



DCS & Labelling Worldwide



SATO XML-enabled Printers Introduction



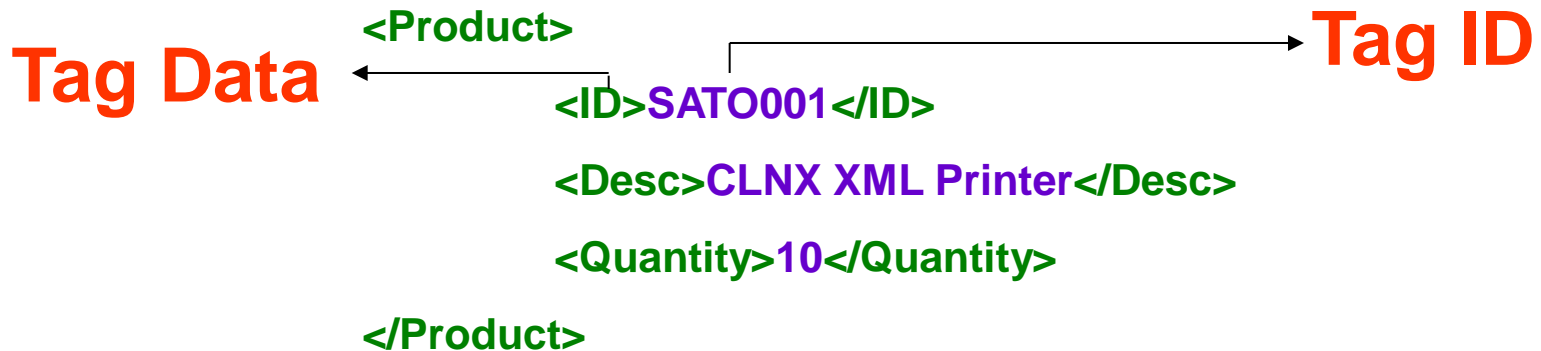
Introducing XML

✓ What is XML ?

eXtensible Mark-up Language.

Text-based markup language, fast becoming the standard for data interchange on the Web

✓ XML Document





Introducing eXtensible Markup Language

✓ Why XML ?

1. **Easily processed.** Regular and consistent notation makes it easy to interpret XML.
2. **Data Identification.** XML documents indicate exactly what kind of data you have. Data is identified using tags. The tags *identify* the data, rather merely specifying how to display it.
3. **Plain Text.** Since XML is not binary format, an XML file can be easily created using a standard text editor.
4. **Traditional Data Processing.** XML is increasingly becoming the data representation of choice for the Web. It is easier to transmit XML-encoded data back and forth between the client and server in any client/server application such as between the host and printer in a network environment.
5. **Data Interchange.** In the future, XML will potentially be the answer for data interchange in all types of transactions.
6. **Data Interoperability.** An XML file can be easily generated by a different enterprise application.



DCS & Labelling Worldwide



SATO XML Solutions

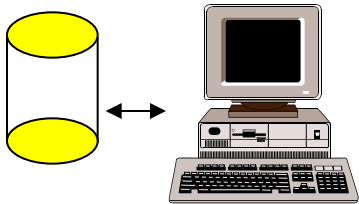
1. Direct Printing Solution

OR

2. Middleware Solution

with SATO XML-enabled printer

Direct Printing Solution using SATO XML-enabled printer

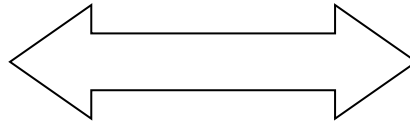


ERP Application
e.g.: ORACLE / SAP

1. ERP systems generate output in XML format

```
<?xml version="1.0" standalone="no"?>
<!DOCTYPE labels SYSTEM "label.dtd">
<labels _FORMAT="Material label"
  _QUANTITY="1" _PRINTERNAME="Printer1"
  _JOBNAME="LBL101">
<label>
<variable name="ITEM">A0001</variable>
<variable name="ITEMDESC">Printer </variable>
<variable name="ProductID">12345</variable>
<variable name="QTY">1</variable>
<variable name="UOM">EA</variable>
</label>
```

SERIAL / PARALLEL / LAN



2. The embedded XML Parser in the printer enables it to understand native XML data streams that the host produces. The printer analyses XML data stream and issues label



Note: Label format (label layout) is pre-stored into the printer memory using NiceLabel Designer Pro / Desktop Suite



