

# PHP Setup Manual

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## Setup for TM-i Series

Describes settings required for using PHP with a TM-i Series.

## Setup for TM-T88VI and TM-T88VI-iHUB

Describes settings required for using PHP with the TM-T88VI and the TM-T88VI-iHUB.

## Sample Program

Describes how to use the sample program and perform system configuration.

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# For Safety

## Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product.

	Provides information that must be observed to avoid damage to your equipment or a malfunction.
	Provides important information and useful tips.

## Restriction of Use

When this product is used for applications requiring high reliability/safety such as transportation devices related to aviation, rail, marine, automotive etc.; disaster prevention devices; various safety devices etc; or functional/precision devices etc, you should use this product only after giving consideration to including fail-safes and redundancies into your design to maintain safety and total system reliability. Because this product was not intended for use in applications requiring extremely high reliability/safety such as aerospace equipment, main communication equipment, nuclear power control equipment, or medical equipment related to direct medical care etc, please make your own judgment on this product's suitability after a full evaluation.

# About this Manual

## Aim of the Manual

The aim of this manual is to provide development engineers with the necessary information to develop and design a system that registers and uses contents created using PHP (PHP: Hypertext Preprocessor) in the TM printers with PHP support.

This manual describes the setting method for each type of printer.

- TM-i series ([page 7](#))
- TM-T88VI and TM-T88VI-iHUB ([page 15](#))

## Manual Content

The manual is made up of the following sections:

Chapter 1	<a href="#">Setup for TM-i Series</a>
Chapter 2	<a href="#">Setup for TM-T88VI and TM-T88VI-iHUB</a>
Chapter 3	<a href="#">Sample Program</a>

# Contents

■ <b>For Safety</b> .....	<b>3</b>
Key to Symbols .....	3
■ <b>Restriction of Use</b> .....	<b>3</b>
■ <b>About this Manual</b> .....	<b>4</b>
Aim of the Manual .....	4
Manual Content .....	4
■ <b>Contents</b> .....	<b>5</b>

---

## **Setup for TM-i Series** ..... **7**

■ <b>Overview</b> .....	<b>7</b>
PHP Operations .....	8
TM Printers with PHP Support .....	9
Specification of TM Printers with PHP Support .....	9
Restrictions .....	10
Contents in the Package .....	12
■ <b>Setup</b> .....	<b>13</b>
Setup Flow .....	13
Insert microSD Card .....	13
Enable PHP .....	14
Registering Web Contents .....	14
Registering Certificate .....	14
Terminal Settings .....	14

---

## **Setup for TM-T88VI and TM-T88VI-iHUB** ..... **15**

■ <b>Overview</b> .....	<b>15</b>
PHP Operations .....	15
TM Printers with PHP Support .....	16
Specification of TM printers with PHP support .....	16
Restrictions .....	16
Contents in the Package .....	18
■ <b>Setup</b> .....	<b>19</b>
Terminal Settings .....	19

---

<b>Sample Program .....</b>	<b>21</b>
■ <b>Sample Program System Overview .....</b>	<b>21</b>
Sample Program Screen.....	21
Print Image .....	22
Sample Program File Configuration.....	22
Program Flow .....	23
■ <b>Operating Environment .....</b>	<b>24</b>
■ <b>Environment Settings.....</b>	<b>25</b>
Sample Program Settings.....	26

# Setup for TM-i Series

## Overview

If you insert a microSD card and enable PHP, the TM-i Series printers can become PHP servers with the "SQLite3" database support.

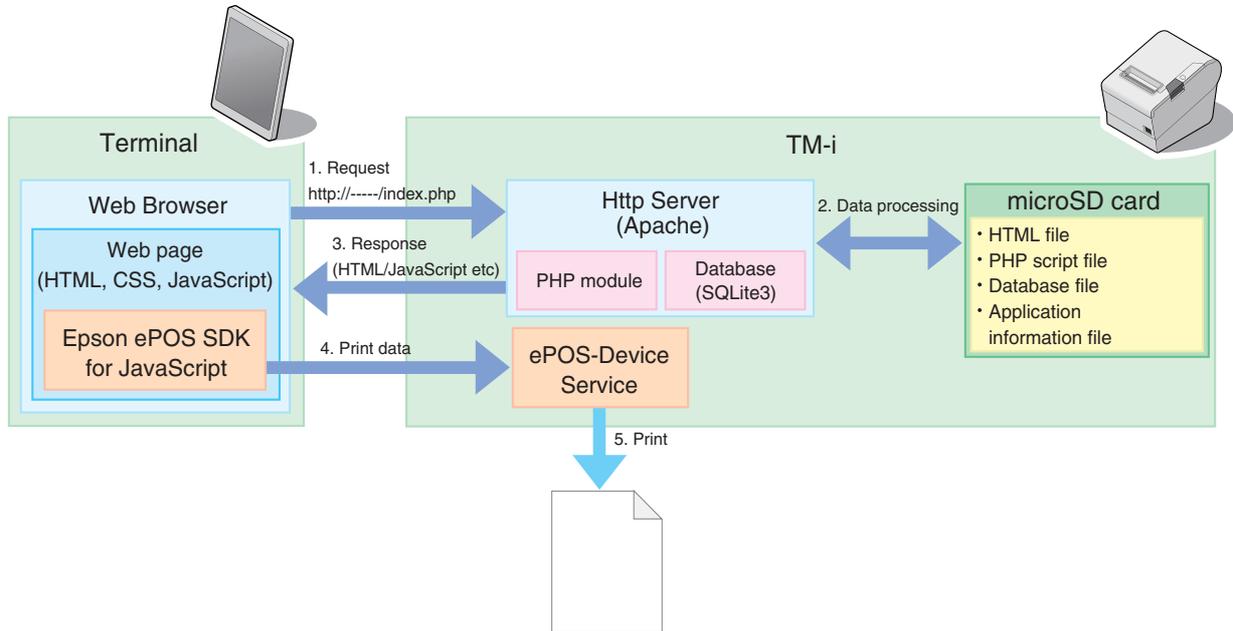
TM-i Firmware Ver.4.3 or later can communicate using HTTPS communication.



