

# spoolLogic

## Operational White Paper

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# Introduction

**spoolLogic** is a stand-alone print spooler with ISO Banner and Watermark stamping capabilities.

Typically, **spoolLogic** runs on a dedicated Windows Server (although dedication is not required) and processes print job requests using a FIFO (first-in first-out) order. FIFO is OS dependent, and can be as granular as 2ms.

## Structure

### Job Processing

**spoolLogic** is installed on a network server which can be dedicated to the task of printing. At installation time, the required AutoSpool components are also installed.

After startup **spoolLogic** regularly scans a selected "watch folder" for print jobs as indicated by the presence of an XML-based "job file" and a companion folder containing the files to be printed. When a job file is found, **spoolLogic** reads the XML job file, opens the required files and processes them according to the directions within the job file. Upon finishing the printing of the job, **spoolLogic** then "cleans up" by deleting the job file and the corresponding printable file(s) and processes the next job, and so on.

If an error is encountered, **spoolLogic** makes notations into a log file, and optionally sends email to designated administrators (and Users if desired) to indicate the suspected error, then "cleans up" the requested job by moving it into an "error" directory.

### Watch Folder

**spoolLogic** constantly monitors a "watch folder" for jobs to process. The watch folder can be located anywhere on the network provided:

1. The folder is shared across the network.
2. Sharing specifically provides Read/Write/Delete access (Windows RW, Unix 777) for the network User running the **spoolLogic** application
3. The folder is accessible from the **spoolLogic** machine via a UNC path or is properly mapped to the **spoolLogic** machine.
4. The folder is accessible at all times.

### Job Files

**spoolLogic** works based on the concept of a control or "job file". Within the job file is all of the necessary information required to process a print request (see the Sample Job File at the end of this document).

Job files are XML text based and can be created using any available means, although programmatic methods or an XML specific editor are recommended. For programmatic methods, Coastal Logic offers, free of charge, both an ActiveX COM object and a Java Class.

In addition to the job file, **spoolLogic** expects a corresponding folder containing the files to be printed. Typically, the job file and folder share the same base name, e.g. "print123.xml"

and “\print123”. Within the job file is a descriptor pointing to the location of the files to print within the “\print123” folder. Since multiple requests may be made simultaneously, it is critical that each job and corresponding folder use a unique name. In many cases, the originating server clock ticks and User name can be used to ensure unique names. For example, within our printLogic integration for Dassault Systèmes ENOVIA MatrixOne, we use both the User Name and clock ticks, i.e. “WHOIT1139860634396.xml”

**spoolLogic** allows for multiple files (and AutoSpool Markups) to be printed within the same request. This creates a “packetization” ability, allowing the user to print several documents within the same print job. The packet is then sent to the printer as a single spooled file. By doing this, **spoolLogic** ensures that all pages of the print job will be sequential and that the pages will not be “interlaced” or “shuffled” with other users prints sent to the same printer.

## File Handling

**spoolLogic** can print many types of files, including 2D drawings within high-end CAD files. Markups can also be printed when added to the job file (see the Sample Job File at the end of this document).

### Zip Files

In addition to individual files, or files processed as a group, **spoolLogic** can extract and process any number of files contained within a Zip archive. Zip archives can be added into the job file in the same way as an individual file, and can be mixed with individual files as desired.

### Referenced Files

**spoolLogic** can process files which contain references to external or additional files. References to files such as fonts (system fonts or referenced fonts, such as in a DWG file), external references such as support files.

External references for DWG files are handled through an ini file path setting. Markups are referenced specifically within the XML job file. 3D support files are referenced automatically upon file open by searching the same folder containing the top-level part/assembly file.

Should external references not be found during processing, entries are made into the process log which can be viewed either through the **spoolLogic** interface or with any text editor.

## Printer Handling

**spoolLogic** communicates directly with installed printers (typically networked) to process and spool documents.

Generally, a printers xml file is created, which is used to present the available printers/paper sizes list to Users via a client-created interface (or within Coastal Logic’s MatrixOne integration **printLogic**).

This list is created and manipulated using our free utility **XMLPrintersManipulator**. Changes to the printer file can include Printer Name aliasing, page size name aliasing, creation and naming of print “zones”, and the location of the watch folder on a printer-by-printer basis. By manipulating this list, it is possible to offer groupings of printers (“zones”) which can also overlap different physical server locations.

