TracerPlus

For Windows Mobile/CE

PRINT GUIDE

TracerPlus Version 7
Portable Technology Solutions, LLC.
221 David Ct.
Calverton, NY 11933
www.tracerplus.com
www.ptshome.com

Portable Technology Solutions

TracerPlus Print

for TracerPlus 7 Windows Mobile/CE

User Guide

TracerPlus Print Guide

Portable Technology Solutions, LLC

Telephone: 1-877-640-4152
Fax: 1-501-421-5085
Web: www.tracerplus.com
E-Mail: support@tracerplus.com

TracerPlus Print

for TracerPlus Windows Mobile/CE version 7

Contents:

Chapter 1: Introduction

1.1 What is TracerPlus Print

With the TracerPlus Print, mobile workers can print TracerPlus data, in various reports, from mobile and networked printers. The print formats (reports) used to print the data are created via XML definition files giving TracerPlus users un-matched design flexibility. With a basic understanding of how to create print formats users enable their mobile work force to print invoices, packing slips, labels and much more at the point of activity.

TracerPlus includes customizable sample print formats which are available for testing and customization. This manual provides all the information you need to either customize one of our samples or to build your own printer format from the ground up.

PTS also makes available various design services for labels and invoices, in which we provide print formats per your specification.

Common TracerPlus Print Applications

Mobile receipt / invoice printing
Waybill printing
Stock labeling
Mobile inspection forms / labels
Shipping and receiving labeling

1.2 Trial Version Limitations

The TracerPlus mobile client must be registered for full printing functionality. In the unregistered version the phrase, **DEMO MODE** is printed after every variable referenced in the print report.

1.3 Learning TracerPlus Print

TracerPlus Print is a very powerful highly customizable product. To discover all that is possible we highly recommend that you read through this manual thoroughly. TracerPlus comes bundled with some prepackaged reports, however to create a report specific to your needs you should learn the TracerPlus Print format to design a custom format that works for you.

1.4 TracerPlus Print Services

PTS provides various training and set up services for TracerPlus customers. Please email our sales department at sales@tracerplus.com or call us 1-877-640-4152 to learn more.

Chapter 2: Compatibility

2.1 Mobile printers:

TracerPlus prints from most network and mobile printers. The printers below have been officially certified by our testing department.

List of verified compatible printers,

- Zebra Cameo Series
- Zebra PA/PT Series
- Zebra QL Series
- Zebra RW Series
- Zebra TR220
- O'neil 8I
- O'neil 4T

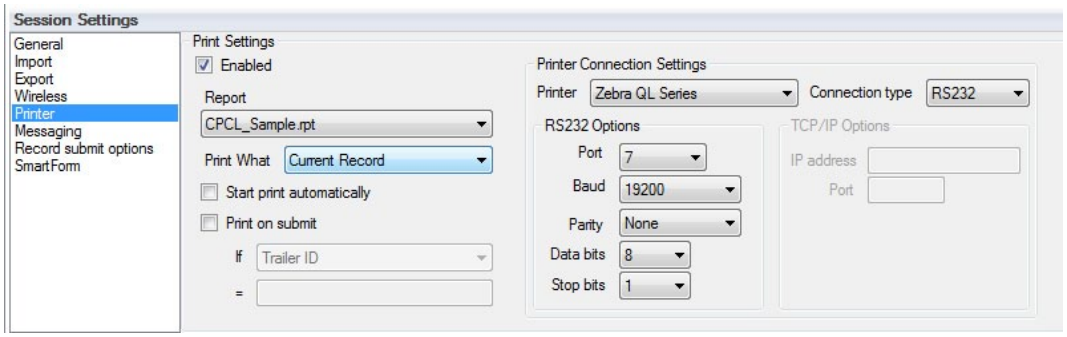
Chapter 3: Printing with TracerPlus Print

3.1 Print Setup with TracerPlus Desktop

Whenever possible, configuring TracerPlus to print should be done via TracerPlus Desktop.The following information can also be found in **Section 5.5** of the **TracerPlus Desktop User Guide**.

A tutorial video detailing TracerPlus printing is available and has proven to be very helpful for beginning users.
Watch Video (internet connection required)

Normally, printing with TracerPlus is used in conjunction with mobile printers for receipts or labels, but data can also be printed to a number of desktop printers. The option to configure printer settings is available individually for each session.



Enabled
Click to enable printing for the selected session.

