

TracerPlus Print Plug-in

for Windows Mobile and Pocket PC

TracerPlus Print Plug-in
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Chapter 1: Introduction

1.1 What is TracerPlus Print Plug-in

With the TracerPlus Print Plug-in, 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 Plug-in Applications

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

1.2 Trial Version Limitations

The TracerPlus Print Plug-in must be registered for full functionality. In the unregistered version only the sample format from the Print setup screen is available for printing. The trial is designed to test printer compatibility.

1.3 Learning TracerPlus Print Plug-in

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. The plug-in 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 Plug-In Services

PTS provides various training and set up services for TracerPlus customers. Please contact our sales department at 1-877-640-4152 to learn more or visit the PTS website at www.ptshome.com

Chapter 2: Installation

2.1 Requirements:

- TracerPlus Standard or Professional Version 3.0 or higher
- A compatible printer with appropriate PDA connection.
- A general understanding of the XML Language.

NOTE: 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 TR220
- Zebra RW420
- O'neil 8I
- O'neil 4T

2.2 Installation

1. Download the most recent version of TracerPlus from <http://www.ptshome.com/downloads.shtml> or another authorized reseller. This will include the TracerPlus Print Plug-in.
2. Double click the download (**tracerp_ppc.exe**) in the folder to which you saved the downloaded file.
3. Follow the standard installation instructions.
4. The TracerPlus application is now ready for use on your portable device or will be available on your next ActiveSync depending on your configuration. The TracerPlus application is located under Start Menu→Programs on your PDA. It is also available from your PDA via the shortcuts taskbar after running for the first time.

2.3 Registering TracerPlus Print Plug-in

TracerPlus Print requires registration for full functionality. The trial version of TracerPlus Print limits the user to printing from the print setup screen. Once TracerPlus is registered, these trial limitations are lifted.

We encourage all users who benefit from TracerPlus Print to register their copy. To register TracerPlus Print Plug-in, we only require your TracerPlus PDA ID, your operating mode (Standard or Pro), plug-ins being used (wireless, print, etc) and an E-mail address. We generate a unique registration code for your TracerPlus PDA ID and the version of TracerPlus you select, so it is important that you send the ID exactly as it appears on the TracerPlus splash screen; capitalization and spacing are critical.

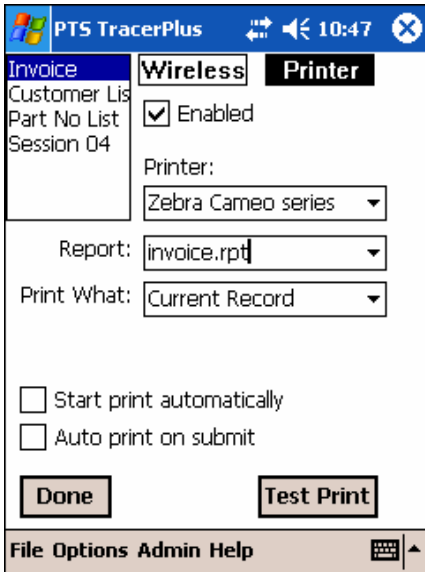
Entering your registration code

1. Start the TracerPlus application on your PDA.
2. Select the purchased mode (standard or professional).
3. Click the register button on the TracerPlus splash screen.
4. Enter the registration code at the code prompt.
5. If the registration code is valid you will receive a Thank You for registering TracerPlus message.

Chapter 3: Printing with TracerPlus Print Plug-in

3.1 Print Setup

Print configuration is done in the Printer Plug-in screen. 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 printer plug-in 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 on 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

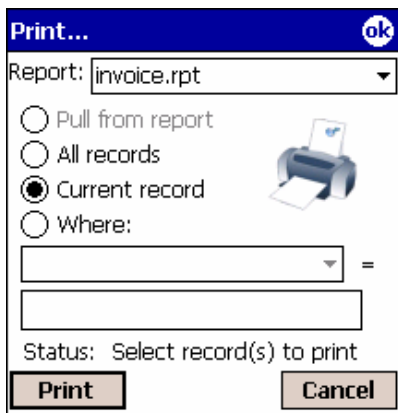
This option allows you to print a record when it is submitted in the Entry form.

Test Print

Select this to test your printer settings. This option only prints the first record in your database and is the only available means to test an unregistered TracerPlus application.

3.2 Printing from the Main Grid

To print from the main grid 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 Plug-ins 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 to 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 will calculate the sum of Field1 and Field 2.

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.

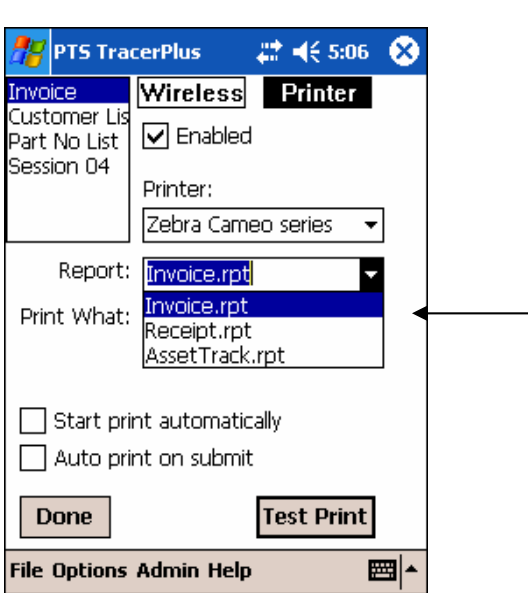
<formula>

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.



TracerPlus Print Appendix

Appendix A: TracerPlus 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/>
Part Number | Description | Qty | Cost Ea. | Total<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/>
* Invoice Total: <var name="Sumfield15" douppdate="0"/><br/>
* -----<br/>
* -----<br/>
<br/>
<br/>
* THANK YOU FOR YOUR BUSINESS!!!!!!<br/>
<br/>
<br/>
* Signature: _____<br/>
<asc>0C</asc>
</pagefooter>
</formatfooter>
</formatfooter>
</printerdata>
</format>
```

Appendix B: Elements and Attributes

TracerPlus Print 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 from 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 attribute 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.