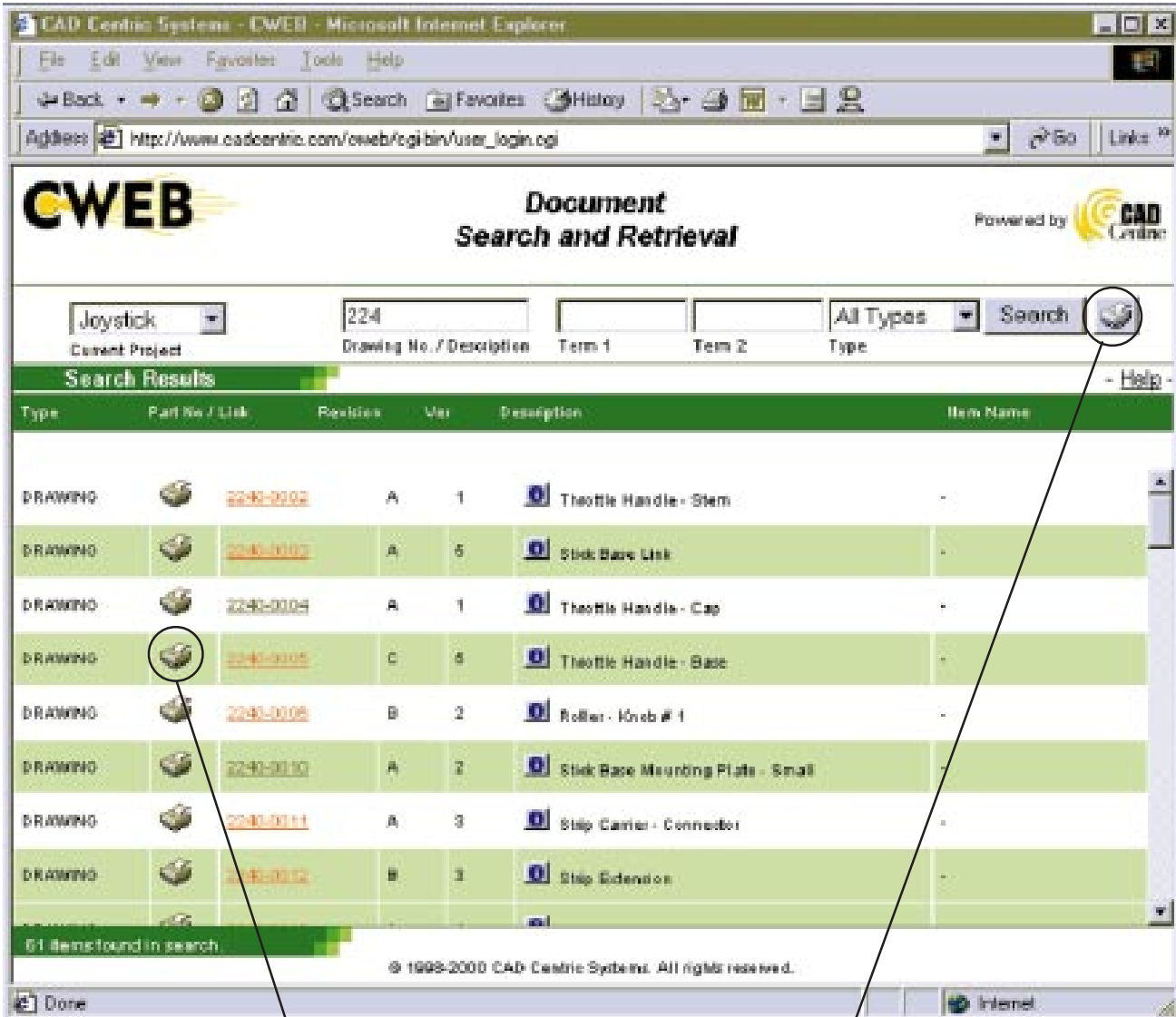
1. CWEB Users Prepares a collection of Documents and requests Print Room to send to local printer.(User interaction is done) *CWEB Server collects all document and watermark information and passes it to Print Room Server. Print Room Server locates these documents from the various server stores, watermarks and prints all documents according to its configuration rules.*
2. ERP User Releases a “Sales Order” (User Interaction Done) *Print Room server obtains copy of Order. Print Room Server pre-processes the Order and extracts drawing number information. Print Room server creates its data file. Data file can be processed immediately, held for manual approval or held until a time specified in the Sales Order Document. When Specified, the Print Room Server Engine prepares all documents with proper watermarks, start and end sheets, routing instructions and a copy of the printed Sales order. These are delivered to the printer and the job is completed.*