- Use a microSD card with wear leveling functionality.
- Do not use your own application to write to the microSD card.
- Do not turn off the power when writing to the microSD card via [Web Content Update] in EPSON TMNet WebConfig.
- PHP cannot be used if [Spooler]-[Web Service Settings] in EPSON TMNet WebConfig's is enabled. Be sure to set "Disable" for this item (in the initial settings).

## PHP Operations

PHP operates on a Web Server as shown below.



- 1** A request is sent to the HTTP Server of the TM-i.  
Example: `http://192.168.192.168/index.php`
- 2** The PHP module in the HTTP Server interprets the script language in the file, dynamically generates HTML, and performs data processing.
- 3** A response is returned to the terminal (client). Print data is included in the response.
- 4** Print data is sent from the terminal to the TM-i.
- 5** Printed from the TM-i.

## TM Printers with PHP Support

- TM-L90-i
- TM-T20II-i
- TM-T70-i
- TM-T82II-i
- TM-T83II-i
- TM-T88V-i
- TM-U220-i



For PHP, use TM-i Firmware Ver.2.0 or later.

## Specification of TM Printers with PHP Support

### **microSD card**

Supported microSD card standards.

microSD card	Support
SD	Support
SDHC	Support
SDXC	Not Support

- FAT 16/32 format is supported.
- 2 to 32 GB capacity is supported.



- Use a microSD card with wear leveling functionality.
- Epson recommends using a microSD card having an error detection and correction (ECC), and wear-leveling functions.
- Be sure to use the dedicated formatting tool (SD Formatter) to format a microSD card. If a microSD card is formatted with Windows, SD card access may become slow. You can download the SD Formatter from the SD Association's web site (<https://www.sdcard.org/home>).

### **Supported Languages**

- PHP 5.3.5

### **Embedded Database**

- SQLite3

### **User Web Application URL**

The URL for the registered Web application is as shown below.

`http://<Printer's IP address>/`

## Restrictions

- Follow the steps below to check the TM-i specifications or security restrictions.
  1. Save the following PHP script with a file name such as "phpinfo.php".  
**<?php phpinfo(); ?>**
  2. Compress the file you created together with the other web content files into a single ZIP folder.
  3. Register the file(s) in the TM-i series.  
For details about how to compress and register web content files, refer to Chapter 2 "Setup" in the manual for the TM-i device you are using.
  4. You can display the restrictions screen by viewing the URL where you placed the script file.  
Example: If you placed the file phpinfo.php in the root folder for the web content, the URL is as shown below.  
**http://<Printer's IP address>/webapp/phpinfo.php**
- The functions of PHP 5.4 or later cannot be used with TM-i. For detail, refer to following URLs.  
<http://php.net/manual/ja/migration54.incompatible.php>  
<http://php.net/manual/ja/migration55.incompatible.php>  
<http://php.net/manual/ja/migration56.incompatible.php>
- The following PHP functions cannot be used.

Functions
openlog
apache_child_terminate
apache_get_modules
apache_get_version
apache_getenv
apache_note
apache_setenv
virtual
eval
exec
passthru
popen
preg_replace
proc_open
shell_exec
system

- You can access the web application even when a web content update is in progress. If you wish to ensure compatibility between programs when linking and running multiple PHP files, be sure to send a maintenance notification in advance or to choose a design that does not require you to stop the PHP application.
- Save crossdomain.xml and clientaccesspolicy.xml to the web application / (root) folder.
- If using PHP date-related functions, specify the time zone by using date\_default\_timezone\_set at the beginning of PHP script. For details, refer to the PHP public web site. Do not use Etc/GMT time zones.
- The dynamic load (dl function) of the PHP expansion module is disabled.

- File uploading using PHP is disabled.
- The fopen wrapper for URLs read by an external file cannot be used.
- PHP values defined by .htaccess files cannot be changed.
- This system does not support PHP Data Object (PDO) as a method for connecting to SQLite.
- The maximum PHP script execution time is 30 seconds. When more than 30 seconds pass, the PHP script will be forcibly terminated and return "500 Internal Server Error" as HTTP response.

### **Writing to microSD card**

Some PHP functions and class methods write to microSD card.

If you use the following functions and class methods, develop your application so that they do not write to microSD card.

<b>Functions, Class methods</b>	
openssl_pkey_export_to_file	SQLite3::querySingle
openssl_x509_export_to_file	SimpleXMLElement::asXML
openssl_pkcs12_export_to_file	SimpleXMLElement::saveXML
openssl_csr_export_to_file	Phar::convertToData
openssl_pkcs7_sign	Phar::unlinkArchive
openssl_pkcs7_encrypt	PharData::addEmptyDir
gzwrite	PharData::addFile
gzputs	PharData::addFromString
session_save_path	PharData::buildFromDirectory
unlink	PharData::buildFromIterator
rmdir	PharData::compress
fftruncate	PharData::decompress
fwrite	PharData::convertToData
fputs	PharData::copy
mkdir	PharData::delete
rename	PharData::extractTo
copy	PharData::offsetSet
tempnam	PharData::offsetUnset
file_put_contents	PharData::unlinkArchive
stream_context_create	PharFileInfo::chmod
fputcsv	PharFileInfo::compress
chmod	PharFileInfo::decompress
touch	PharFileInfo::delMetadata
xmlwriter_open_uri	PharFileInfo::setMetadata
SQLite3::exec	XMLWriter::openUri
SQLite3::query	