If aliasing is used, the printers file is referenced by **spoolLogic** as a means of resolving incoming printer and page size aliases.

## Instancing

**spoolLogic** has the capability to be run multiple times on the same machine, giving the ability for "instancing". Each running instance of **spoolLogic** is controlled by a separate set of parameters, and monitors a distinct "watch folder". This allows for significant costs savings in hardware expense. It is possible therefore, to run multiple instances on a multi-processor machine and to dedicate individual processors to each instance using OS commands.

Note: You must purchase a license for each running instance.

## ISO Banner / Watermark Stamping Capabilities

**spoolLogic** provides the capability to stamp information onto documents at print time. Text and commands used for stamping reside in the job file, under the "<Banner>" and "<Watermark>" sections. See the Sample Job File at the end of this document.

### Zones

**spoolLogic** can add text to a printed document in 13 distinct areas on the page, or "zones". There are 12 zones around the page borders:

Top Left, Top Center, and Top Right  
Bottom Left, Bottom Center, and Bottom Right  
Left Bottom, Left Center, and Left Top  
Right Bottom, Right Center, and Right Top

Each Banner zone can have up to 4 lines per zone.

The remaining zone is the Watermark which is printed across the face of the document. Watermarks can be printed either diagonally (lower left to upper right) or horizontally, and the transparency can be controlled with values between 0 (invisible) and 255 (solid). Color of the Watermark can be selected from a standard color chooser. The text for the watermark is automatically scaled to fit the entire length of the area to ensure complete coverage.

### Font

The font used for printing the Banners/Watermark can be set within the "<Font>" section, using a comma delimited Font string, such as:

```
<Font>12,Arial</Font>
```

A more detailed font string can be used if it is the complete LOGFONT structure:

```
<Font>10,Arial,0,0,400,0,0,0,0,3,2,1,34</Font>
```

**Content**

The content of the Banners/Watermark can be any text placed within the Banner and Watermark sections of the job file. Additionally, **spoolLogic** provides “wildcard” options which are interpreted at print time, the resulting value being placed onto the document.

<u>Wildcard</u>	<u>Evaluates to:</u>
%Date .....	Current Date based on system General Date (typically mm/dd/yyyy) e.g. 10/01/2007
%Year .....	Year - as 4 digit number e.g. 2007
%Month .....	Month - as 2 digit number e.g. 01, 12
%Day .....	Day - as 2 digit number e.g. 01, 31
%WeekDay .....	Day of week (where Sunday is 1) e.g. “Sunday”, “Tuesday”
%Time12 .....	Current Time as hh:mm:ss AM/PM e.g. 10:35:23 PM
%Time24 .....	Current Time as 24HR time hh:mm:ss e.g. 22:35:23
%Hour .....	Hour as 24HR time
%Minutes .....	Minutes
%Seconds .....	Seconds
%FileName .....	Name of File without path e.g. “ProductInfo.doc”
%BaseName .....	Basename of File e.g. “ProductInfo”
%Extension .....	Extension of File e.g. “doc”
%Directory .....	Path of file without filename e.g. “C:\samplefiles”
%FullPath .....	Full path of document with filename e.g. “C:\samplefiles\ProductInfo.doc”
%Page .....	Current page number
%TotalPages .....	Total Pages in document
%Login .....	Login as described in XML job file
%User .....	User as described in XML job file
%Title .....	Title as described in XML job file
%Image<path> .....	Image from a BMP, JPG or GIF file to use within the stamp. Files are automatically scaled to fit a 1”w x 0.5”h rectangle (96x48 pixels at 96 dpi). For best results you should use images at this size. This option cannot be used in the Watermark zone. Do not use a space between the wildcard and the path. See the Sample Job File below for an example of usage.

**Summary Page**

**spoolLogic** also provides the capability to include a summary of information in the form of a Summary Page. The Summary Page is printed at the end of the print job and can contain virtually any information you desire, including images such as corporate logos. Summary pages are built within the job file line by line, with full control over the fonts, styles (bold, italic, etc), alignment (left, right, center) and sizes. The Summary page can also include Wildcard content (similar to the Stamping content described above).

The Summary Page is described via XML within the job file. It is comprised of individual lines containing text, wildcards or image references.

