

Device Data Notification User's Manual

Overview

Describes the operating environment and system configuration for Device Data Notification.

Sample Program

Describes how to use the sample program and how to configure the system.

Request and Response

Describes the requests and responses in Device Data Notification.

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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

This manual presents information that is necessary information for using the TM-Intelligent.

The TM-Intelligent series in this manual is a generic term for the TM-i series.

The TM-i series in this manual is a generic term for the following printers.

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

Manual Content

The manual is made up of the following sections:

- | | |
|-----------|--------------------------------------|
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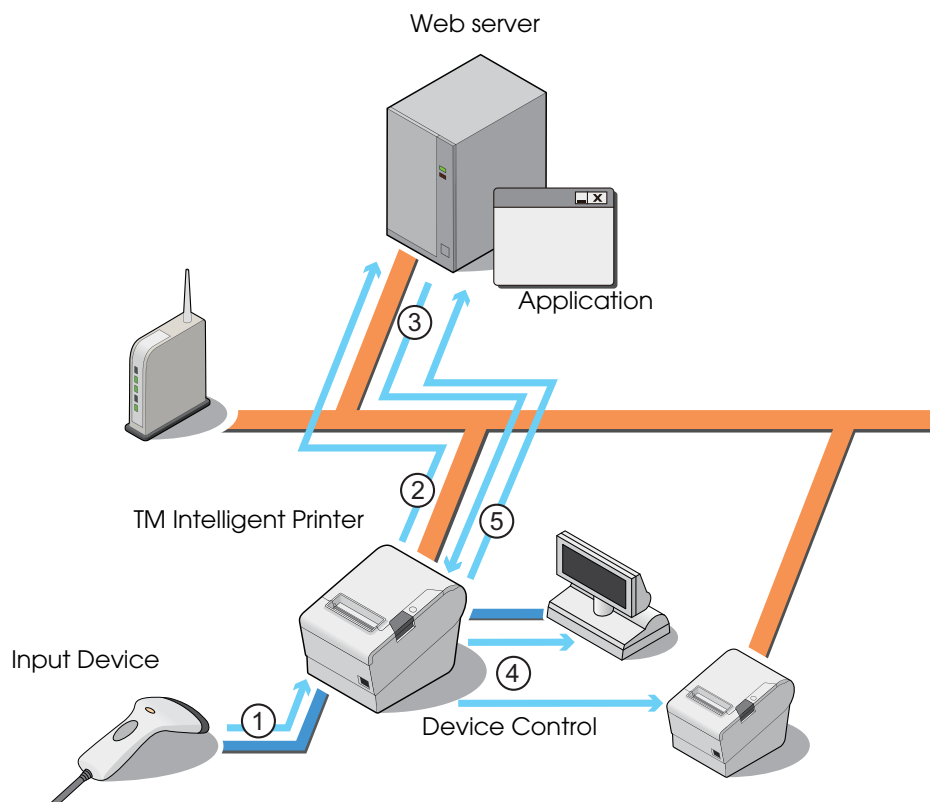
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Overview

This chapter provides the overview of Device Data Notification.

Overview of Device Data Notification

Device Data Notification is a function used to post the data input from the input device that is connected to the TM intelligent printer to the designated URL of the Web server. The Web server application performs device control, such as printing and displaying information on the customer display, by including print data in ePOS-Device XML format and device control into the response to a request from the TM intelligent printer.



- 1 : When a data input occurs, for example, when an operator reads a barcode with the barcode reader, the input device sends the input data to the TM intelligent printer.
- 2 : The TM intelligent printer formats the input data received from the input device and sends the data to the Web server application (POST).
- 3 : Triggered by the input data, the Web server application generates device control data in ePOS-Device XML format from database or other system and returns a response to the request from the TM intelligent printer.
- 4 : The TM intelligent printer sends the device control data to the device.
- 5 : The TM intelligent printer sends the result of device control to the Web server.

Operating Environment

How to Access the Web server

How to access	TM-i
Proxy server	✓
Proxy authentication	✓
Digest authentication	✓
HTTPS communication	✓
HTTPS communication with server authentication	✓

TM Intelligent Printer

- ❑ TM-T88V-i (TM-i firmware Ver.4.1 or later)
- ❑ TM-T70-i (TM-i firmware Ver.4.1 or later)
- ❑ TM-T20II-i (TM-i firmware Ver.4.1 or later)
- ❑ TM-T82II-i (TM-i firmware Ver.4.1 or later)
- ❑ TM-T83II-i (TM-i firmware Ver.4.1 or later)



For details about how to check the version of TM-i Firmware, refer to the Technical Reference Guide for each printer.

Input Device

The following devices can be designated as the input device for Device Data Notification:

- ❑ Key input device (keyboard, barcode scanner, etc.)
- ❑ Serial communication device
- ❑ Communication box in the TM intelligent printer

Control Device

The following devices can be designated as the control device for Device Data Notification:

- ☐ Main printer of the TM intelligent printer
- ☐ TM printer *
- ☐ Customer display
- ☐ Serial communication device
- ☐ Communication box in the TM intelligent printer

* : Available TM printers are different depending on the TM-i Firmware version in the TM intelligent printer.
For details, refer to Technical Reference Guide for each printer.



The device designated as the input device or control device is locked with exclusive lock by Device Data Notification. Therefore, the designated device cannot be controlled by ePOS-Device SDK or ePOS-Device XML.