DCS & Labelling Worldwide

Direct Printing Solution using SATO XML-enabled printer

SATO XML-ENABLED BARCODE PRINTER



- ✓ CL408e and CL412e
- ✓ 4-inch printer
- ✓ 203dpi and 305dpi

CL408e/412e



DCS & Labelling Worldwide

Direct Printing Solution using SATO XML-enabled printer

SATO XML-ENABLED BARCODE PRINTER



CL608e/612e

- ✓ **CL608e** and **CL612e**
- ✓ **6-inch printer – ideal for pallet label up to A5 inch**
- ✓ **203dpi and 305dpi**



DCS & Labelling Worldwide

Direct Printing Solution using SATO XML-enabled printer



SATO XML-enabled printers have been tested in-house at the Oracle labs confirming that they can directly print from **ORALCE**[®] WMS/MSCA without any additional middleware or server hardware.

SATO XML-enabled printers are also integration with **SAP**[®] Auto-ID Infrastructure 2.1 via the SAP Auto-ID Infrastructure-Device Controller Interface (All-DC-RFID) 1.0 integration scenario



DCS & Labelling Worldwide

Direct Printing Solution using SATO XML-enabled printer

Function : SATO XML-Enabled Barcode Printer

- ✓ XML-enabled printer understands XML data stream and interprets it into SBPL format
- ✓ ORACLE® WMS/MSCA or SAP® AG's Auto-ID infrastructure (via the SAP Auto-ID Infrastructure-Device Controller Interface (All-DC-RFID) 1.0 integration scenario) sends XML print jobs to printer
- ✓ Printer processes XML output and prints directly from a ORACLE WMS/MSCA or SAP® AG's Auto-ID infrastructure 2.1 via the SAP Auto-ID Infrastructure-Device Controller Interface (All-DC-RFID) 1.0 integration scenario
- ✓ XML parsing function embedded into printer makes it possible to print without resorting to any middleware



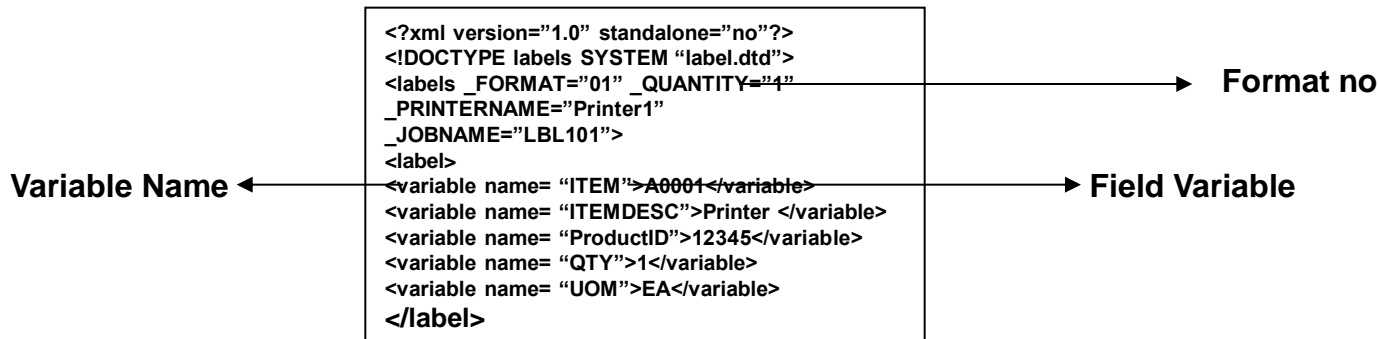
Direct Printing Solution HOW DOES IT WORK?



SATO XML-ENABLED BARCODE PRINTER

1. Host downloads XML-enabled **LABEL FORMAT** . LABEL FORMAT is allocated to the printer's memory using **NiceLabel Designer Pro Software**
2. The host sends a print job in **XML DATA FORMAT** to the printer over a network via an interface such as TCP/IP or some other means of connection

XML DATA



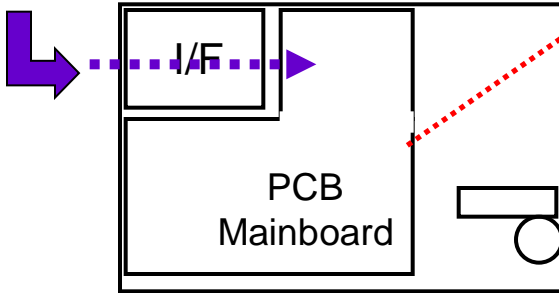
Direct Printing Solution

HOW DOES IT WORK?