The CWEB Print Room Interface

The CWEB Print Room interface provides CWEB users (either all, or a managed group) with the ability to quickly identify and package a group of drawings to be distributed to a specified printer. The Print Room interface additionally provides the user with numerous print options including watermarks, cover and end page, copy quantities and more.

Print Room Enabled CWEB

The Print Room option can be quickly integrated into an existing CWEB site, or included with any new CWEB installation. The Print Room organizer icon appears on the users CWEB panel as shown below:

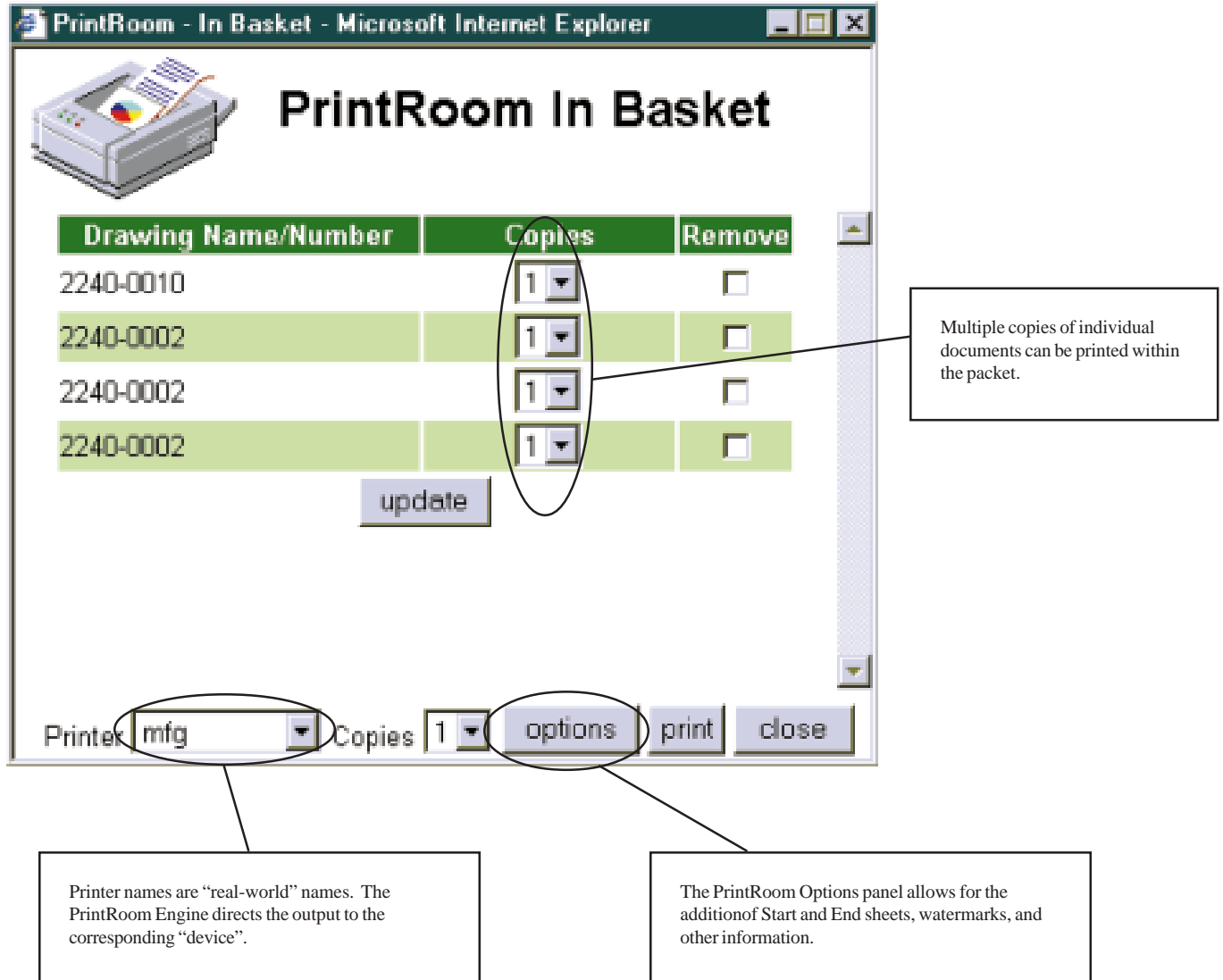


The PrintRoom icon next to the drawing name allows the user to add this file to the PrintRoom "in-basket" for additional processing.

The PrintRoom Icon in the top panel provides access to the active in-basket.

The Print Room In-Basket

The Print Room In-Basket contains a list of all of the selected drawings and allows you to add and remove drawings from the basket, select multiple copies of individual documents, select the output device and define document options. This drawing list is fully dynamic and updates as additional files are selected or removed. The In-Basket does not automatically empty itself once the print job has been issued, rather the document list can be modified or directed to another printer.



PrintRoom In Basket

| Drawing Name/Number | Copies | Remove |
|---------------------|--------|--------------------------|
| 2240-0010 | 1 | <input type="checkbox"/> |
| 2240-0002 | 1 | <input type="checkbox"/> |
| 2240-0002 | 1 | <input type="checkbox"/> |
| 2240-0002 | 1 | <input type="checkbox"/> |

update

Printer: mfg Copies: 1 options print close

Multiple copies of individual documents can be printed within the packet.

Printer names are "real-world" names. The PrintRoom Engine directs the output to the corresponding "device".

The PrintRoom Options panel allows for the addition of Start and End sheets, watermarks, and other information.

Print Room Options

The following options allow the user to customize the output that is generated by the Print Room print engine.

User-defined watermarking can be added to all of the drawings in the packet in several locations and orientations providing support for various printers. System variables provide access to common information like date and time.

You can select from a set of pre-defined cover pages, or create your own based upon user, type of job packet, etc.

Watermark variables include both system type variables such as time and date as well as search criteria information like State, Revision, and Project.