Contents In the Package

Manual

- ❑ Device Data Notification User's Manual (This Document)
- ❑ Technical Reference Guide for each printer
- ❑ ePOS-Device XML User's manual

Sample Program

File name	Description
DDN_Sample_Vxxx.zip	Sample program for Device Data Notification
Test_DeviceData.php	Sample program file
README.txt	Readme file

Download

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

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

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

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

Sample Program

This chapter describes how to use the sample program for Device Data Notification.

Overview

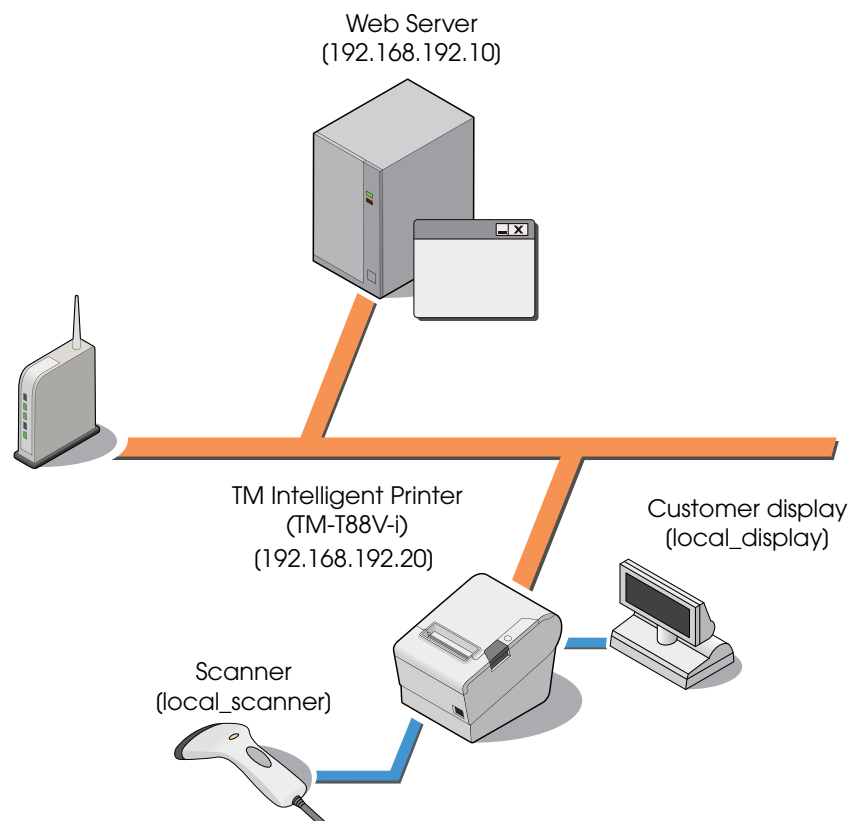
The sample program that uses PHP can be registered to the Web server and be operated. When a barcode is read with the scanner, the TM intelligent printer sends a request containing barcode data to the sample program in the Web server. The sample program sends response data containing print data in ePOS-Device format and display data. The main printer of the TM intelligent printer prints a coupon and displays a message on the customer display.

Hardware Configuration

The system configuration of the sample program is as shown below.



The figure below also shows IP address examples for the network settings.



- ☐ Web Server
- ☐ Router
- ☐ TM Intelligent Printer
- ☐ Scanner
- ☐ Customer display (Use of the customer display is optional.)

File Configuration

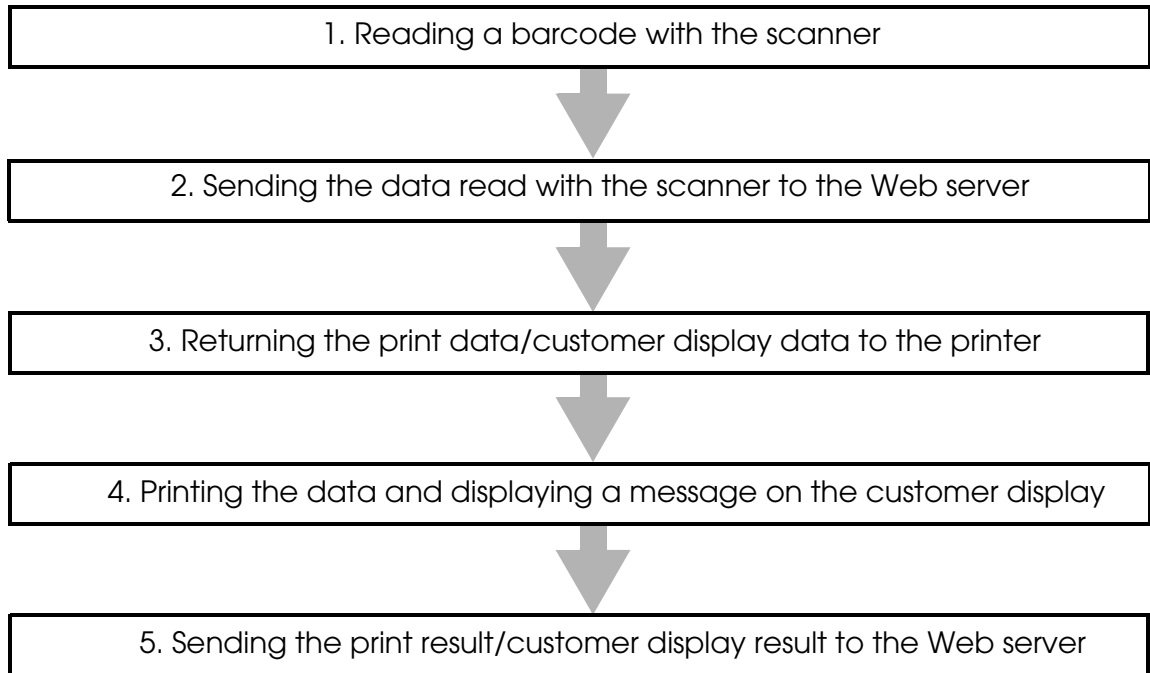
File Name	Description
Test_DeviceData.php	The server returns a response containing print data when the printer sends a request.