- The XML print job data is parsed for label format number, variable name and field variable.

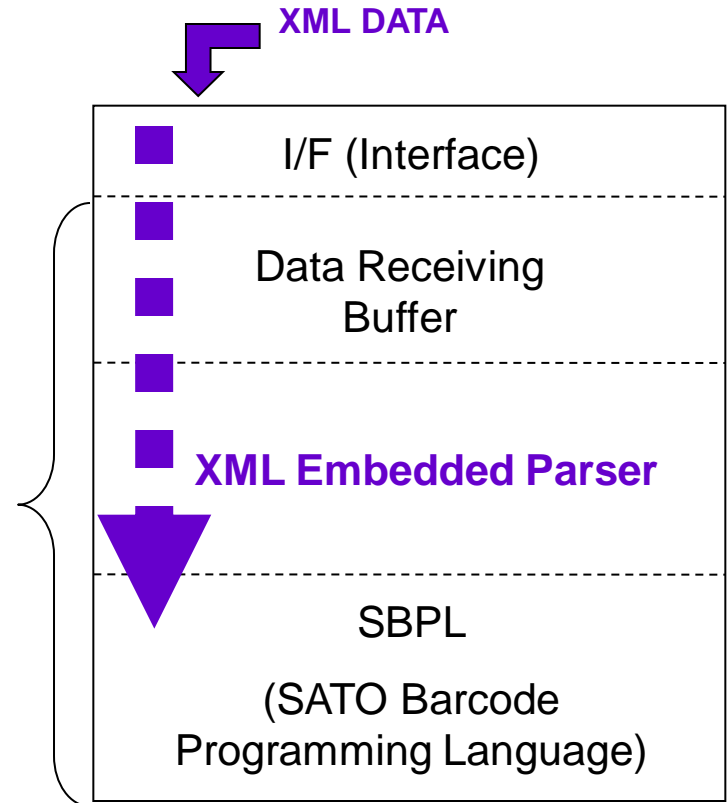
```
<?xml version="1.0" standalone="no"?>
<!DOCTYPE labels SYSTEM "label.dtd">
<labels _FORMAT="01" _QUANTITY="1"
_PRINTERNAME="Printer1" _JOBNAME="LBL101">
<label>
<variable name= "ITEM">A0001</variable>
<variable name= "ITEMDESC">Printer </variable>
<variable name= "ProductID">12345</variable>
<variable name= "QTY">1</variable>
<variable name= "UOM">EA</variable>
</label>
```

