Getting Barcode Inspection Report Data

<?xml version="1.0" encoding="UTF-8"?>
<pxml>
<status>
<job type="ODV">
<odvCodeDetail version="1" failure="false">
<data type="ascii" size="28">
<ascii>[START C]8030[Code B]1[STOP]</ascii></data>
<property name="symbology" value="Code 128"/>
<property name="orientation" value="picket"/>
<property name="gradeOverall" value="A (4.0)"/>

Introduction

ODV is a powerful feature of the TSC Printronix Auto ID T8000 and T6000e printers, enabling customers to ensure that every barcode on every label is graded automatically. Any barcodes that fall below the threshold setting will cause the entire label to be retracted, overstruck, and reprinted without operator intervention.

Simply having the label inspected and graded is only half the story. ODV also collects data that is available to the customer that can be used to prove not only the grade level of the label but the details behind the failure so corrective action can be taken if needed.

This Technician's Guide will provide some examples of the information available from ODV and how it can be used to defend against chargebacks.

The collection methods outlined in this report can be run simultaneously and do not interfere with the transfer of jobs and data to the printer. Print Network Enterprise and PXML both use their own dedicated TCP/IP port number and collecting data from the scanner directly leverages the Ethernet port on the scanner. Report data is generated in real-time.

Example Label Used in All Reports

All reports in this Technician's Guide will use the same example label, making it easier to see the same example using different report tools.

The example label is a 4"x6" shipping label created with Seagull Scientific's BarTender label software, linked to an Excel spreadsheet with 4 fictitious shipping firms all sending goods to a location called Retail Distribution Center. The four labels look like this:

Figure 1: Example Label 1

Figure 2: Example Label 2

Figure 3: Example Label 3

Figure 4: Example Label 4

Using Print Network Enterprise

Print Network Enterprise (PNE) is a free, downloadable software package providing a wide range of device management tools for TSC Printronix Auto ID printers. Not only does PNE provide an operational visual representation of the printer console on your screen that allows you to do anything as if sitting in front of the printer, but also has an array of capture capabilities to collect information about the printer configuration, media, RFID signal, datastream tracing, and more. Additionally, it provides a collection tool for all ODV label and barcode data.

Starting Data Collection

When you open PNE, it will discover the local printers and display the status. In this example, there is one printer, currently online.
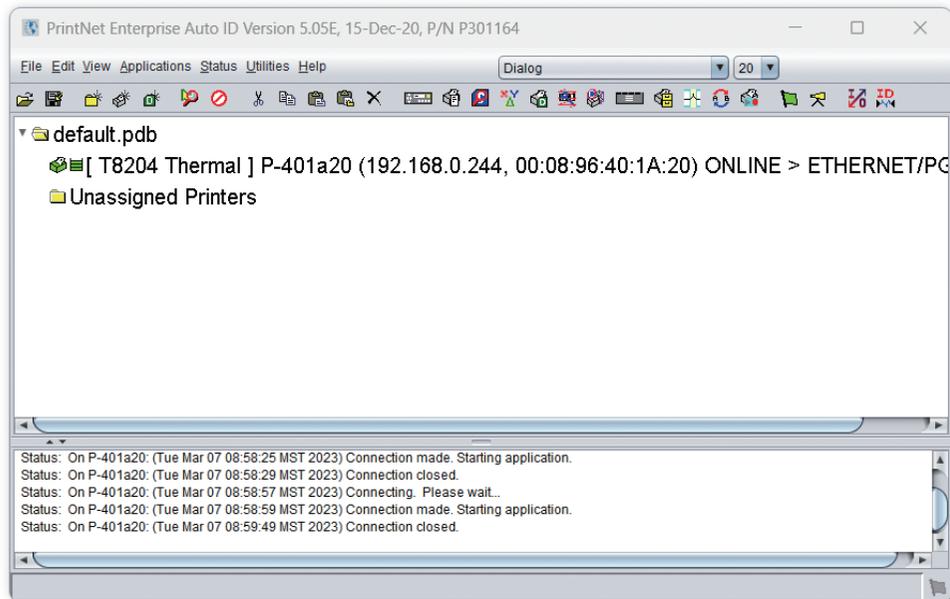
Selecting Applications

AutoID Data Manager brings up another screen showing the available printer and the status of the collection tool. In this case, it is ready to start collecting data.