Printing Result



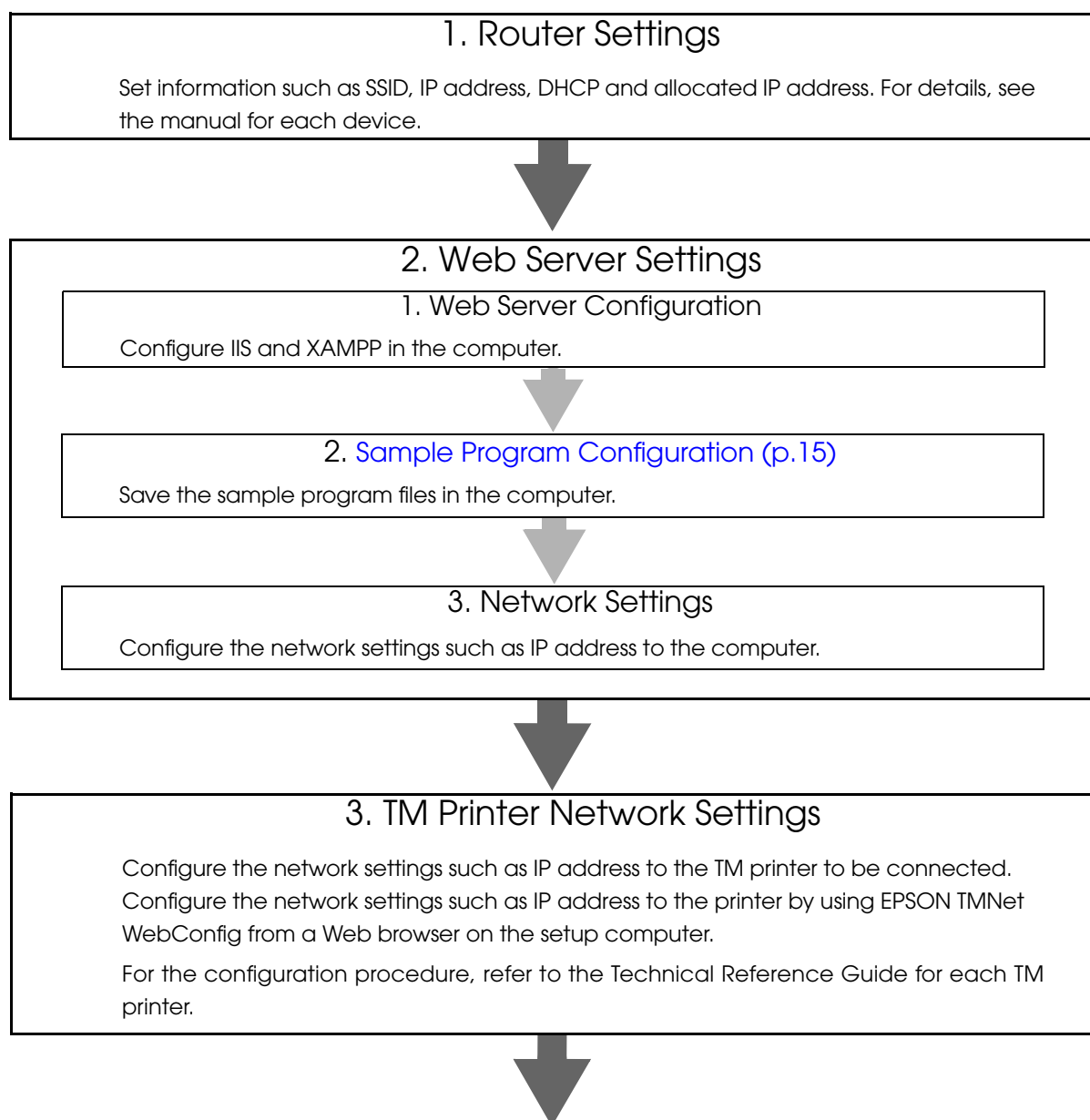
Program Flow

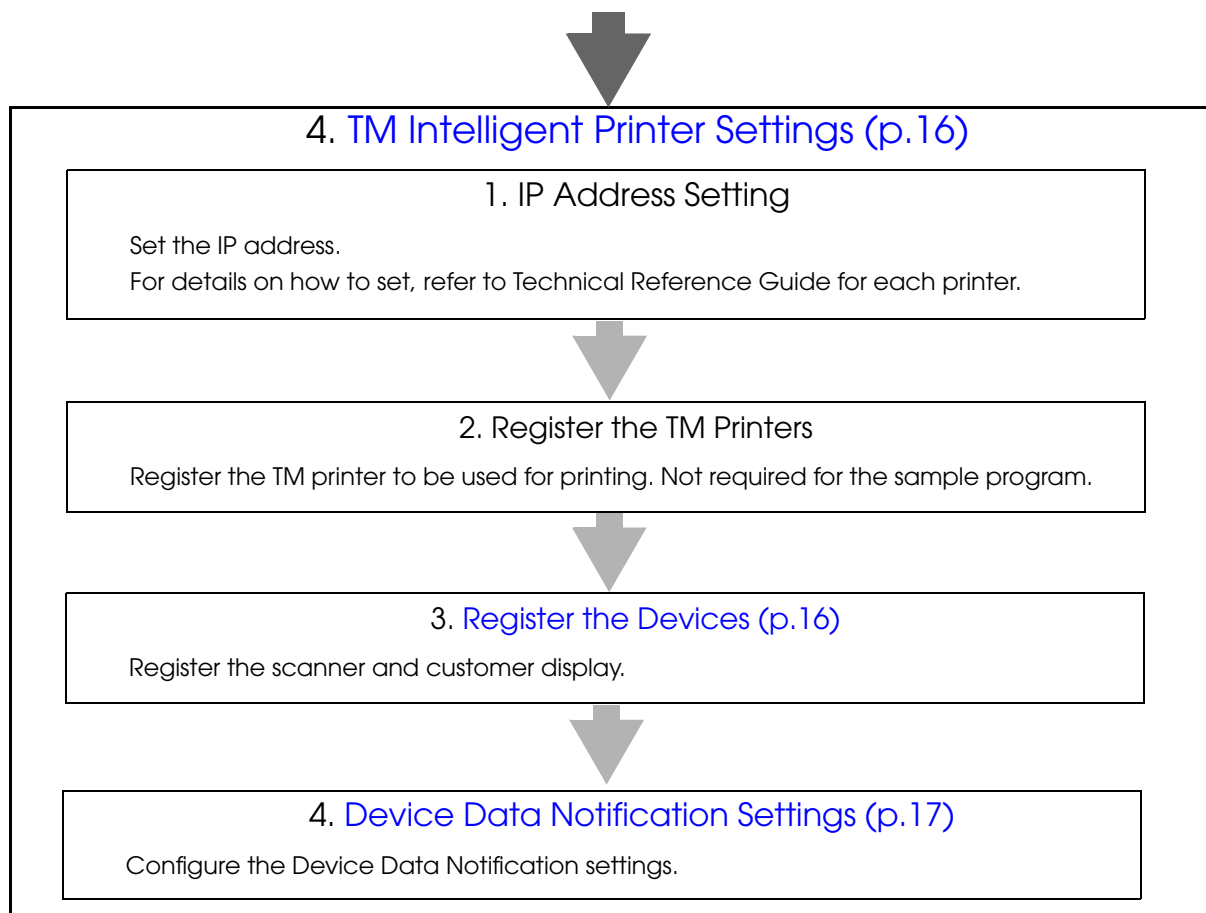
The flow from the initial display to the print completion of the sample program is as shown below.



Environment Settings

The environment setting flow of the sample program is as shown below.





Sample Program Configuration

Save the sample program files to the Web server.
Save the files directly under the following folders:

Environment	Folder	Saved File
IIS	inetpub\wwwroot	Test_print.php
XAMPP	xampp\htdocs	

TM Intelligent Printer Settings

Register the Devices

Register the scanner and customer display using EPSON TMNet WebConfig.

- 1 Turn off the TM intelligent printer and connect the scanner and customer display. Then, turn on the TM intelligent printer.
- 2 Start the Web browser on the setup computer and enter as follows:
http://(IP address of the TM-I)/webconfig/
- 3 EPSON TMNet WebConfig starts.
- 4 Register the scanner.
Select (configuration) - (Web Service Settings) - (Device Admin) - (Device Registration)
- (Key Input Device).
- 5 The "Key Input Device" screen appears.
Set the following items and click (Apply).

Item	Description
Device ID	Set the device ID. Enter "local_scanner".
Device name	Confirm that the connected scanner is selected.
Control script	Set the control script. Select "Scanner_Generic.js".

- 6 The scanner is added to the registered key input devices.
Click (Operating test) and check whether the registered scanner operates properly.
- 7 Register the customer display.
Select (configuration) - (Web Service Settings) - (Device Admin) - (Device Registration)
- (Customer Display).
- 8 The "Customer Display" screen appears. Set the following items and click (Apply).

Item		Description
Customer Display		Select (Use).
Communication settings	Communication speed (bps)	Set the communication speed. Select the communication speed according to the customer display.
	Data bit	Set the data bit. Select the data bit according to the customer display.
	Parity	Set the parity. Select the parity according to the customer display.
Brightness setting		Set the brightness. Select the brightness as desired.

- 9** The customer display is registered.
Click (Test display) and check whether the registered customer display operates properly.



The device ID of the customer display is "local_display".

Device Data Notification Settings

Configure the Device Data Notification settings using EPSON TMNet WebConfig as follows:

- 1** EPSON TMNet WebConfig starts.
Select (configuration) - (Web Service Settings) - (Server Access) - (Device Data Notification).
- 2** The "Device Data Notification" screen appears. Set the following items and click (Apply).