Content types can be:

Blank Line

Image

Text

Each line, depending on it's content, can have several formatting parameters including:

Font Name

Font Size

Alignment (left, center, right)

Bold

Italic

Underline

See the Sample Job File at the end of this document for an example of the Summary page.

## Hardware Requirements

We recommend the following Windows based specs:

**OS:** Windows 2000 Pro/Server or XP Pro or Server 2003

**RAM:** 512mb or greater

**HD:** 100mb Hard Drive space or greater

**CPU:** Pentium 4, 1ghz or greater

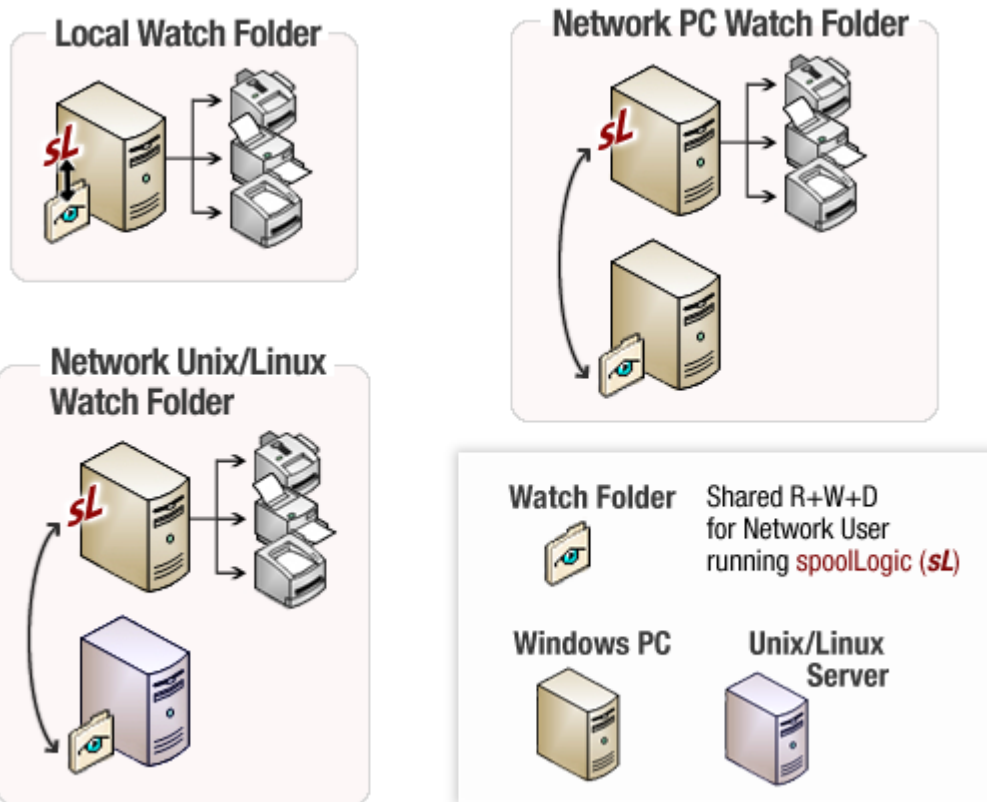
Running multiple instances on the same hardware may require more resources.

# Configurations

The diagrams below indicate the possible **spoolLogic** and watch folder configurations possible in a networked environment. The printers which are to be used for batch printing are also installed on the same Network Server as **spoolLogic**.

A “watch folder” is indicated, and can exist anywhere on the network, although it is typical to have the folder reside on the same Server as **spoolLogic**. The watch folder must be accessible using a valid UNC path, i.e. \\MachineName\folder\printJobFolder

**spoolLogic** monitors the watch folder and as jobs are dropped off, they are processed in FIFO order. **spoolLogic** processes each job file and prints each job. Should a critical error occur, **spoolLogic** cleans up the offending job, optionally sends an email notice and re-starts the process beginning with the next job in the queue.



# spoolLogic Functionality

Note: Functionality is subject to change with each new version of **spoolLogic**.