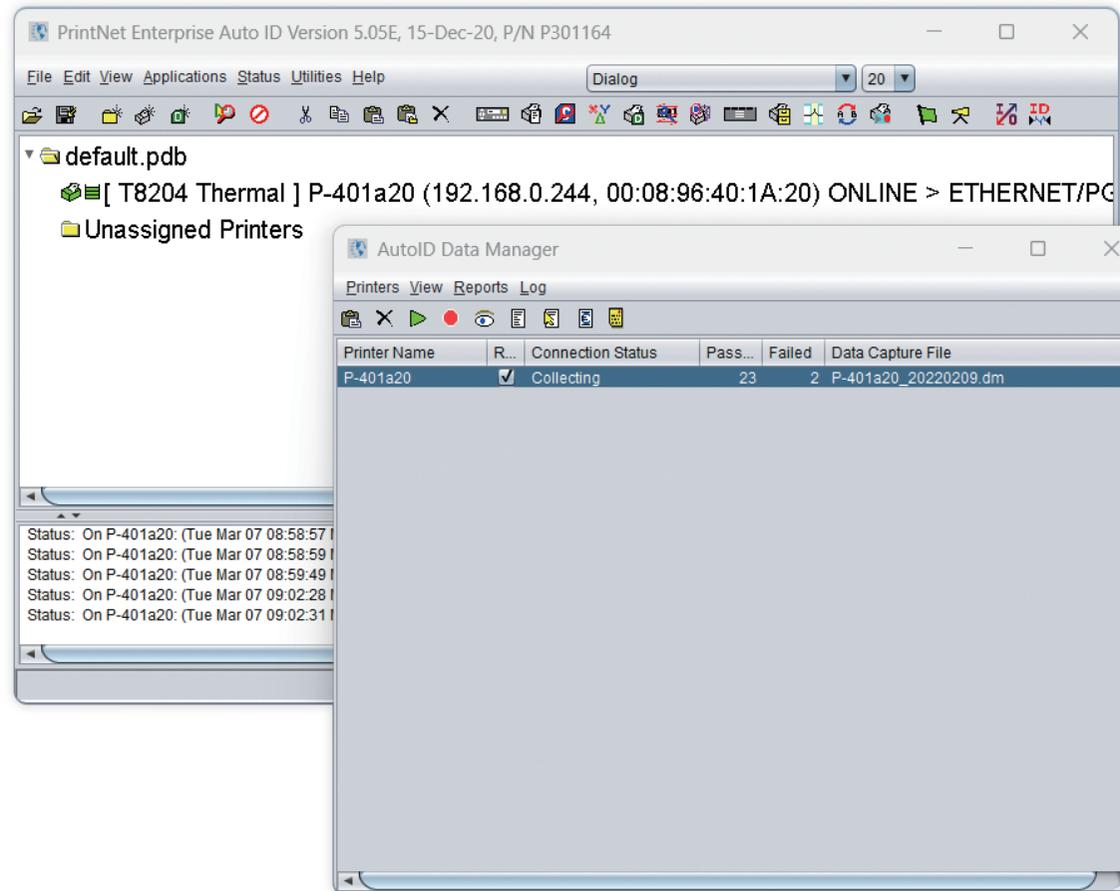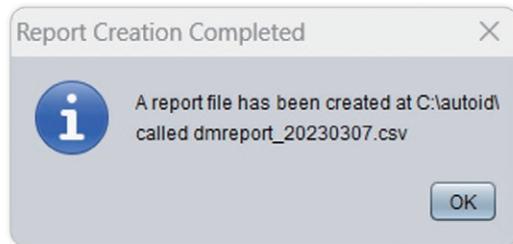After running the print job, simply stop collecting data on the AutoID Manager (red button in the icon line), go to Reports – Create Report for Selected Printers, and press enter. The following message will appear. Use Auto ID Manager-Reports-Set Report Parameters to bring up a screen enabling which fields to collect as well as the file name and location of the report.