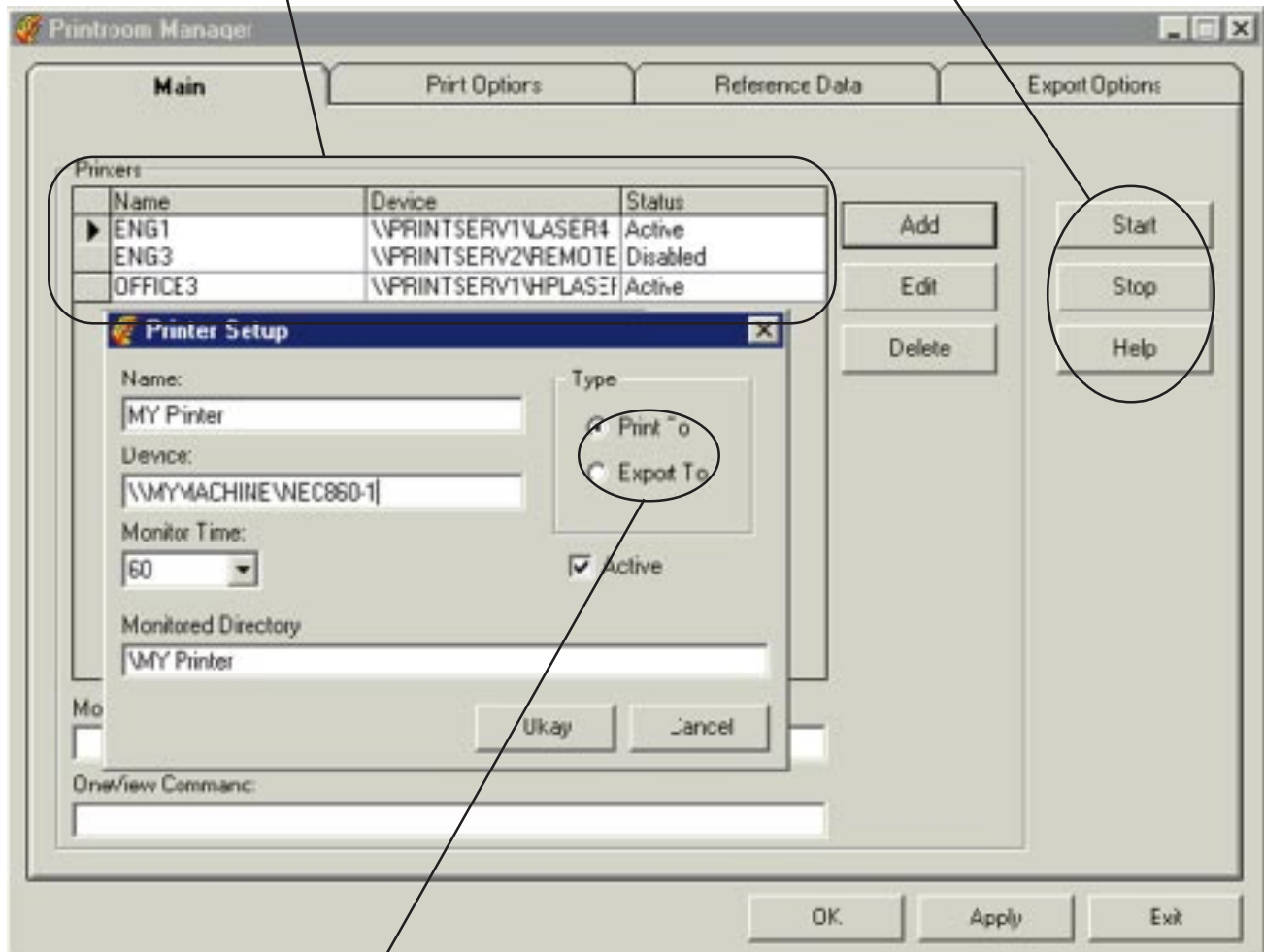
| Variable | Description | Variable | Description |
|----------|--------------|----------|---------------|
| %page | Page number | %ver | Version |
| %t_pages | Total pages | %rev | Revision |
| %pr_time | Print time | %state | State |
| %pr_date | Print date | %getfile | File name |
| %type | Type of file | %cr_by | Created by |
| %project | Project Name | %cr_da | Creation date |
| %library | Library Name | %cr_ti | Creation time |
| %part_no | Part Number | %mod_by | Modified by |
| %item_no | Item Name | %mod_da | Modified date |
| %desc | Description | %mod_ti | Modified time |
| | | %history | History |

The Print Engine Component

The heart of the CAD Centric Print Room is the Print Room Engine Component. While this component is not visible to the end user, its power and flexibility provide the features that are required for proper print management. The basic configuration options of the Print Room engine are outlined in this section

Multiple printers can be configured quickly and easily. Each printer has its own managing print queue allowing multiple print jobs to run concurrently