XML DATA



XML Enabled Printer

Firmware

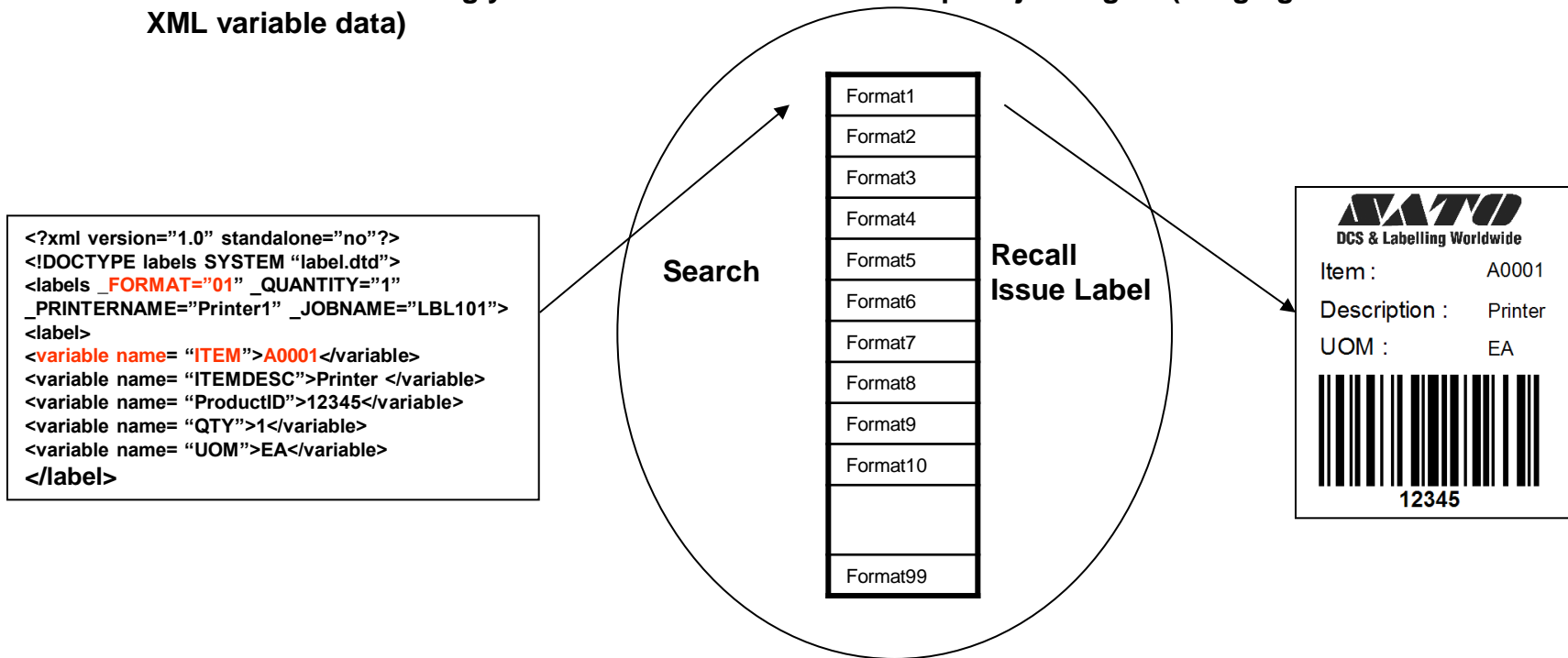




Direct Printing Solution

HOW DOES IT WORK?

- The printer will search for the label format number from its memory. The variable data field name is then inserted accordingly. The format is recalled and the print job begins (Merging the Format and XML variable data)

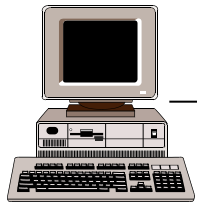


XML-Enabled Printer Memory



XML Parser

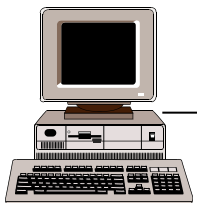
XML Document 1



Company A

```
<?xml version="1.0" standalone="no"?>  
<!DOCTYPE labels SYSTEM "label.dtd">  
<labels _FORMAT="Material label" _QUANTITY="1"  
_PRINTERNAME="Printer1" _JOBNAME="LBL101">  
<label>  
<variable name= "ITEM">A0001</variable>  
<variable name= "ITEMDESC">Printer </variable>  
<variable name= "ProductID">12345</variable>  
<variable name= "QTY">1</variable>  
<variable name= "UOM">EA</variable>  
</label>
```

Data is exchanged by XML



Company B

XML Document 2

```
<?xml version="1.0" standalone="no"?>  
<!DOCTYPE labels SYSTEM "label.dtd">  
<labels _FORMAT="Material label" _QUANTITY="1"  
_PRINTERNAME="Printer1" _JOBNAME="LBL101">  
<label>  
<variable name= "ITEM">A0002</variable>  
<variable name= "ITEMDESC">DesktopPC</variable>  
<variable name= "QTY">1</variable>  
<variable name= "UOM">EA</variable>  
</label>
```