Additional printers can be added to this list by creating a new configuration file for that printer and saving it to the **\My Documents\TracerPlus Desktop\SystemInfo\Printers** folder.

Report
Reports are system files that define the layout of the final printed label or receipt and determine what data is printed. These files also contain printer specific commands in order to communicate to a particular printer. This dropdown lists all reports associated with TracerPlus Desktop and will be available to all open projects for deployment.

The selection made here sets the default report for the corresponding session. A mobile user can override this default at the time of printing if a different print style or data selection is needed. Afterwards, the setting automatically returns to the default chosen here.

TracerPlus includes 4 of these reports, each configured to work with a set of commonly used mobile or desktop/tabletop printers. Additional custom reports for other printers can quickly be created and used by copying the file to the **\My Documents \TracerPlus Desktop\SystemInfo\Printers** folder.

Print What
The **Print What** drop down provides the ability to select the records from the current session that you would like to print. These include:

All records
This setting prints every record in the selected format from the current session.

Current record
This setting prints the currently selected record from the current session. If printing from the Data View Screen, this is the record highlighted in the grid. If printing from the Entry screen, the most recently submitted record is printed.

Prompt for filter
When File→Print is selected from the mobile device's file menu, a dialog box appears asking you what you would like to print. A filter can then be applied to your session data allowing only records matching that filter to be printed. This option is often useful in receipt printing with particular order numbers.

Start print automatically
When this option is enabled and a File→Print has been selected, the print job is automatically started using the default options as selected from this screen. The Prompt for Filter option will override automatic printing.

Print on submit
Enabling this checkbox allows the user trigger a printout based on the content of the selected field. This is most often used with True/False fields or where a printout is only needed in specific cases.

If
This dropdown presents a list of fields in the current session.

= (equals)
This field is filled with the data result that you would like to trigger the printout.

Printer
Select the printer to be used from this dropdown provided. If your specific printer is not listed or if you are unsure of the printer type, select the **Generic, Text only** option. This printer type is usually acceptable for any printer although some model specific defaults may be unavailable. Currently, all supported printers are included within the dropdown.

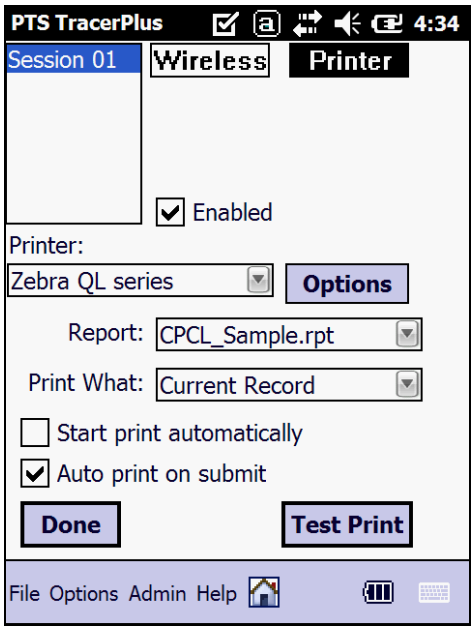
Connection type
The **Connection Type** dropdown allows you to select the connection type you wish to make to your printer. The two connection options available are **RS232** and **TCP/IP.**

RS232
RS232 (or serial) connections allow your mobile device to connect to a printer via an RS232 serial port. Typically, this is a cable connecting your mobile device to the mobile printer but it can also be used in a **Bluetooth** wireless environment (when using Bluetooth Com emulation). The options provided for RS232 connectivity need to be set to match the printer's settings. Refer to the User Guide for your printer to determine how these values should be set.

TCP/IP
TCP/IP connection type is available when connection to a networked printer is desired. This is commonly used if the printer offers an 802.11 wireless interface (Wi-Fi) or if the printer is attached to the same network as a wireless device. In either case, the only 2 settings required are the printer's TCP/IP address and connection port.

3.2 Print Setup on the Mobile Device

Some print configuration can be done in the Printer Settings screen on the device . This is accessed by selecting Admin→Manage Plug-ins from the application menu. Select the printer tab in the right hand corner to access the print configuration section.



Enabled
Click to enable printing for the selected session.

Printer
Select the printer to be used from this drop down. All supported printers are in this list. If your specific printer is not listed or if you are unsure of the printer type, select the **Generic, Text only** option. This printer type is usually acceptable for any printer but may not contain some of the default values as appropriate for more specific selections.