## Contents in the Package

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### **Manual**

- PHP Setup Manual (This Document)
  - Technical Reference Guide for the each TM-i
  - TM-i Series WebConfig API User's Manual
- 

### **Software Developer's Kit**

- Epson ePOS SDK for JavaScript <sup>\*1, \*2</sup>
- ePOS-Device XML <sup>\*1</sup>
- ePOS-Print XML

\*1: TM-i Firmware Ver.4.0 or later

\*2: Epson ePOS SDK is a software development kit that combines ePOS-Print SDK and ePOS-Device SDK. The new products and functions launched after the release of Epson ePOS SDK are not supported by ePOS-Device. We recommend migrating the applications developed with ePOS-Device SDK for JavaScript to Epson ePOS SDK for JavaScript.

For detail, refer to Migration Guide packaged with Epson ePOS SDK.

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### **Sample Program**

PHP\_UM\_E\_Sample\_Verx.xx.zip

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### **Download**

For customers in North America, go to the following web site:

<http://www.epson.com/support/> and follow the on-screen instructions.

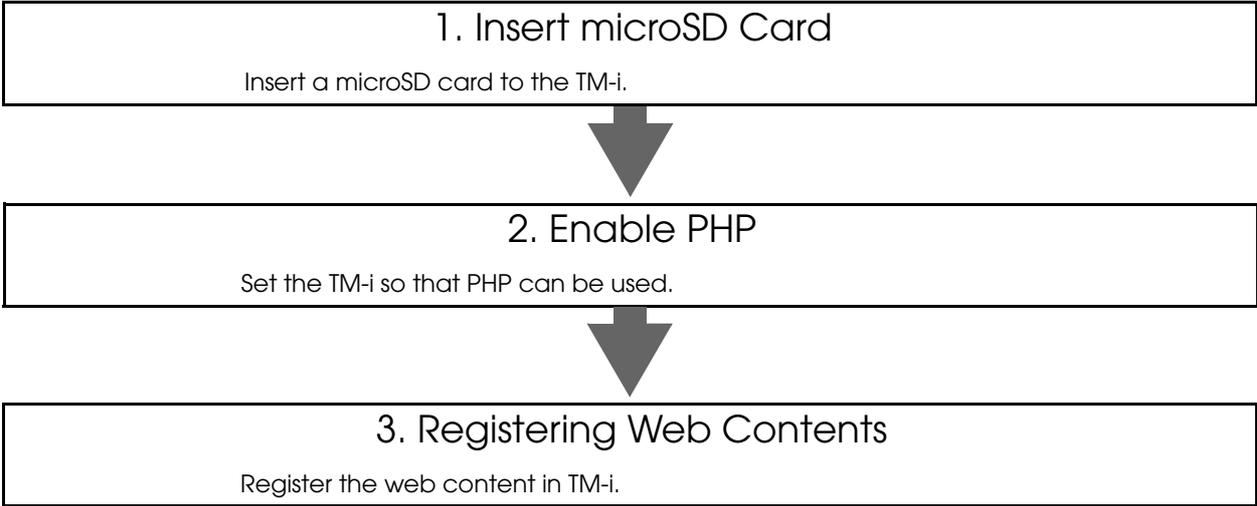
For customers in other countries, go to the following web site:

<https://download.epson-biz.com/?service=pos>

# Setup

This section describes the settings necessary to use PHP with the TM-i.

## Setup Flow



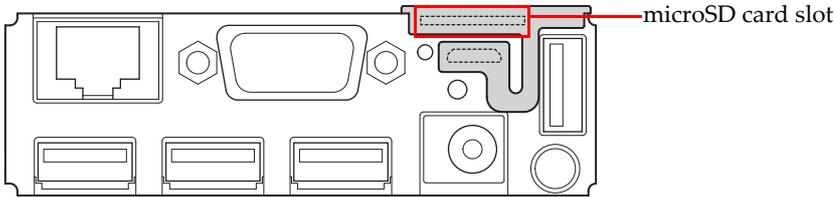
1

## Insert microSD Card

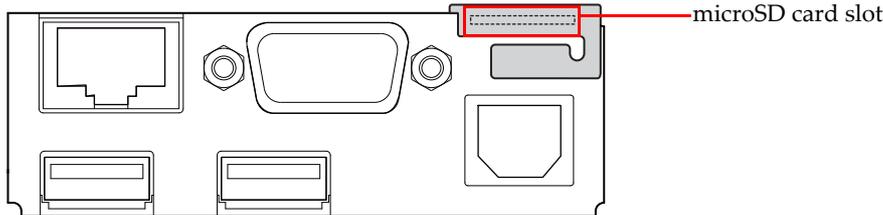
Insert a microSD card to the TM-i. Remove the rubber cover from the back of the TM-i and insert a microSD card.

 Always be sure to turn off the power of the TM-i when inserting a microSD card.

For TM-T88V-i / TM-T70-i / TM-L90-i



For TM-T20II-i / TM-T82II-i / TM-T83II-i



## Enable PHP

To use PHP on this product, enable PHP using EPSON TMNet WebConfig. This section briefly explains the setup procedure.

For the detailed procedure, see Chapter 2 (Setup) in the Technical Reference Guide for the TM-i used.