Item		Description
settings		
Device Data Notification		Select (Enable).
Server Access	ID	Set this item to use HTTP digest authentication or to identify the main printer from the server. Not required for the sample program.
	Password	Set this item to use HTTP digest authentication. Not required for the sample program.
	URL	Enter the URL of the Device Data Notification destination (sample program). Enter as follows: http://(IP address of the Web server)/Test_DeviceData.php After entry, check whether the URL is correct. Click (Access Test).
	Server Authentication	Set this item to perform server authentication with the registered certificate during access with https. Not required for the sample program.
	Box ID	Specify the box ID of the communication box to be controlled by the Device Data Notification function. To use the communication box by the Device Data Notification function, set the member ID for sending data to the communication box as ""(null). Not required for the sample program.
POST Error	Print Message	To print an error message when POST to the server fails, select (Enable).
	Message Text	Enter the character string to be printed when POST to the server fails.
	Text Attributes	Set the character decoration for message. Select the character decoration to be used. The following decorations are available: Bold /Underline /Double width /Double height /Reverse black and white /Upside down
	Cut	To cut the paper after printing an error message, select (Enable).

Item	Description
Capture Device	
Device	<p>Select the device to be used.</p> <p>For the sample program, select the following items:</p> <ul style="list-style-type: none"> • local_printer • local_display • local_scanner

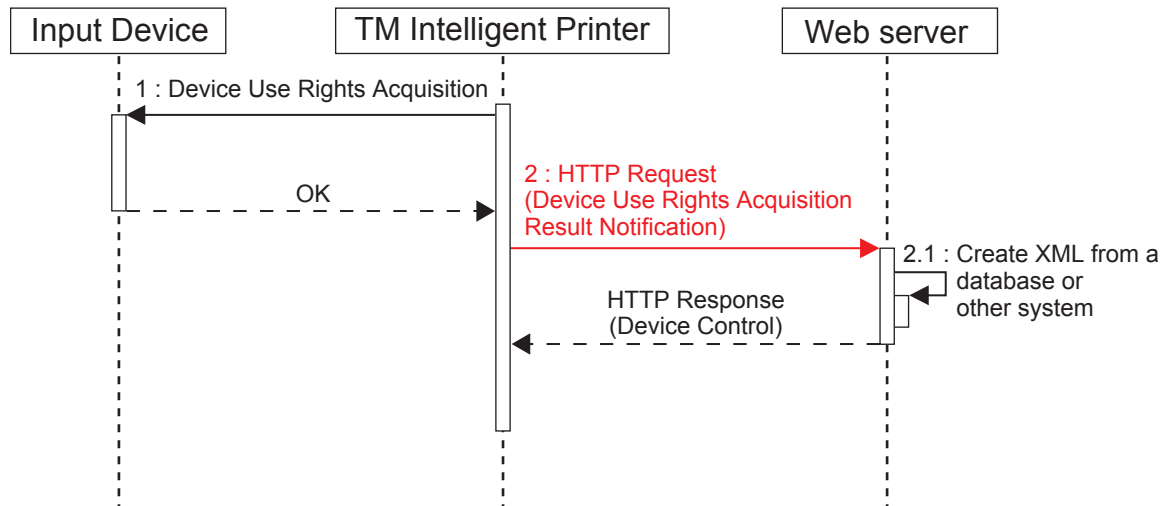
Execution of Sample Program

- 1 Confirm that Device Data Notification is enabled using EPSON TMNet WebConfig.
- 2 Read a barcode using the scanner connected to the TM intelligent printer.
- 3 To the request from the TM intelligent printer, print data is returned as a response and a coupon is printed from the printer. A message is displayed on the customer display.

Request and Response

This chapter describes data inputs from the input device, requests from the TM intelligent printer, and responses from the Web server.

Request (Device Use Rights Acquisition Result Notification)



When the TM intelligent printer is turned on, or when the Device Data Notification settings are changed with EPSON TMNet WebConfig, the TM intelligent printer executes `<open_device>` in ePOS-Device XML to enable the device designated as the input/control device, formats the result in ePOS-Device XML format, and sends a HTTP POST request as shown below.

The format of request message is URL-encoded form data (application/x-www-form-urlencoded). Set the sending destination according to "Device Data Notification" (p. 17).