DCS & Labelling Worldwide

Item : A0001

Description : Printer

UOM : EA

12345

- Data 1
- Data 2
- Data 3
- Data 4

DCS & Labelling Worldwide

Item : A0002

Description : DesktopPC

UOM : EA

99999

- Data 1
- Data 2
- Data 3
- Data 4

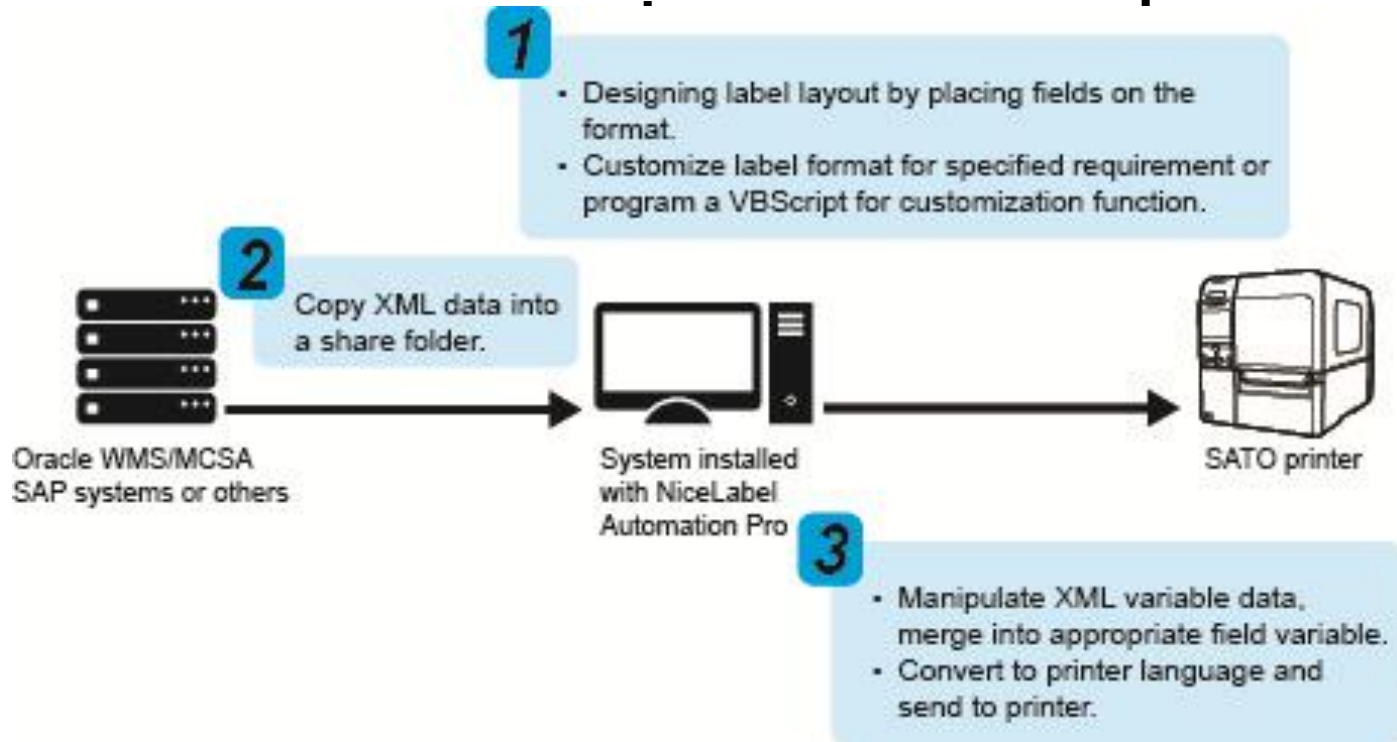
Note: Label format (label layout) is pre-stored into the printer memory using NiceLabel Designer Pro / Desktop Suite

Middleware Solution

1. XML Documents from ERP System

2. Middleware Solution

3. Issues Labels



SATO Middleware Solution

- 1 You can perform customisations using Visual Basic script programming in **Automation Pro** to meet your customers' needs.
- 2 **Automation Pro** which will allow the user to manipulate the label at the appearance of trigger file from the ERP system. This activity generates a trigger event for automation to start the execution of the intended action.
- 3 Customised programming requests can be done by all SATO GMCs.



DCS & Labelling Worldwide

Direct Printing and Middleware Solution

Direct Printing Solution

- ✓ Simplified overall system design and reduced operation layers.
- ✓ Reduced cost because no additional application layer between EPR system and printing system.

Middleware Solution

- ✓ Easily customised label formats
- ✓ Easier error correction in case any error occurs.



XML and RFID Function

- ✓ Does SATO XML-enabled printer support RFID ? **YES**
- ✓ What are the transponders supported?

EPC Class 1 Gen 2

EPC Class 1

EPC Class 0+

Philips UCODE EPC 1.19



DCS & Labelling Worldwide

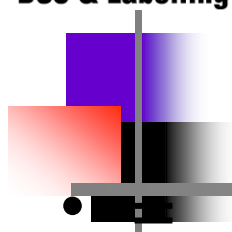


What SATO offers in its XML Solution ?

- ✓ **SATO 4-inch and 6-inch XML-Enabled Printer**
- ✓ **XML-enabled 4-inch printer can also print RFID labels**
- ✓ **NiceLabel Designer Pro software can store XML-enabled label formats**



DCS & Labelling Worldwide



Thank You