### 1. Connecting TM-i to Network

Connect the TM-i, with the micro SD card inserted in it, to the same network as the setting computer, and turn its power on.

### 2. Start EPSON TMNet WebConfig

Access the address bar of the Web browser on the PC for setting to start EPSON TMNet WebConfig.

- TM-i Firmware Ver.4.0 or later  
**http://<Printer's IP address>/webconfig/PHPSetting**
- TM-i Firmware Ver.3.x or earlier  
**http://<Printer's IP address>/PHPSetting**

### 3. PHP Settings

Select (Enable) from "PHP". After setting, click (Apply) at the bottom of the screen. Then the settings are written to the product.

If (Apply) is not clicked, the settings are not applied.

## Registering Web Contents

For the method for registering web contents, see Chapter 2 (Setup) in the Technical Reference Guide for the TM-i used.

## Registering Certificate

To use the HTTPS communication, enable the SSL of TM-i and register the certificate.

For the detailed procedure, see Chapter 2 (Setup) in the Technical Reference Guide for the each TM-i.

## Terminal Settings

When using the SSL communication, make sure the certificate of the Certificate Authority that authorized the SSL certificate to be imported to TM-i is imported to the device as well.

# Setup for TM-T88VI and TM-T88VI-iHUB

This chapter describes the settings necessary to use PHP with the TM-T88VI.

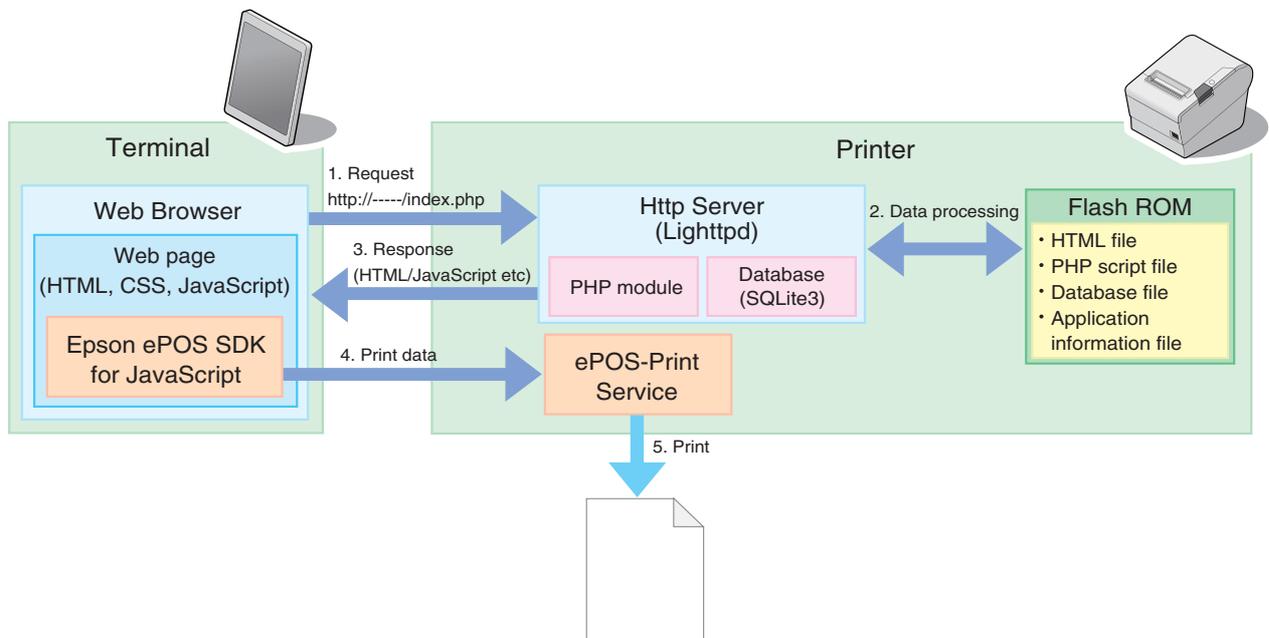
## Overview

By registering the PHP contents you can use TM-T88VI and TM-T88VI-iHUB as a PHP server.

- The HTTPS communication is supported.
- TLS 1.2 is supported.

## PHP Operations

PHP operates on a Web Server as shown below.



- 1** A request is sent to the HTTP Server of the printer.  
Example: `http://192.168.192.168/webapp/index.php`
- 2** The PHP module in the HTTP Server interprets the script language in the file, dynamically generates HTML, and performs data processing.
- 3** A response is returned to the terminal (client). Print data is included in the response.
- 4** Print data is sent from the terminal to the printer.
- 5** Printed from the printer.

## TM Printers with PHP Support

- TM-T88VI
- TM-T88VI-iHUB

## Specification of TM printers with PHP support

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### **Memory Size for Web Contents**

For the Web contents to be registered, prepare a Zip file with a decompressed size as listed below. For details, refer to the Technical Reference Guide.

- TM-T88VI: 30 MB or less
- TM-T88VI-iHUB: 100 MB or less

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### **Supported Languages**

- PHP 5.3.27

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### **Embedded Database**

- SQLite3

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### **Web Application URL and EPSON TMNet WebConfig URL**

The URL for the registered Web application and the URL for EPSON TMNet WebConfig set for the printer through the network are as shown below.

- Web application: `http://<Printer's IP address>/webapp/`
- EPSON TMNet WebConfig: `http://<Printer's IP address>/`

The URLs can be changed as shown below.

For detail, refer to TM-T88VI Utility User's Manual.