The entire PrintRoom Engine, including each individual print monitor, can be started and stopped from the main management panel



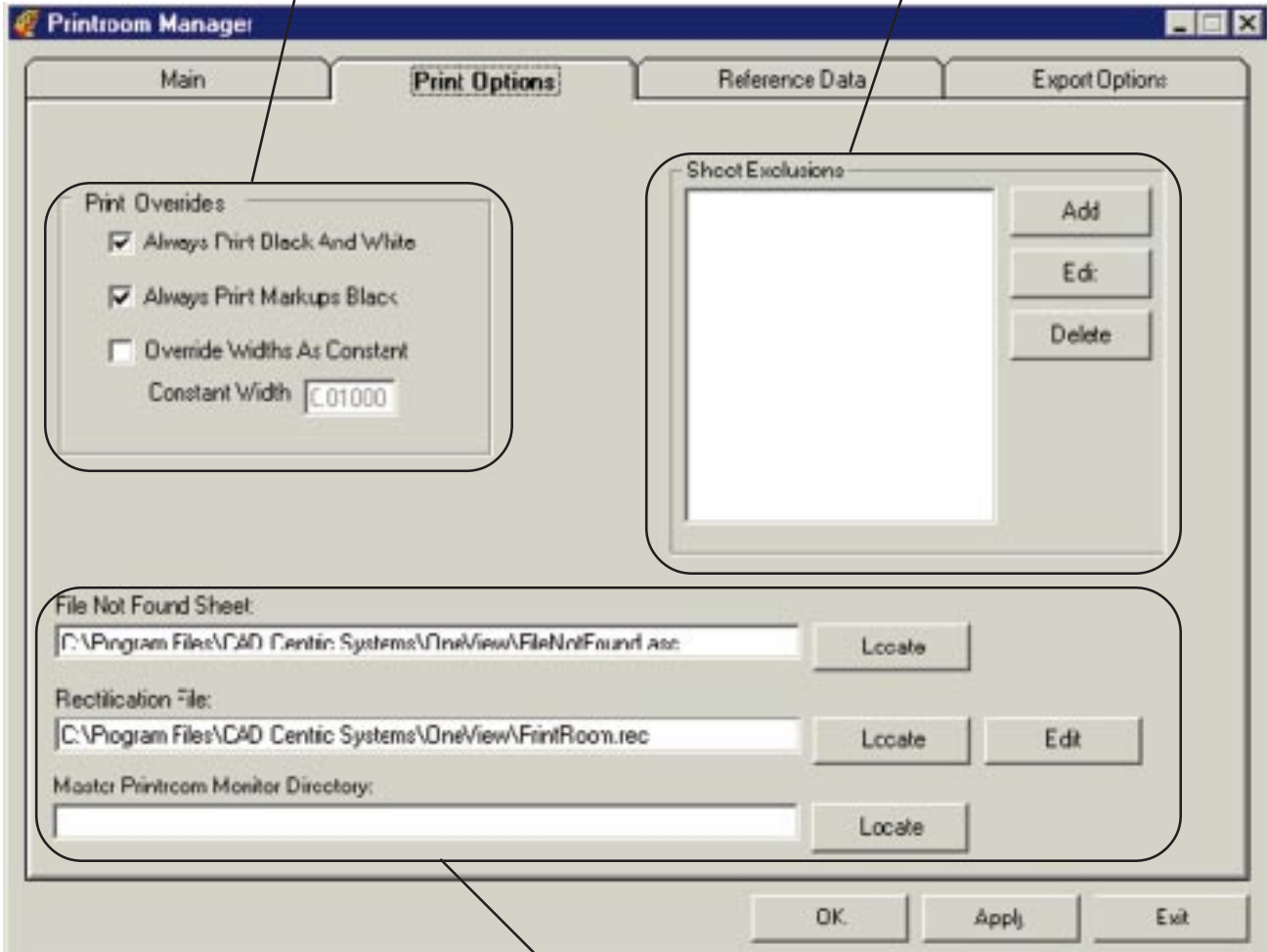
High capacity print devices, which often have no Windows device driver, can be accommodated via an automatic export mechanism.