- ❑ Server based print spooler
- ❑ Multiple Instance capable – saves machine expense
- ❑ Runs as an NT Service – automatically restarts without administrator interaction
- ❑ Built-in fault monitoring and clean up
- ❑ Automatic exclusion of blank pages
- ❑ Automatic paper size selection (optional)
- ❑ Automatic UNC path conversion and Network capability
- ❑ Automatically scaled-to-fit watermark – Diagonal or Horizontal
- ❑ Automatically generated Summary Page, can include images
- ❑ 12 Zones (4 lines each) for ISO Banner Stamping plus Watermark
- ❑ Color and Transparency control of Watermark
- ❑ Include BMP, JPG and GIF images in stamp
- ❑ Page numbering
- ❑ “Best Fit” page rotation capability
- ❑ Detailed control of Spreadsheet handling – splitting, headers, etc.
- ❑ Pen thickness control for DWG (and similar CAD) files.
- ❑ Maintains FIFO order of submitted jobs as low as 2ms
- ❑ Point-n-click administrator interface – no programming required
- ❑ Detailed control of Date Stamp format
- ❑ Enhanced File Processing allowing multiple files to be printed at once
- ❑ Zip file processing – automatically extract and print files contained within zip archives
- ❑ Print to virtually any networked printer.
- ❑ Output to Zip file instead of printing – Users are sent link to zip file via email.
- ❑ Email notification of critical errors (with file attachment, can be zipped, SMTP based)
- ❑ Enhanced visual interface, including log file viewer
- ❑ Process logging – 4 levels
- ❑ Continuous or daily log files
- ❑ Automatic management of log files based on File Size or Days
- ❑ Printer and Page Size Aliasing (renaming)
- ❑ Timing control for watched folder
- ❑ Delete jobs within the print queue
- ❑ Suspend jobs within the print queue
- ❑ Resubmit or delete error causing jobs
- ❑ Auto-save of window parameters and basic settings
- ❑ Supports numerous formats (Please contact us for current list.)
- ❑ Runs on Windows 2000, Windows XP Pro and Windows Server 2003

# Sample Job File

Note: Job File is subject to change with each new version of **spoolLogic**.

```
<?xml version="1.0" encoding="UTF-8"?>
<spoolLogicJobFile xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="Schemas/spoolLogicJobFileSchema.xsd">
  <Title>Sample job</Title>
  <User>John Doe</User>
  <UserEmail>Jdoe@yourcompany.com</UserEmail>
  <Login>JDOE</Login>
  <CenterOnPage>true</CenterOnPage>
  <PageCount>true</PageCount>
  <Font>10,Arial,0,0,400,0,0,0,3,2,1,34</Font>
  <ZipFiles>>false</ZipFiles>
  <Printer>
    <Name>HP8500</Name>
    <PaperSize>Tabloid</PaperSize>
    <Orientation>Landscape</Orientation>
    <Copies>1</Copies>
    <AutoRotate>true</AutoRotate>
  </Printer>
  <SummaryPage InUse="true">
    <SummaryLine Leader="%Image" Alignment="center" Bold="true" Italic="false"
Underline="true" FontName="Arial" FontSize="24">
      <SummaryText>\\BENDER\PrintJobsJax\Coverttest\CL_LogoSM.gif</SummaryText>
    </SummaryLine>
    <SummaryLine Leader="" Alignment="center" Bold="true" Italic="false"
Underline="true" FontName="Arial" FontSize="24">
      <SummaryText>MyTitle</SummaryText>
    </SummaryLine>
    <SummaryLine Leader="%BlankLine" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Arial" FontSize="24">
      <SummaryText/>
    </SummaryLine>
    <SummaryLine Leader="User:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Arial" FontSize="12">
      <SummaryText> Wayne Hoyt</SummaryText>
    </SummaryLine>
    <SummaryLine Leader="Date:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Courier" FontSize="12">
      <SummaryText> %Date</SummaryText>
    </SummaryLine>
    <SummaryLine Leader="Time12:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Courier" FontSize="12">
      <SummaryText> %Time12</SummaryText>
    </SummaryLine>
    <SummaryLine Leader="Year:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Courier" FontSize="12">
      <SummaryText> %Year</SummaryText>
    </SummaryLine>
    <SummaryLine Leader="Month:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Courier" FontSize="12">
      <SummaryText> %Month</SummaryText>
    </SummaryLine>
    <SummaryLine Leader="Day:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Times New Roman" FontSize="12">
      <SummaryText> %Day</SummaryText>
    </SummaryLine>
    <SummaryLine Leader="Weekday:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Times New Roman" FontSize="12">
      <SummaryText> %WeekDay</SummaryText>
    </SummaryLine>
  </SummaryPage>
</spoolLogicJobFile>
```

```

    <SummaryLine Leader="Hour:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Times New Roman" FontSize="12">
    <SummaryText> Wayne Hoit</SummaryText>
  </SummaryLine>
  <SummaryLine Leader="Minutes:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Arial" FontSize="12">
    <SummaryText> %Minutes</SummaryText>
  </SummaryLine>
  <SummaryLine Leader="Seconds:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Arial" FontSize="12">
    <SummaryText> %Seconds</SummaryText>
  </SummaryLine>
  <SummaryLine Leader="Totalpages:" Alignment="left" Bold="false" Italic="false"
Underline="false" FontName="Arial" FontSize="12">
    <SummaryText> %TotalPages</SummaryText>
  </SummaryLine>
  <SummaryLine Leader="Multiline and wrap test:" Alignment="left" Italic="false"
Bold="false" Underline="false" FontName="Arial" FontSize="12">
    <SummaryText>>This is an example of static, multi-line text.
spoolLogic interprets this as standard text, including line feeds.
Just put whatever text you need between the tags!</SummaryText>
  </SummaryLine>
</SummaryPage>
<Document>
  <FileName>\\BENDER\PrintJobs\job001\1000.dwg</FileName>
  <BlackAndWhite>true</BlackAndWhite>
  <Scale>0</Scale>
  <SpaceNumber>0</SpaceNumber>
  <Markup>\\BENDER\PrintJobs\job001\1000.001</Markup>
  <Watermark>
    <Angle>true</Angle>
    <Color>
      <Red>200</Red>
      <Green>0</Green>
      <Blue>0</Blue>
    </Color>
    <Alpha>150</Alpha>
    <WMText>NOT FOR PRODUCTION</WMText>
  </Watermark>
  <Banner>
    <Color>
      <Red>0</Red>
      <Green>0</Green>
      <Blue>0</Blue>
    </Color>
    <TopLeft>
      <Line>Time12: %Time12</Line>
      <Line>Time24: %Time24</Line>
    </TopLeft>
    <TopCenter>
      <Line>Date: %Date</Line>
    </TopCenter>
    <TopRight>
      <Line>Title: %Title</Line>
    </TopRight>
    <BottomLeft>
      <Line>Day: %Day</Line>
    </BottomLeft>
    <BottomCenter>
      <Line>Weekday: %WeekDay</Line>
    </BottomCenter>
    <BottomRight>
      <Line>Page %Page of %TotalPages</Line>
    </BottomRight>
  </Banner>