Report
This drop down box lists all reports installed on your PDA. The selection you make here is the *default* report that will be used when printing for this session. This selection may also be changed at the time of print if a different report is required.

Print What
The **Print What** drop down provides the ability to select the records from the current session that you would like to print. These include:

> **All records**
> This setting prints every record in the selected format from the current session.
>
> **Current record**
> This setting prints the currently selected record from the current session. If printing from the Main Screen, this is the record highlighted in the grid. If printing from the Entry screen, it is the record currently being edited.
>
> **Prompt for filter**
> When File→Print is selected from the file menu a dialog box appears asking you what you would like to print. At the time of printing, a filter can be applied to your session data allowing only records matching that filter to be printed.

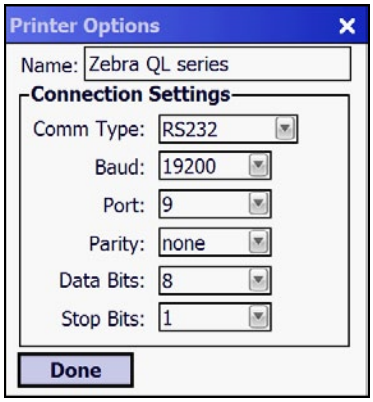
Start Print automatically
When this option is enabled and a File→Print has been selected the print job is automatically started using the default options as selected from this screen. Of course, this option is not relevant if you have chosen to prompt for filtered data.

Auto print on submit
This option allows you to print a record when it is submitted in the Entry form.

Test Print
Select this to test your printer settings. This option only prints the first record in your database and appends a **DEMO MODE** to each variable field printed.

Options
The **Options** button allows you to configure how the printer is connected to the device. These options include:
RS232
TCP/IP

Print Options Dialog
To configure the printer select the **Options** button. The following dialog will be shown.



The **Print Options** dialog allows you to select how the printer is connected to the handheld. Available options are RS232 and TCP/IP.

To configure a cabled connection (RS232):

Select RS232 from the **Comm Type** drop down.

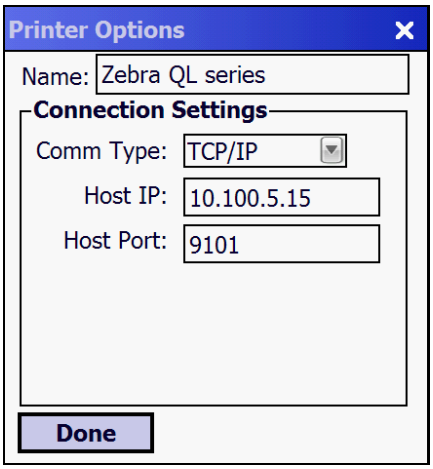
Then select the appropriate settings for your handheld and connected printer.

Another available option is a TCP/IP connection to the printer. Using a wireless handheld with TracerPlus and a networked printer you can print wirelessly using TracerPlus.

To configure a TCP/IP connection:

Select TCP/IP from the **Comm Type** drop down.

The following options will then be shown.

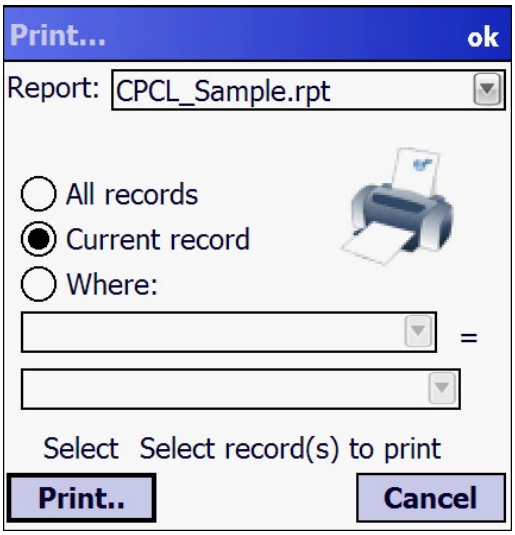


Enter the **Host IP** address of the printer and the **Host Port**.

TracerPlus will now send data over a network to the selected network printer.

3.3 Printing from the View Data Tab

To print from the view data tab select File→Print. This presents the user with the Print dialog box. This dialog is initialized with the default settings as chosen from the Printer settings configuration screen. If you have chosen to automatically start printing, you will not have the option to make any changes to the currently printing data. Instead, this dialog acts as a print status screen and indicates printing progress.