- Web application: `http://<Printer's IP address>/`
- EPSON TMNet WebConfig: `http://<Printer's IP address>/webconfig/`

## Restrictions

- Follow the steps below to check the TM printer specifications or security restrictions.
  1. Save the following PHP script with a file name such as "phpinfo.php".  
**<?php phpinfo(); ?>**
  2. Compress the file you created together with the other web content files into a single ZIP folder.
  3. Register the file(s) in the printer.  
Register the web contents with the model dedicated utility for each printer.

4. You can display the restrictions screen by viewing the URL where you placed the script file.

Example: If you placed the file `phpinfo.php` in the root folder for the web content, the URL is as shown below.

**`http://<printer's IP address>/webapp/phpinfo.php`**

- The functions of PHP 5.4 or later cannot be used with TM printer. For detail, refer to following URLs.  
<http://php.net/manual/ja/migration54.incompatible.php>  
<http://php.net/manual/ja/migration55.incompatible.php>  
<http://php.net/manual/ja/migration56.incompatible.php>
- The following PHP functions cannot be used.

Functions
openlog
virtual
eval
exec
passthru
popen
preg_replace
proc_open
shell_exec
system

- The table below provides a list of deprecated and supported functions.

Deprecated functions	Supported functions
<code>gzopen64()</code>	<code>gzopen()</code>
<code>gzseek64()</code>	<code>gzseek()</code>
<code>gztell64()</code>	<code>gztell()</code>

- `"/tmp/php/tmismervice"` is the system domain. Do not delete it.
- The files and directories created in `"/tmp/php"` are only enabled when the printer is in operation. When you turn the printer power off, the files and directories are deleted.
- You can access the web application even when a web content update is in progress. If you wish to ensure compatibility between programs when linking and running multiple PHP files, be sure to send a maintenance notification in advance or to choose a design that does not require you to stop the PHP application.
- Save `crossdomain.xml` and `clientaccesspolicy.xml` to the web application / (root) folder.
- The dynamic load (dl function) of the PHP expansion module is disabled.
- File uploading using PHP is disabled.
- The fopen wrapper for URLs read by an external file cannot be used.
- PHP values defined by `.htaccess` files cannot be changed.
- This system does not support PHP Data Object (PDO) as a method for connecting to SQLite.
- The maximum PHP script execution time is 30 seconds. When more than 30 seconds pass, the PHP script will be forcibly terminated and return "500 Internal Server Error" as HTTP response.

## Contents in the Package

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### **Manual**

- PHP Setup Manual (This Document)
  - Technical Reference Guide of the printer
- 

### **Software Developer's Kit**

- Epson ePOS SDK for JavaScript
  - ePOS-Print XML
- 

### **Sample Program**

PHP\_UM\_E\_Sample\_Verx.xx.zip

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### **Download**

For customers in North America, go to the following web site:

<http://www.epson.com/support/> and follow the on-screen instructions.

For customers in other countries, go to the following web site:

<https://download.epson-biz.com/?service=pos>

# Setup

This section describes the settings necessary to use PHP. For the TM-T88VI and TM-T88VI-iHUB, PHP is always enabled. Configure these settings with the model dedicated utility.

- PHP Time Difference and Time Zone Settings
- Registering Certificate
- Registering Web Contents

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## ***PHP Time Difference and Time Zone Settings***

When using the PHP date functions, configure the PHP time difference and time zone on the printer.

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## ***Registering Certificate***

To use the HTTPS communication, register the certificate.

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## ***Registering Web Contents***

Compress all the files necessary for the application and register the contents on the printer.

For the detailed procedure, refer to the Technical Reference Guide.

## **Terminal Settings**

When using the SSL communication, make sure the certificate of the Certificate Authority that authorized the SSL certificate to be imported to TM printer is imported to the device as well.



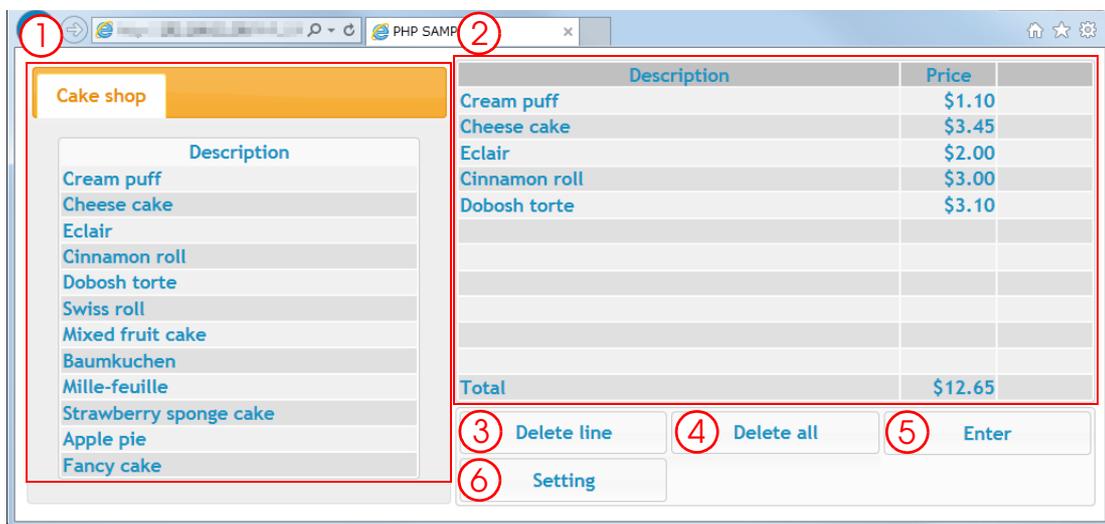
# Sample Program

This chapter describes how to use the sample program.