```

```

    <LeftBottom>
      <Line>Path: %FullPath</Line>
    </LeftBottom>
    <LeftCenter>
      <Line>User: %User</Line>
    </LeftCenter>
    <LeftTop>
      <Line>H: %Hour M: %Minutes S: %Seconds</Line>
    </LeftTop>
    <RightBottom>
      <Line>FileName: %FileName</Line>
    </RightBottom>
    <RightCenter>
      <Line>Extension: %Extension</Line>
    </RightCenter>
    <RightTop>
      <Line>Directory: %Directory</Line>
    </RightTop>
  </Banner>
</Document>
<Document>
  <FileName>\\BENDER\PrintJobs\job001\multiple.zip</FileName>
  <BlackAndWhite>true</BlackAndWhite>
  <Scale>0</Scale>
  <SpaceNumber>0</SpaceNumber>
  <Watermark>
    <Angle>true</Angle>
    <Color>
      <Red>200</Red>
      <Green>200</Green>
      <Blue>0</Blue>
    </Color>
    <Alpha>200</Alpha>
    <WMText>NOT FOR PRODUCTION</WMText>
  </Watermark>
  <Banner>
    <Color>
      <Red>0</Red>
      <Green>0</Green>
      <Blue>0</Blue>
    </Color>
    <TopLeft>
      <Line>Time12: %Time12</Line>
    </TopLeft>
    <TopCenter>
      <Line>Printed By: WHOIT</Line>
      <Line>File Name: multiple.zip</Line>
      <Line>Restrict Use: True</Line>
    </TopCenter>
    <TopRight/>
    <BottomLeft/>
    <BottomCenter/>
    <BottomRight/>
    <LeftBottom/>
    <LeftCenter/>
    <LeftTop/>
    <RightBottom/>
    <RightCenter/>
    <RightTop/>
  </Banner>
</Document>
</spoolLogic>

```