Parameter	Value
ID	The ID set with WebConfig (p. 17)
Data	ePOS-Device XML format

Header

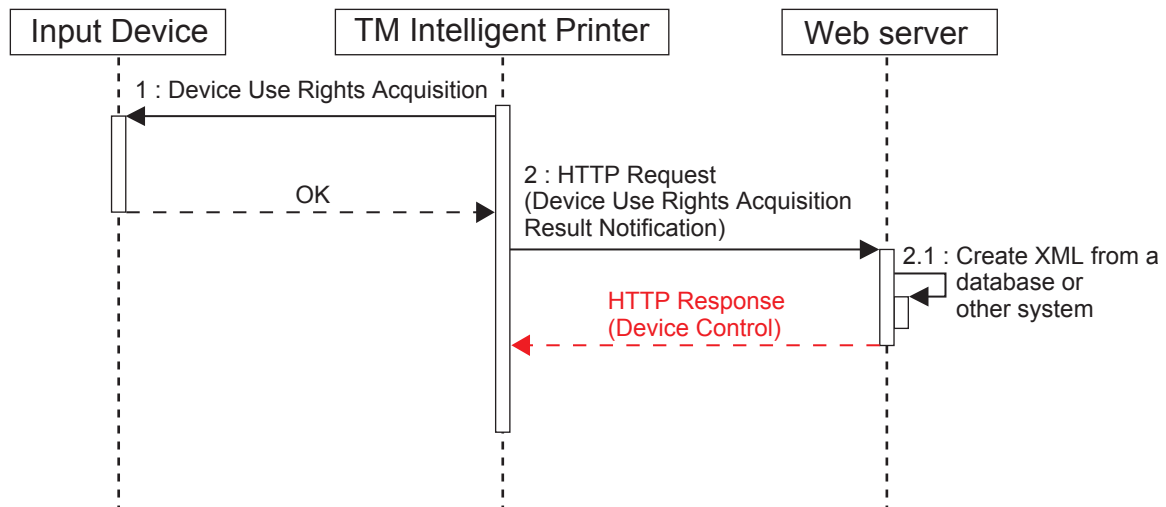
```

POST /Test_DeviceData.php HTTP/1.1
Host: 192.168.192.10
Content-Type: application/x-www-form-urlencoded
Content-Length: xxx

ID=&Data=<open_device><device_id>local_printer</device_id><code>OK</code>
<data_id>1</data_id></open_device>
  
```

TM intelligent printer sends one HTTP request (Device Use Rights Acquisition Result Notification) to the Web server for each device. Therefore, when multiple devices are set as the target device for Device Data Notification, multiple HTTP requests (Device Use Rights Acquisition Result Notification) are sent to the Web server.

Response (Device Use Rights Acquisition Result Notification)



The Web server application creates response data as shown below to a HTTP request (Device Use Rights Acquisition Result Notification) and returns it to the TM intelligent printer. This data contains device control data.

The format of response message is ePOS-Device XML(text/xml).

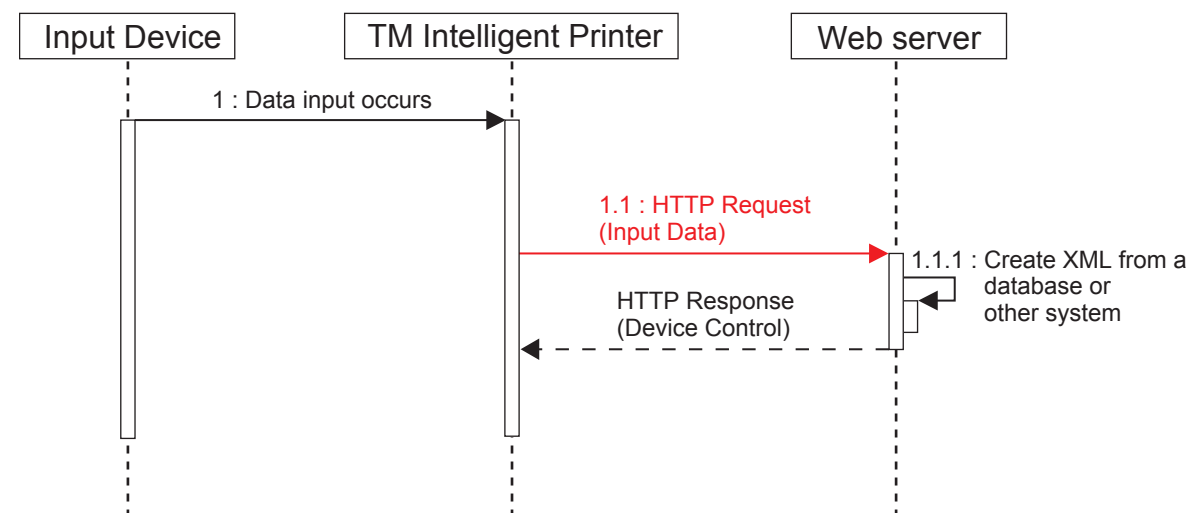
```
HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: xxx

<device_data>
  <device_id>local_keyboard</device_id>
  <data>
    <type>setprefix</type>
    .
  </data>
</device_data>\0
```

*** For the <device_data> tag, be sure to end the message with "\0".**

When no device control is required, refer to ["Response to Disable Device Control" \(p.24\)](#).

Request (Input Data from Input Device)



When data is input from the input device, the TM intelligent printer formats the input data received from the input device in ePOS-Device XML format and sends a HTTP POST request as shown below to the Web server. The format of request message is URL-encoded form data (application/x-www-form-urlencoded). Set the sending destination according to "Device Data Notification" (p. 17).