From the print dialog, you can select the report you would like to use, and what you would like to print. The **Where:** option allows you to select a filter condition to select records against. This performs a lookup in your current session table and prints only those records matching the filter criteria.

Once the print button is pressed, or a print job has started automatically, this dialog is used for print status and offers the ability to cancel printing at any time. Once printing has completed, the Status label toward the bottom of the dialog indicates success.

Chapter 4: The TracerPlus Print Format

4.1 XML Basics

TracerPlus print formats (reports) are simply text files defined in XML (eXtensible Markup Language). The layout of these reports is very flexible but also requires a certain level of structure. Chapter 4 discusses a majority of the report format. Where possible, samples are used to better explain a point. It is beyond the scope of this document to discuss the XML specification but some simple terms may help the beginning user.

Quick XML tutorial

An **element** is comprised of attributes and possibly sub-elements. Thinking of XML along the lines of a tree is often a good analogy. In that vein, think of an element as a branch in that tree that contains both leaves (attributes) and/or other branches (sub-elements).

Every element must be terminated with a closing tag. This is generally the name of the element with a "/" prefix. As an example, consider:

```
<tree>
   <trunk>
      <branch leaf1="1" leaf2="2">
         <sub-branch leaf1="sub1" leaf2="sub2">
         </sub-branch>
      </branch>
   </trunk>
</tree>
```

TracerPlus Print format XML basics

At the heart of every TracerPlus print format is the **<format>** tag (element). This is an overall wrapper for the entire document and is required. Each print format must additionally be 'closed' with a closing **</format>** tag.

Within, and beneath, the **<format>** tag are any number of sub-elements; some are required but many are optional and only used if your specific printing need requires it. Two important sub elements of **<format>** are the **<definevars>** and **<printerdata>** elements. The **<printerdata>** tag is required for all print formats. While the **<definevars>** tag is not required, there are probably few cases where it would not be used with TracerPlus.

A very basic print format may look as follows:

Sample Print Format File

```
<format>
        <definevars>
                <var  name ="field1" type="DB" source="field1"/>
        </definevars>
        <printerdata>
                <formatheader>
                        Format Header prints only at the beginning of the report
                </formatheader>
                <record>
                        Field1: <var name="field1"/>
                </record>
                <formatfooter>
                        Format Footer prints only at the end of the report
                </formatfooter>
        </printerdata>
</format>
```

4.1.1 Define Variables Tag

The **<definevars>** section of any report allows the user to define any database or calculated fields that are used in the report. If these variables are to be referenced later in the report, they must first be defined here. In the example above, we have one variable that references **Field1** in the session database. For every printed record, the value from the table in Field1 is printed. There are no calculated or constant variables used in the above example but they would also be initialized in the **<definevars>** element. These variable types are discussed later in this manual.

Every variable defined in the **<definevars>** element has many possible properties (attributes). One which is required is the **name.** Each variable must have a unique name and it is this name that is referenced later in the **<printerdata>** section.

To reference a variable that has been declared use the following:

- **<var name="field1"/>**

4.1.2 Printer Data Tag

The **printerdata** section is where the printer format is described. All static text and variables must be within this tag to be printed. Within the printer data tag there may be sub elements including:

<formatheader>
Within the printer data tag a format header can be declared. The format header prints data only at the start of the format or print job. In this example, the beginning of the printed document will say “Format Header”. This is useful if you want to have a static value printed at the top of every print job. You may also use variable data within the header.

<record>
Within a record tag you can print static text and variables. Static text will be printed exactly as it appears in the format file. To print TracerPlus field data a variable must be used from the **definevars** section. In this format, we are printing the value of “field1” from the TracerPlus database.

<formatfooter>
The format footer tag is used similarly to the format header tag except static text or variables within this tag will only be printed once at the end of the format.

In the basic sample above every time a print is requested the output will be:

Format Header
Field1: (TracerPlus data from field 1)
Format Footer

4.2 Advanced Format Options

To extend the power of the print format there are many other tags to control how TracerPlus data is printed. These are described in detail below.