In our example, we selected the most relevant fields, including printer name, date, barcode data, barcode symbology, and grade. There are numerous fields associated with the ISO grading standard including how straight the lines are, whether the lines have a clear edge, whether there is good contrast between the line and the background, and so forth.
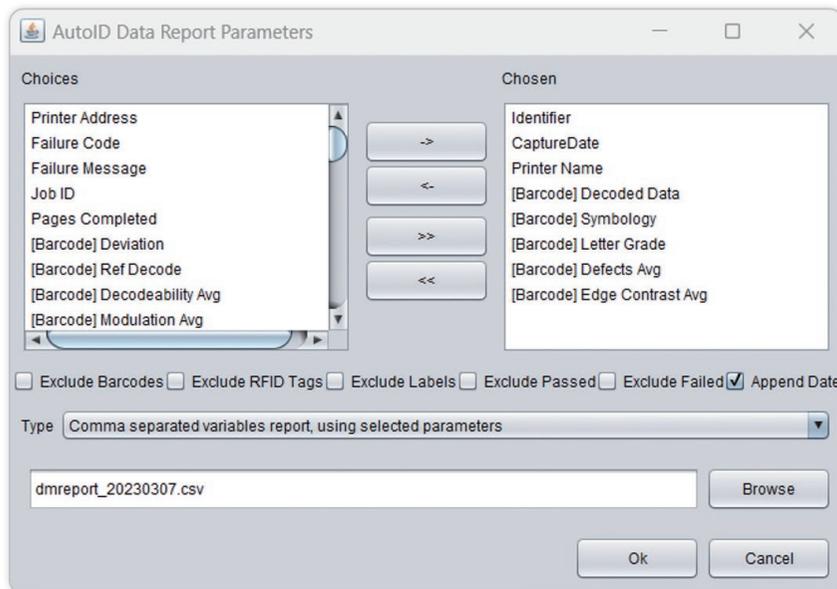
These are useful for diagnostic purposes if barcodes fail, but, for the moment, let's exclude them for simplicity. Two of the diagnostic data points are collected (Defects and Edge Contrast) to show the data that is returned if you choose to collect it.

Report Output

Let's look at the report in Excel as the file was created as a comma separated variable (.csv) file.

	A	B	C	D	E	F	G	H	I
1	Identifier	CaptureDate	Printer Na	Decoded Data	Symbology	Letter Gra	Defects Av	Edge Contrast Avg	
2	B1.1	3/7/2023 10:09	P-401a20	[Start C]40[Code B]0[Stop]	Code 128	A	3	68	
3	B1.2	3/7/2023 10:09	P-401a20	47813383	DATA MATRIX	A			
4	B1.3	3/7/2023 10:09	P-401a20	13-AR-452	DATA MATRIX	A			
5	B1.4	3/7/2023 10:09	P-401a20	[Start C]8030[Code B]1[Stop]	Code 128	A	3	59	
6	B1.5	3/7/2023 10:09	P-401a20	[Start C]71180588[Stop]	Code 128	A	1	58	
7	L1.5	3/7/2023 10:09	P-401a20						
8	B2.1	3/7/2023 10:09	P-401a20	[Start C]50[Code B]0[Stop]	Code 128	A	4	69	
9	B2.2	3/7/2023 10:09	P-401a20	83443803	DATA MATRIX	A			
10	B2.3	3/7/2023 10:09	P-401a20	3884T9A	DATA MATRIX	A			
11	B2.4	3/7/2023 10:09	P-401a20	[Start C]8030[Code B]1[Stop]	Code 128	A	1	60	
12	B2.5	3/7/2023 10:09	P-401a20	[Start C]66542519[Stop]	Code 128	A	1	57	
13	L2.5	3/7/2023 10:09	P-401a20						
14	B3.1	3/7/2023 10:09	P-401a20	[Start C]25[Code B]0[Stop]	Code 128	A	2	70	
15	B3.2	3/7/2023 10:09	P-401a20	77149910	DATA MATRIX	A			
16	B3.3	3/7/2023 10:09	P-401a20	4950991	DATA MATRIX	A			
17	B3.4	3/7/2023 10:09	P-401a20	[Start C]8030[Code B]1[Stop]	Code 128	A	2	59	
18	B3.5	3/7/2023 10:09	P-401a20	[Start C]52146887[Stop]	Code 128	A	1	59	
19	L3.5	3/7/2023 10:09	P-401a20						
20	B4.1	3/7/2023 10:09	P-401a20	[Start C]20[Code B]0[Stop]	Code 128	A	6	70	
21	B4.2	3/7/2023 10:09	P-401a20	79900551	DATA MATRIX	A			
22	B4.3	3/7/2023 10:09	P-401a20	AGT94902	DATA MATRIX	A			
23	B4.4	3/7/2023 10:09	P-401a20	[Start C]8030[Code B]1[Stop]	Code 128	A	3	59	
24	B4.5	3/7/2023 10:09	P-401a20	[Start C]40210435[Stop]	Code 128	A	1	58	
25	L4.5	3/7/2023 10:09	P-401a20						