## Sample Program System Overview

### Sample Program Screen

Product name, price, discount, and other settings are saved to the SQLite database. This information is then obtained from the database with a PHP program. Products, prices, and total price can be printed.



Item	Description
1 Product list	Displays a list of products. If you select a product, the product name is added to the purchase list on the left side.
2 Purchase list	Products selected from the product list are added to the purchase list. The product name, price, and total are displayed.
3 Delete line	The product at the bottom of the purchase list is deleted.
4 Delete all	All products in the purchase list are deleted.
5 Enter	A receipt is printed.
6 Settings	Displays the "Settings" screen. The screen is used to set the following: <ul style="list-style-type: none"> <li>• IP address of the TM printers with PHP support</li> <li>• Device ID of the target printer Default: local_printer</li> </ul>

## Print Image

The sample program prints the following:

<i>Sample Shop</i> Matsumoto Nagano Thank you for shopping Jul-09-2014 17:59:59	
Cream puff	\$1.10
Cheese cake	\$3.45
Eclair	\$2.00
Cinnamon roll	\$3.00
Dobosh torte	\$3.10
<b>Amount</b>	<b>\$12.65</b>
5 items 0003	

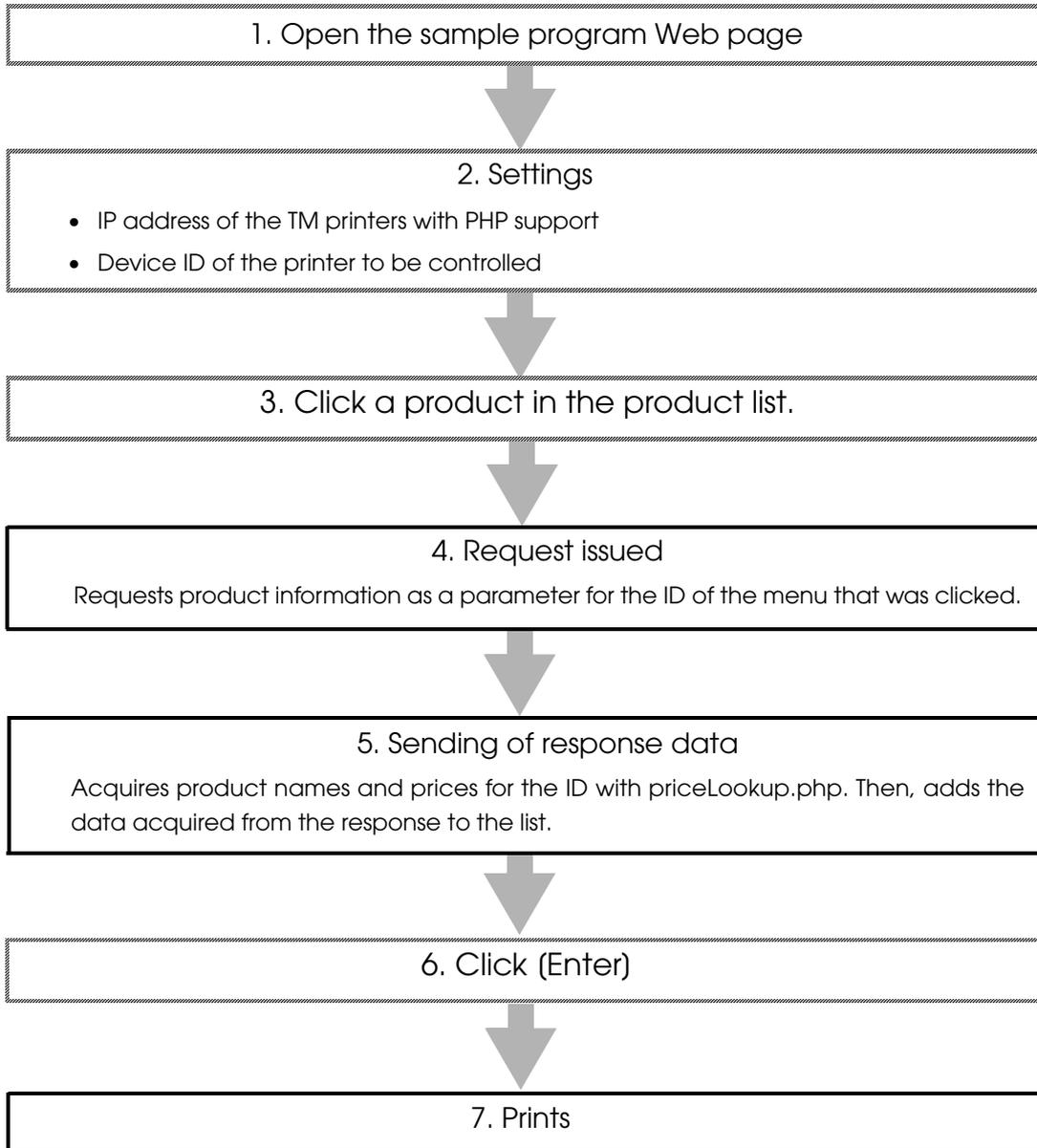
## Sample Program File Configuration

The sample program has the following configuration.

Folder/File name	Description
css/	Stores the style sheet for the main screen.
js/	Stores the JavaScript used for the main screen.
index.html	The main screen of a Web page. This screen is displayed from the TM printers with PHP support via a browser. JavaScript is used for processing related to operations such as button clicking. The PHP file saved in the HTTP Server of the TM printers with PHP support is called out from this file.
phpsample.sqlite3	SQLite 3 database file that stores product information.
itemLookup.php	PHP file that acquires a menu list from the database and respond.
priceLookup.php	PHP file that acquires product names and price information from the database and respond.