Print Room Engine - Print Options

Additional print options are available to further improve the quality and usability of the Print Room.

Color drawings can be printed in color/grayscale or as black on white. Additional control over printed line widths is provided to enforce a constant width regardless of the CAD files selected width. This is important when plotting large format drawings to smaller sheets.

Drawing sheet exclusions are supported to tailor how multi-sheet drawings are printed. By default, all sheets in a drawing are printed; however, exclusions are supported by sheet name. For example - a sheet named "layout" may be excluded or one named "flat".



Support is provided for "missing" or drawings that are not found. These are defined by the administrator and include missing drawing number as a PrintRoom generated mark. In addition, file rectification is supported to insure ease of access between various operating systems, such as Unix and NT.

A Fully Automated Release Cycle

The following pages will review the Print Room Process when run in a Sales Order System Coupled manner.

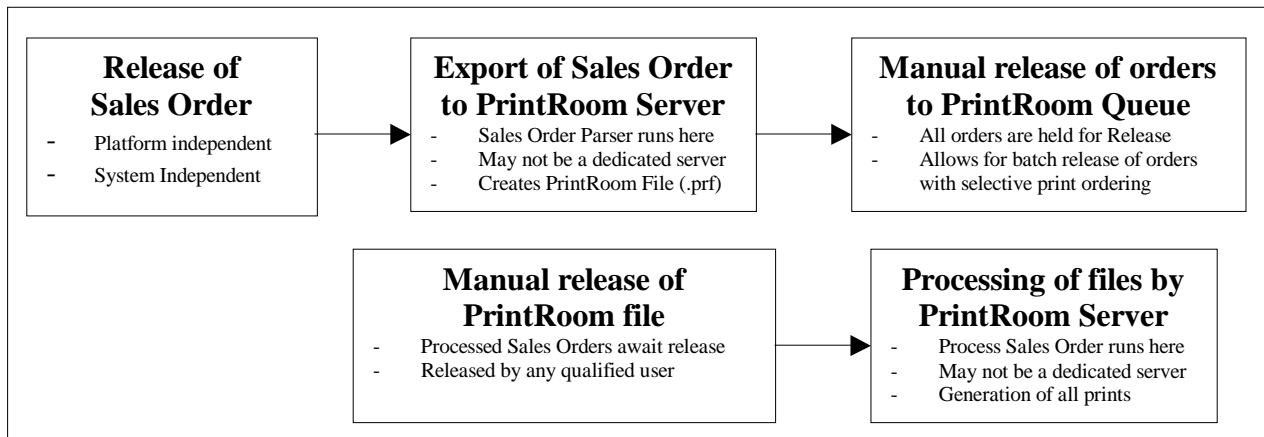
Section 1: Processing Options

The annotated flow-chart below defines the major processes required for the automation of a Sales Order. Three options are presented here, one fully automated, one with minor user intervention and one with direct shop floor access.

Option #1 - Full Automation



Option #2 - Manual Release



Section 2: Processing Details

The following is intended to provide additional information regarding the process steps and their requirements.

Step 1: Release of Sales Order

In most cases, the Sales Order release mechanism that your company has in place will remain virtually unchanged. If your current release system generates electronic output of the Sales Order containing part information, the information required for an automated Print Room is already being generated. Many times this information is generated from a database and spooled directly to a printer. It may be necessary to create an additional spool of this information into a text file.

Step 2: Export of Sales Order to Print Room Server

The Sales Order Parser requires that the released Sales Order be placed in a dedicated directory on a named NT workstation or server. Exporting of the Sales Order file can be accomplished via ftp, a copy to a mounted drive, or any other file transfer mechanism. The Sales Order Parser is customized for each environment and its complexity varies depending upon the type and amount of data to be extracted.