The leftmost column identifies the label and the barcode found. In this example, we start with B1.1 which is read as "barcode 1 on label 1." There are five barcodes on the label with the data field, symbology, and content identified as well as the letter grade and the ISO grading parameters that we selected. The barcode lines are followed by an overall label line "L1.5" which is read as "Label 1 had 5 barcodes successfully read."

This report was created and filed in the designated location for future reference. If needed, it can be referenced to identify a specific label to defend against chargebacks.

OPTION 2 Capture Data from the ODV webpage

Each ODV has an individual IP address that can be queried and is used for diagnostics. It is also used by 3rd party software companies, such as Perceptor PTXL, to capture and analyze the image data. It is possible to plug into the inspection port of ODV to capture data directly from the scanner and export the file.

In the image below the Export CSV option shows as a blue button in the top center of the image. The screen displays an image of the captured label as well as the same information as the PNE report. Note that the PNE report has flexibility in the formatting, whereas the native ODV report does not. The grade, ISO parameters, symbology and content are displayed.

ID	Image	#	Result	Grade	Symbol Contrast	Modulation	Decode	Decod ability	Defects	ECMin	RMin	RMax	QZPass	XDimMils	Axial Nonuniformity	Grid Nonuniformity	Unused Error Correction	Fixed Pattern Damage	Codeword Yield	Aperture	Symbology	Data
3		0	Found	3.7	83.5	83.8	4.0	89.1	6.3	70.0	4.0	87.5	100.0	19.66						10	CODE_128	200
		1	Found	4.0	88.0	4.0					4.0	92.0	0.0	26.67	0.5	0.0	100.0	4.0		20	DATA_MATRIX	79900551
		2	Found	4.0	80.0	4.0					4.0	84.0	0.0	26.40	0.9	0.0	100.0	4.0		20	DATA_MATRIX	AGT94902
		3	Found	3.9	83.3	70.7	4.0	87.5	3.0	58.9	4.0	87.3	100.0	14.78						10	CODE_128	80301
		4	Found	3.9	81.2	71.0	4.0	87.3	1.4	57.7	4.0	85.2	100.0	14.78						10	CODE_128	40210435
2		0	Found	4.0	83.1	84.6	4.0	89.7	1.6	70.3	4.0	87.1	100.0	19.65						10	CODE_128	250
		1	Found	4.0	87.0	4.0					4.0	91.0	0.0	26.62	0.1	0.0	100.0	4.0		20	DATA_MATRIX	77149910
		2	Found	4.0	79.0	4.0					4.0	83.0	0.0	26.48	0.4	0.0	100.0	4.0		20	DATA_MATRIX	4950991
		3	Found	4.0	83.1	71.0	4.0	87.4	2.2	59.0	4.0	87.1	100.0	14.79						10	CODE_128	80301
		4	Found	4.0	81.5	71.8	4.0	86.6	0.8	58.5	4.0	85.5	100.0	14.79						10	CODE_128	52146887