## Program Flow

From its initial display state up to print job completion, the sample program flows as below.



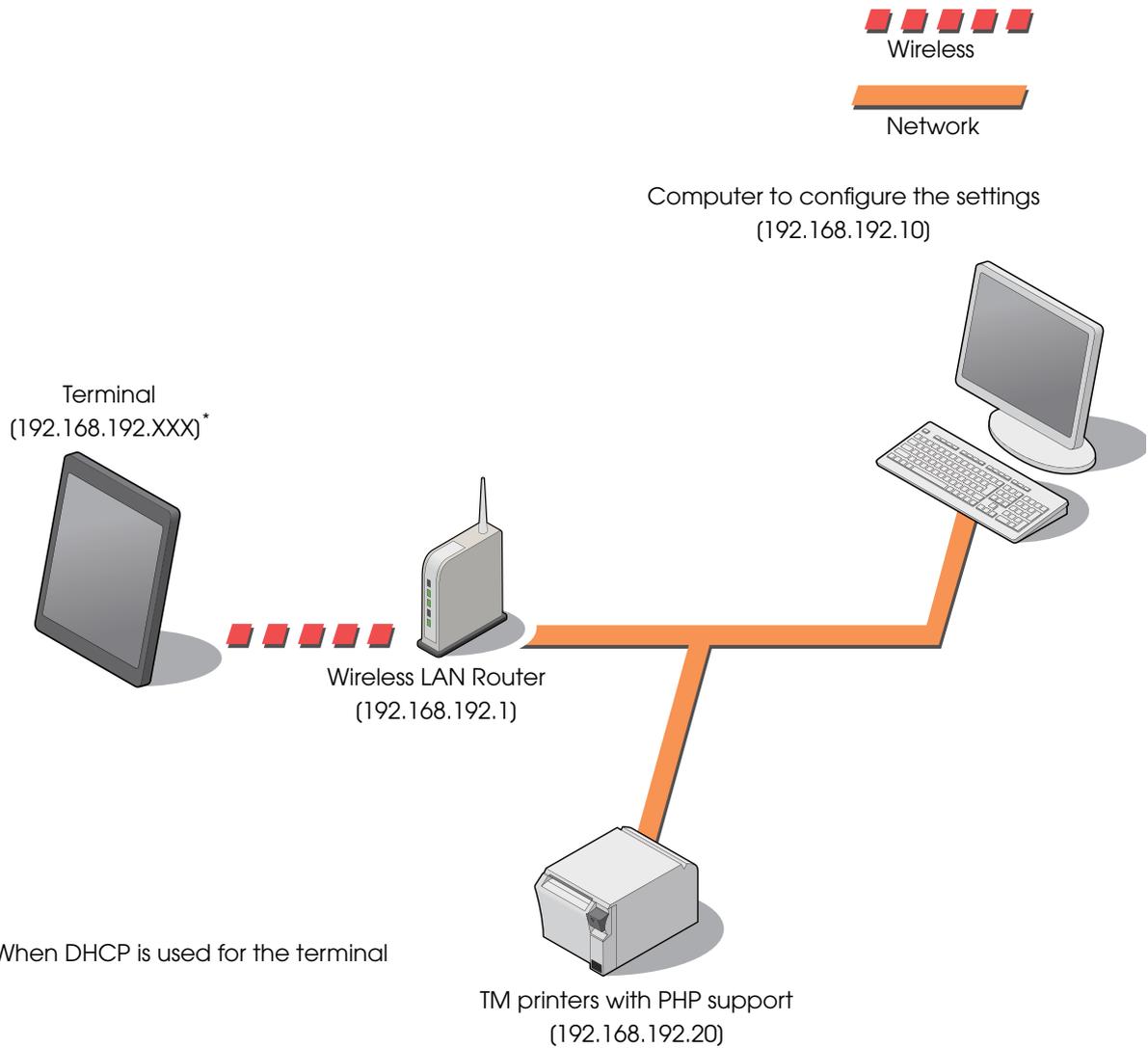
 Action on the sample program

 Action on the customer

# Operating Environment

The system configuration diagram for the sample programs is as below.

 The figure below also describes an example of IP address settings as network settings.