Formatstring
As an option within the variable tag you can place character spacing within a field. Since field data from TracerPlus can be of varying lengths in order to have a format line up correctly you need to pad it with spaces. To do this, use the formatstring option. The example below will pad a reference to the variable field1 with up to 40 spaces to the right. The (-) character indicates to the right, if the option did not include (-) this would mean pad up to 40 spaces to the left of variable field1.

```
<var  name ="field1"    type="DB"    formatstring="%-40s"    source="field1"/>
```

In this example field1 will be padded with up to 40 spaces to the right of the value including the length of the string.

**
**
The break tag can be used anywhere between the printer data tags. It is used to add a carriage return, line feed anywhere in the format.

<pageheader>

Every page in the print format can be used to print multiple records. The page header tag can be used to add static text or variables to the beginning of every page. This can be used in conjunction with the **"max_records_per_page"** option in the formatheader tag.

max_records_per_page
max records per page sets the maximum number of TracerPlus records that should be printed on one page. For example if you would like to set a limit of five records and then start a new printed page set the format header option max_records_per_page = "5". Now after every five records a new page with a new page header will be printed.

<pagefooter>
The page footer tag can be used to add static text or variables to the end of every page.

<asc>
The ASCII tag can be used to enter raw ASCII characters in your print format. This is useful for entering characters such as tab, space or form feed.

Some ASCII characters include:
0C – Form Feed – This is useful if you would like to have the printer spool to the end of the page.
20 – Space – This value will add a space character anywhere in the print format.
09 – Tab – Use 09 top add a tab character in the print format.

Calculated Variables
In the define variables tag it is also possible to define calculated variables. This is done by declaring a formula, the operator, and two previously defined variables. An example formula would be:

```
<var  name ="sumfield1" type="CALC" datatype="INT" value="100"
reseton="pageheader">
        <formula operator="+">
                <var name="field1"/>
                <var name="field2"/>
        </formula>
</var>
```

This calculated value can now be referenced in the Print Format section by using the variable name "sumfield1".

type
The type element describes this variable as a calculated variable.

datatype
Used to tell the format what type of data to expect from this calculated field possible data types include: INT, Double.

value
The value element is the starting value of the calculation. In this example the calculated field would start at 100.

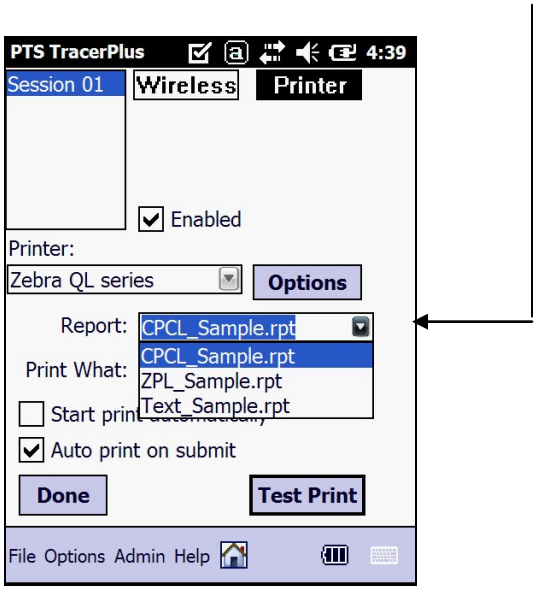
reseton
A calculated field can perform an operation, get the result and then perform another calculation on that resulting value. This can be useful for doing totaling where you do not want the value to be reset each time you add a new value. The reseton element allows you to specify when you would like the calculation to reset to the starting value.

<formula>
The formula tag is where you specify the actual calculation type and fields. You must specify the operator type (+, -, *, and /), and the two variables you want to do the operations on. Valid variables include the predefined variables in the **<definevars>** tag.

4.3 Saving print formats

When a print format has been completed it must be saved with the file extension .rpt. All print formats must then be copied into the TracerPlus print directory. This directory is **\\My Documents\TracerPlus\System\Printers**

Once a format has been saved in this directory it will be accessible from the Printer configuration screen. Refer to section 3.1. The following is a screen shot of a drop down populated with print formats saved in the printer directory.