OPTION 3 PXML

Overview of PXML

PXML is a bi-directional XML communication that enables commands to be sent to the printer and receive printer, job, and label data from the printer. Applications can communicate directly with the printer to change configurations, enable a different datastream, and check printer status.

For example, the following is a small extract of the data received from the printer status request to demonstrate how the printer type, printer name, print resolution, and whether the printer has ODV can be returned to the application for analysis and action:

```
<info>
<printer>
<property name="model" value="T8204"/>
<property name="partNumber" value="P301442"/>
<property name="hres" value="0203"/>
<option name="ODV" state="present"/>
</printer>
</info>
```

For more information about integrating PXML into your application, please contact your reseller or local TSC Printronix Auto ID Territory Manager.

Capturing Job Data with PXML

Sending the following string activates data collection and returns job and label information:

```
<?xml version=""1.0"" encoding="UTF-8"?>
<pxml>
<status>
<select type="job" enable="true" version="2"/>
</status>
</pxml>
```

Report Output

The output is returned in XML format. Only one barcode from one label is displayed for brevity. This data includes the symbology, barcode data, overall grade, as well as all the ISO grading parameters.

```
<?xml version="1.0" encoding="UTF-8"?>
<pxml>
<status>
<job type="ODV">
<odvCodeDetail version="1" failure="false">
<data type="ascii" size="28">
<ascii>[START C]8030[Code B]1[STOP]</ascii></data>
<property name="symbology" value="Code 128"/>
<property name="orientation" value="picket"/>
<property name="gradeOverall" value="A (4.0)"/>
<property name="aperture" value="10"/>
<property name="wavelength" value="624"/>
<property name="dimensionX" value="14.8"/>
<property name="decodeability" value="89"/>
<property name="modulation" value="71"/>
<property name="contrastSymbol" value="84"/>
<property name="contrastEdge" value="59"/>
<property name="defects" value="2"/>
<property name="rmin" value="4"/>
<property name="rmax" value="88"/>
<property name="pcs" value="100"/>
<property name="percentDecode" value="100"/>
<property name="aveBarDeviation" value="+0"/>
<property name="minBarDeviation" value="+0"/>
<property name="maxBarDeviation" value="+0"/>
<property name="ratio" value="0.0"/>
<property name="scansGood" value="10"/>
<property name="scansTotal" value="10"/>
</odvCodeDetail>
</job>
</status>
</pxml>
```

Other Applications Leveraging ODV Data

Teklynx Label Archive

Teklynx provides label creation and print job management software. In addition, their Label Archive version leverages PXML to capture data from ODV and stores the resulting data along with job information in a database for easy retrieval and reference.

For more information about Label Archive, please visit:
LABEL ARCHIVE Label Security & Traceability Software (teklynx.com)

Perceptor PTXL

Perceptor PTXL is a software application that plugs directly into ODV and adds additional scan functions including OCR, serial number duplicate checking, as well as image and blemish inspection. Additionally, all label data is captured and stored in a cloud database.

For more information about Perceptor PTXL, please visit:
Perceptor PTXL (perceptor-ptxl.com)

Summary

TSC Printronix Auto ID's ODV provides automated, integrated barcode inspection that ensures only barcodes that meet a specified grade level will get used. In addition to overstriking and reprinting any failed labels, ODV also provides a full set of reporting that enables report or direct input to an application. These reports can be stored or integrated into applications to help defend against chargebacks.

Reporting has flexibility in the output datastream (.csv or .xml), location, and report content. For more information about ODV, reporting, or barcode inspection, please contact local your reseller or TSC Printronix Auto ID.

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