The Sales Order Parser is a simple program that runs all of the time and at a designated time interval checks to see if a Sales Order has been placed into its' polling directory. When a Sales Order is found in the directory it performs the following operations:

- Read the Sales Order and extract part numbers and other (user defined) information
- Load all look-up tables (required for I-DEAS data)
- Look-up all file names (part number to item name conversion)
- Create a Sales Order Process (interim) file or Print Room .prf file (if fully automated)
- Execute the Sales Order Processor (if fully automated)

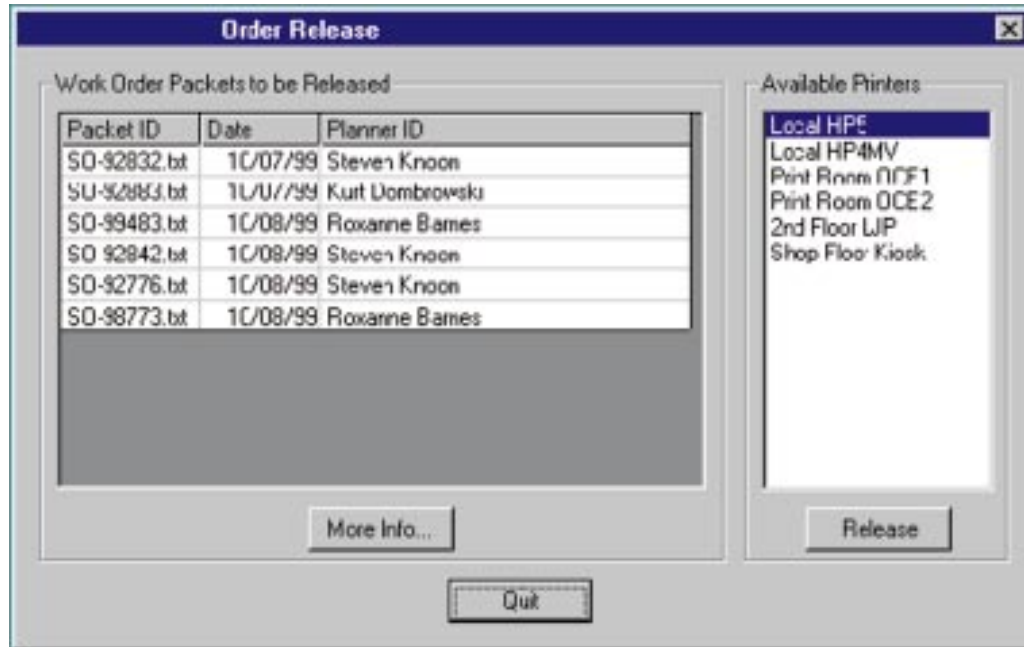


Step 3: Execution of the Sales Order Processor

The Sales Order Processor performs secondary operations on the interim file created by the Work Order Parser. This program can be executed by the Sales Order Parser, or by the Sales Order Release program. The Sales Order processor is responsible for rectifying UNIX names to NT, extracting watermark information, and creating the actual Print Room File. The processed file contains all of the information that the Print Room requires for generating a complete set of documentation for the Sales Order. This Print Room file is then sent to OneView along with additional information noting the printer to use and other data.

Option #2 – Interim Step: Manual release of orders to Print Room Server

Many times it is desirable to control the flow of documentation to a specific printer, or provide alternate printers for specific Sales Orders. This is especially true during exceptionally busy periods or when batch release mechanisms are employed. In these cases the automation process is modified to include a manual release mechanism.



As you can see by the Sales Order Release panel, pending orders can be selectively released to any available printer. The fields displayed are customized for each site and the “More Info” button can be used to provide anything from a quick snapshot of additional information to the complete Sales Order. The Available Printers selection is defined in a user configuration file providing user or group based printer access control.



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