Appendix A: Print Format Advanced Sample

Sample format using advanced features

The following is an example general text format using all the previously described features. The end result is a mobile invoice From PTS.

```
<format>
<definevars>
        <var  name ="field1"           type="DB" formatstring="%-40s"
source="field1"/>
        <var  name ="field2"           type="DB" formatstring="%-29s"
source="field2"/>
        <var  name ="field3"           type="DB" formatstring="%-29s"
source="field3"/>
        <var  name ="field4"           type="DB" formatstring="%-29s"
source="field4"/>
        <var  name ="field5"           type="DB" formatstring="%-18s"
source="field5"/>
        <var  name ="field6"           type="DB" formatstring="%-3s"
source="field6"/>
        <var  name ="field7"           type="DB" formatstring="%-6s"
source="field7"/>
        <var  name ="field8"           type="DB"
source="field8"/>
        <var  name ="field9"           type="DB" formatstring="%-16s"
source="field9"/>
        <var  name ="field10"         type="DB" formatstring="%-8s"
source="field10"/>
        <var  name ="field11"         type="DB" formatstring="%-24s"
source="field11"/>
        <var  name ="field12"         type="DB" formatstring="%-27s"
source="field12"/>
        <var  name ="field13"         type="DB" formatstring="%7s"
source="field13"/>
        <var  name ="field14"         type="DB" formatstring="%11s"
source="field14"/>
        <var  name ="field15"         type="DB" formatstring="%11s"
source="field15"/>
        <var  name ="field16"         type="DB"
source="field16"/>
        <var  name ="Sumfield15"  type="CALC"  datatype="DOUBLE"
          formatstring="$%8.2f"  value="0" reseton="formatheader">
            <formula operator="+">
                   <var name = "field15"/>
                   <var name = "Sumfield15"/>
            </formula>
     </var>
</definevars>
<printerdata>
<formatheader max_records_per_page="25"></formatheader>
<pageheader>
Portable Technology Solutions  <br/>
4062-80 Grumman Blvd            <br/>
Calverton, NY 11933               |<br/>
<br/>
<br/>
<br/>
```

```
Customer Number: <var name="field1"/>Invoice Number: <var
name="field8"/><br/>
<br/>
<br/>
_____
_____<br/>
|Bill to:                      |               |Ship to:
|<br/>
------------------------------               ------------------------------
-<br/>
|<var name="field2"/>|               |<var name="field2"/>|<br/>
|<var name="field3"/>|               |<var name="field3"/>|<br/>
|<var name="field4"/>|               |<var name="field4"/>|<br/>
|<var name="field5"/>, <var name="field6"/><var name="field7"/>|
|<var name="field5"/>, <var name="field6"/><var name="field7"/>|<br/>
------------------------------               ------------------------------
-<br/>
<br/>
<br/>
*                             ---------------------------------------------
-----<br/>
*                            | PO#: <var name="field9"/>| Rep: <var
name="field10"/>| <var name="field16"/><br/>
_____________________________________________________________________________
_____<br/>
-----------------------------------------------------------------------------
-----<br/>
Part Number            | Description                | Qty  | Cost Ea. |
Total<br/>
_____________________________________________________________________________
_____<br/>
-----------------------------------------------------------------------------
-----<br/>
<br/>
</pageheader>
<record>
<var name="field11"/><var name="field12"/><var name="field13"/><var
name="field14"/><var name="field15"/><br/>
<var name="Sumfield15" disableprint="1"/>
</record>
<pagefooter>
<br/>
<br/>
<br/>
_____________________________________________________________________________
______<br/>
-----------------------------------------------------------------------------
------<br/>
<br/>
*                                                    Invoice Total:  <var
name="Sumfield15" doupdate="0"/><br/>
*
_____________________________<br/>
*                                                 --------------------------
------<br/>
<br/>
<br/>
*                          THANK YOU FOR YOUR BUSINESS!!!!!!!<br/>
<br/>
<br/>
<br/>
*       Signature:_____________________________<br/>
<asc>0C</asc>
```

```
</pagefooter>
<formatfooter>
</formatfooter>
</printerdata>
</format>
```

Appendix B: Elements and Attributes

<asc>
Type: Element
This is actually an element but is more appropriately discussed in the attributes section. Any printer data needing to be sent to the printer as raw ASCII can be sent via this tag. Data wrapped within this element is sent to the printer directly as represented. Each character must be represented as a zero padded 2 character hexadecimal value. As an example, if the user wanted to send a <space> character (20Hex) followed by a <tab>(9Hex) character followed by a <formfeed> character(0CHex), the data presented below would be used to send this 3 character stream to the printer.
<asc>20090C</asc>

**
**
Type: Element
Used in the **<printerdata>** section. Similar to the **<asc>** element, this value is also an element but is really only appropriately used and immediately closed. Use of this tag allows a quick way for the user to embed a Carriage Return Line Feed set of characters to the printer data stream.

datatype
Type: Attribute
Used in the **<definevars>** section to indicate the data type of the given variable. This is especially important in the use of calculated fields because this indicates both formatting and also sometimes affects the calculated result. Choices are “STRING”, “INT”, and ”DOUBLE”.