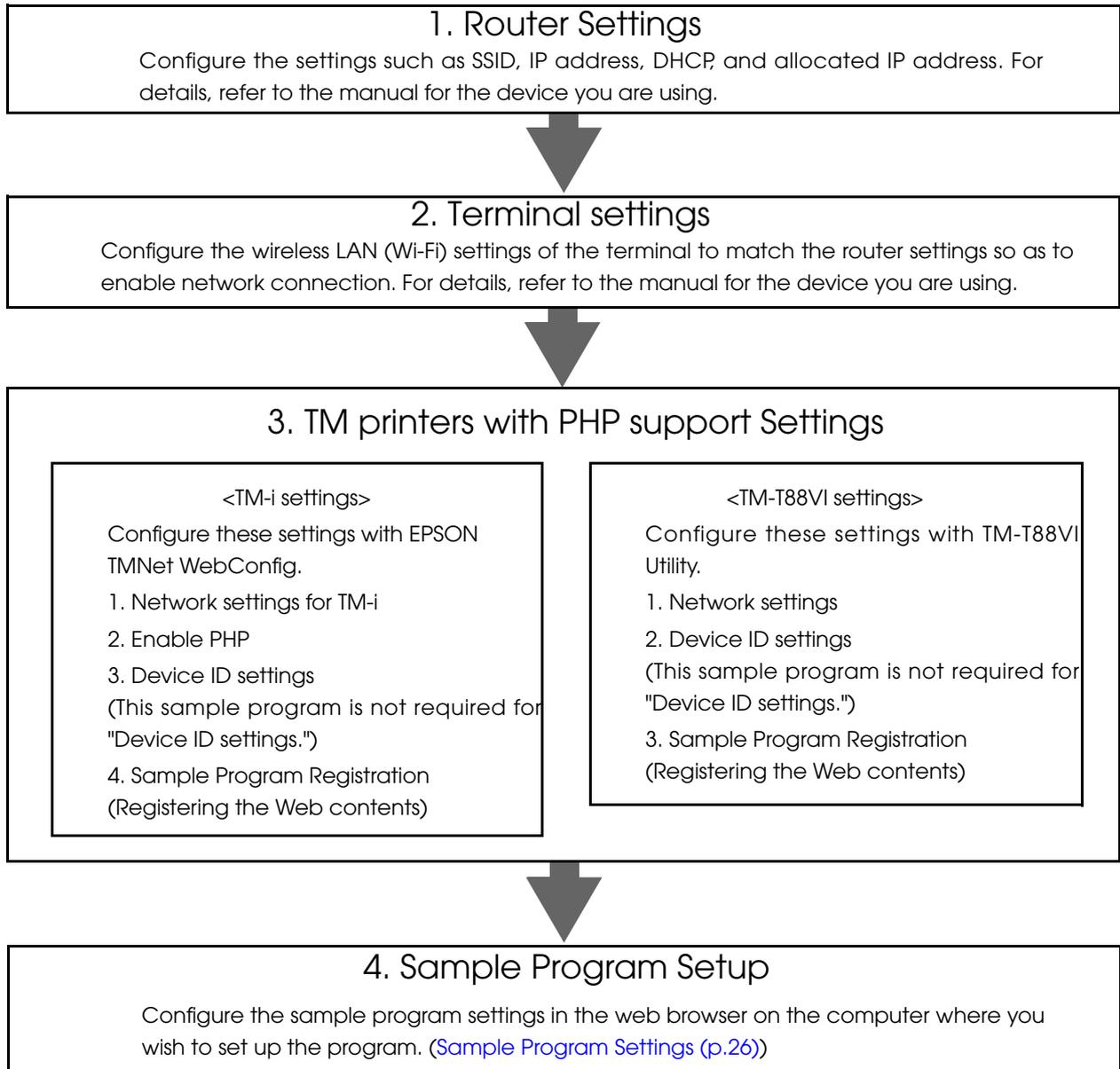


\*: When DHCP is used for the terminal

- Computer to configure the settings
- Wireless LAN Router
- TM printers with PHP support (1 set)
- Terminal  
Terminal with an HTML5-supported Web browser

# Environment Settings

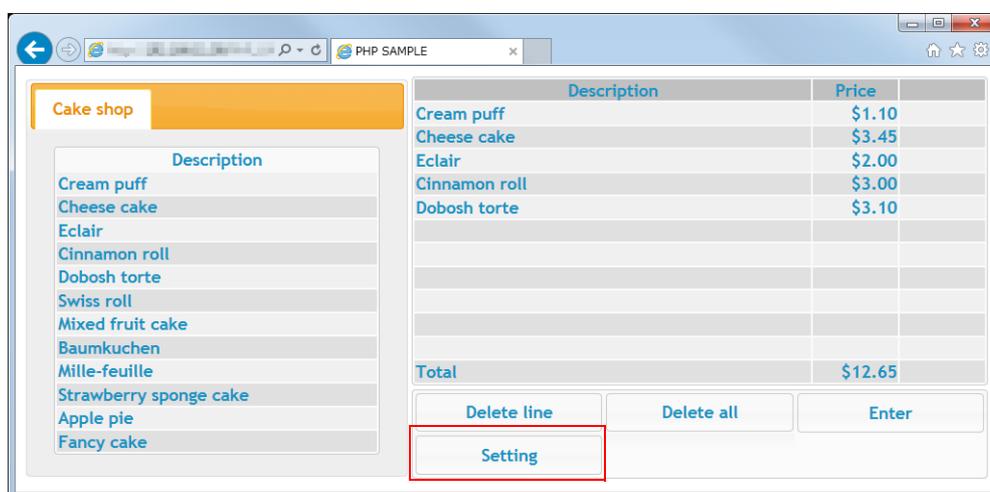
A flow for configuring the environment settings for the sample program is shown as follows:



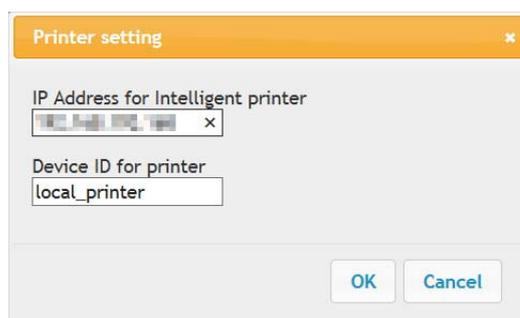
## Sample Program Settings

Configure the IP address and device ID of the printer with PHP support. Configure to the procedure below.

- 1 Connect all printers to the network.
- 2 Turn the power on of all printers connected to the network.
- 3 Open the following URL page using the Web browser.  
**http://<IP address of the TM printers with PHP support>/PHP\_UM\_E\_Sample/index.html**
- 4 The sample program page opens. Click (Settings).



- 5 The "Settings" screen appears. Specify the following and click (OK).



Item	Description
IP Address for Intelligent printer	Specifies the IP address of the TM printers with PHP support.
Device ID for printer	Specifies the Device ID of the printer to print. Default value: local_printer