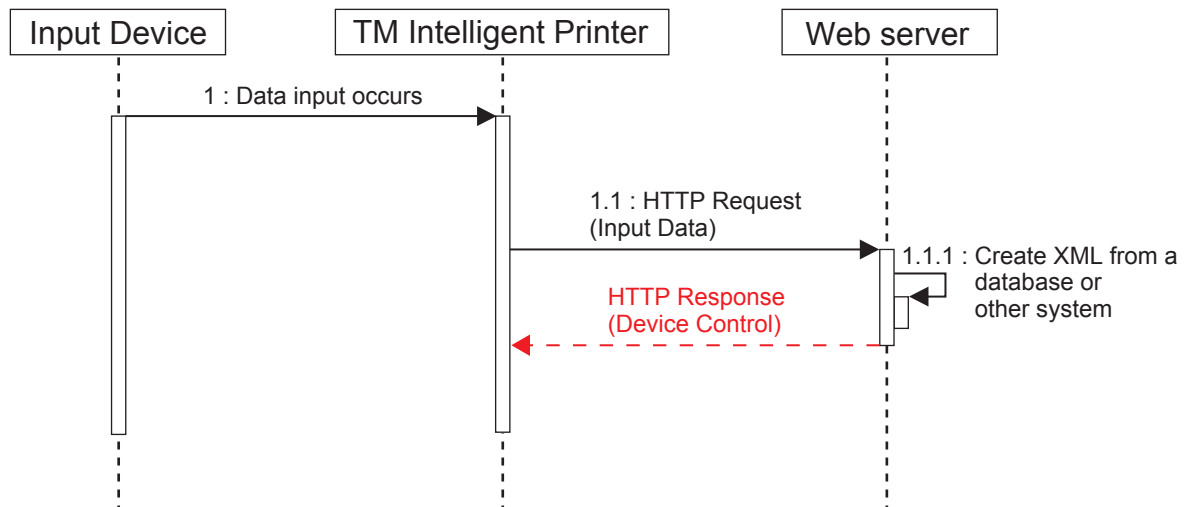
Parameter	Value
ID	The ID set with WebConfig (p. 17)
Data	ePOS-Device XML format

Header

```
POST /Test_DeviceData.php HTTP/1.1
Host: 192.168.192.10
Content-Type: application/x-www-form-urlencoded
Content-Length: xxx

ID=&Data=<device_data><sequence>0</sequence>
<device_id>local_scanner</device_id><data><input>XXXXXX</input>
<type>ondata</type></data><data_id>X</data_id></device_data>
```

Response (Input Data from Input Device)



The Web server application creates response data as shown below to a HTTP request (Input Data) and returns it to the TM intelligent printer. This data contains device control data.
The format of response message is ePOS-Device XML(text/xml).

```

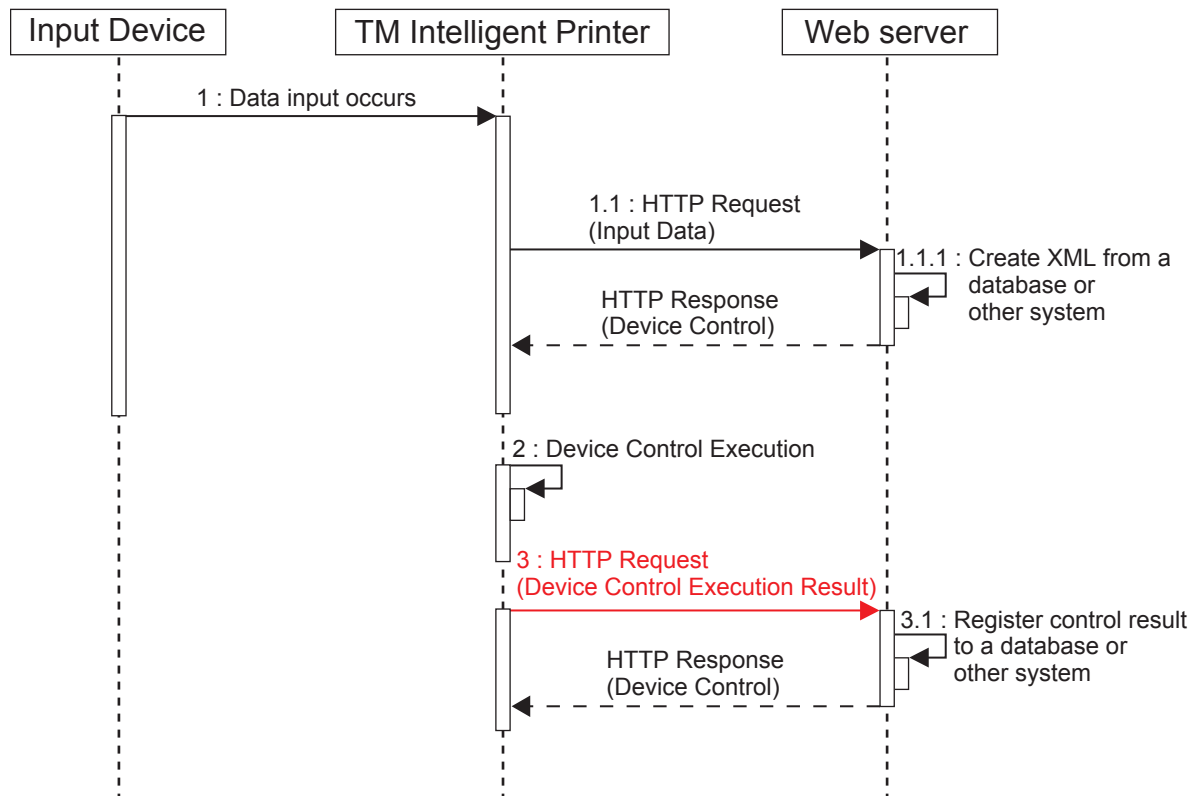
HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: xxx

<device_data>
  <device_id>local_keyboard</device_id>
  <data>
    <type>print</type>
    <Timeout>10000</Timeout>
    <printdata>
      <epos-print xmlns="http://www.epson-pos.com/schemas/2011/03/epos-print">
        .
      </epos-print>
    </printdata>
  </data>
</device_data>\0
<device_data>
  <device_id>local_display</device_id>
  <data>
    <type>display</type>
    <Timeout>10000</Timeout>
    <displaydata>
      <epos-print xmlns="http://www.epson-pos.com/schemas/2011/03/epos-print">
        .
      </epos-print>
    </displaydata>
  </data>
</device_data>\0
  