<definevars>
Type: Element
Required: No
Usage:
The beginning element for defining any variables used in the format.

disableprint
Type: Attribute
Used to tell the printer to update a calculated variable but do not print the result.
Default = false.

doupdate
Type: Attribute
Used in **<var>** element inside the **<printerdata>** element. Determines whether the variable should be recalculated.
Default = true

<format>
Type: Element
Required: Yes

Usage:
Beginning element for printer format file.

<formatheader>
Type: Element
Required: No
Usage:
This is a sub element of **<printerdata>**. Any data included beneath this tag is built and sent to the printer once per **report**. An example of data that might be used within this element is the title of the report.

<formatfooter>
Type: Element
Required: No
Usage:
This is a sub element of **<printerdata>**. Any data included within this element is 'compiled' and sent to the printer at the end of a report. An example of data that might be contained within this element is Variable Totaling for a report or a total calculation field as might be used in an invoice.

formatstr
Type: Attribute
Used in both the **<definevars>** section to indicate default formatting. It may also be used for a **<var>** in the **<printerdata>** section if the default formatting needs to be overridden. This is an advanced attribute. Some examples are "%6.2f", "%-20s", %20s", etc.

<formula>
Type: Element
Required: No
Usage:
This is a sub element of **<var>** and is only allowed in the **<definevars>** section of the report. This element is used to define the formula for a calculated field. It contains an operator attribute along with 2 **<var>** sub elements. The 2 **<var>** sub elements indicate the operands to use in the calculation and the operator defines the operation to be performed.

max_records_per_page
Type: Attribute
Defined in the **<formatheader>** element. This attribute sets the value to use for triggering a new page for any given report. By default this value is undefined and only one **<pageheader>** section will be used. If this value is defined, once the number of records processed fro the report reaches this value, a new **<pageheader>** processing is performed.

Name
Type: Attribute
Used as identifier for a variable. This attribute is used in both the **<definevars>** section to define a variable as well as the **<printerdata>** section to recall/print a variable.

operator

Type: Attribute
Used as an attribute of the formula element. This attributes indicates the operation to perform on a given calculated variable field. The only possible values for this attribute are “+”, ”-“, ”*”, or “/”.

<pageheader>
Type: Element
Required: No
Usage:
This is a sub element of **<printerdata>**. Any data included beneath this tag is ‘compiled’ and sent to the printer at the beginning of every page defined in the report. An example of data that might be included within this element is the title of the report.

<pagefooter>
Type: Element
Required: No
Usage:
This is a sub element of **<printerdata>**. Any data included beneath this tag is ‘compiled’ and sent to the printer at the end of every page defined in the report. An example of data that might be contained in this element is a running page count or variable subtotaling for a given page.

<printerdata>
Type: Element
Required: Yes
Usage:
Format section used to generate the printer data based on the embedded definition

<record>
Type: Element
Required: No
Usage:
This is a sub element of **<printerdata>**. Any data included beneath this tag is ‘compiled’ and sent to the printer once per record.

Note 1: Per record varies depending on the report type you have selected. If your selected data result set only has 1 record, this element is only sent one time.
Note 2: Although this element is not required, there are very few cases where this element would not be included in a report.

reseton
Type: Attribute
Used to indicate when a given variable should be reset. This attribute is especially useful for resetting calculated variables at strategic times in a report. The expected value for this attribute is one of the **<printerdata>** section elements: **<formatheader>**, **<pageheader>**, etc.
Default: formatheader.

source

Type: Attribute
Used in the **<definevars>** element for any variable of type =”DB”. This value indicates the database field name from which to extract a value.

type
Type: Attribute
Used in the **<definevars>** section to indicate the type of variable being defined. There are only three possible choices: “DB”, ”CALC”, or ”CONST”.

value
Type: Attribute
Used to set the starting value for a variable. In the case of a constant variable type, this attribute sets the value for that variable.

<var>
Type: Element
Required: No
Usage:
Tag to begin defining variables. Used in both **<definevars>** and also from within **<printerdata>** element.