```

*** For the <device_data> tag, be sure to end the message with "\0".**

When no device control is required, refer to ["Response to Disable Device Control" \(p.24\)](#).

Request (Device Control Execution Result)



The TM intelligent printer executes device control according to the device control data (ePOS-Device XML) received from the Web server, formats the result in ePOS-Device XML format, and sends a HTTP POST request as shown below.

The format of request message is URL-encoded form data (application/x-www-form-urlencoded). Set the sending destination according to "Device Data Notification" (p. 17).

Parameter	Value
ID	The ID set with WebConfig (p. 17)
Data	ePOS-Device XML format

Header

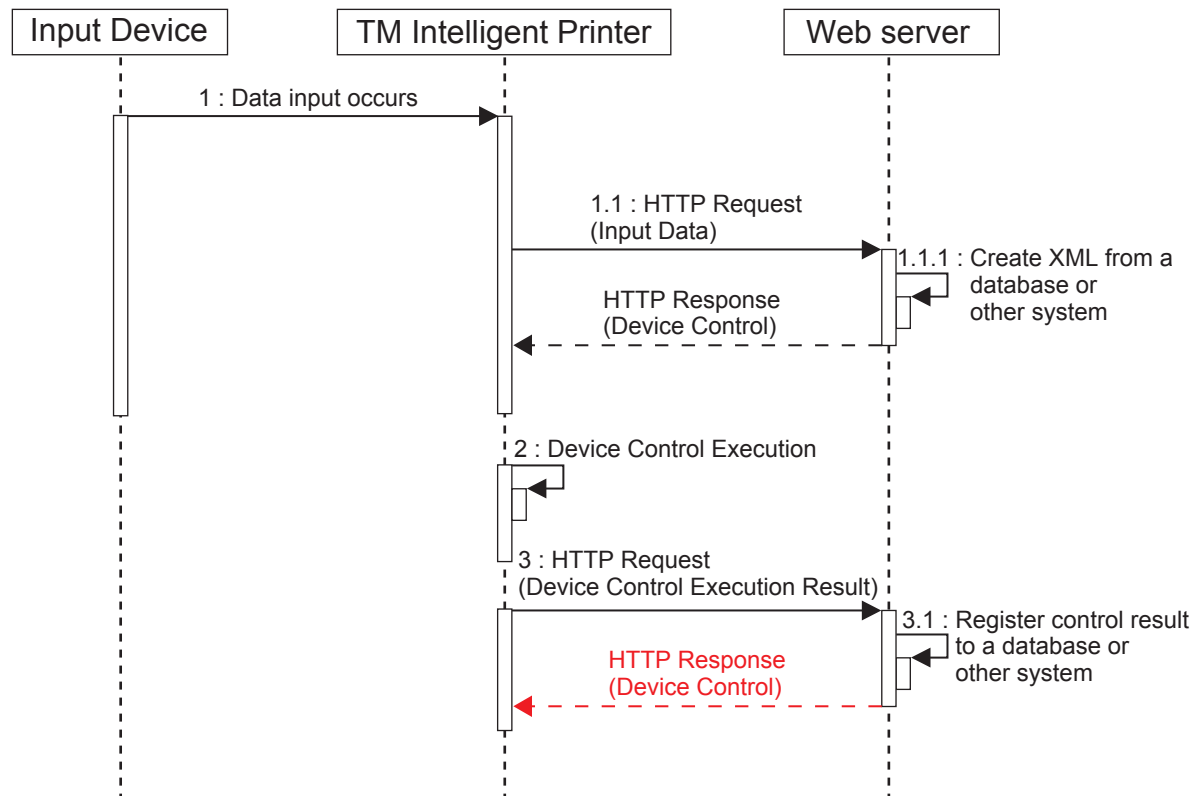
```

POST /Test_DeviceData.php HTTP/1.1
Host: 192.168.192.10
Content-Type: application/x-www-form-urlencoded
Content-Length: xxx

ID=&Data=<device_data><sequence>0</sequence>
<device_id>local_scanner</device_id><data><resultdata>
<response success="true" code="" status="251658262" battery="0" xmlns="http://
www.epson-pos.com/schemas/2011/03/epos-print"/></resultdata>
<type>onxmlresult</type></data><data_id>5</data_id></device_data>
  
```

When the TM intelligent printer receives multiple device control data items from the Web server, the TM intelligent printer executes each device control result separately. The device control execution result is sent as one HTTP request (Device Control Execution Result) to the Web server for each device control.

Response (Device Control Execution Result)



The Web server application creates response data to a HTTP request (Device Control Execution Result) and returns it to the TM intelligent printer. For the responses, refer to ["Response to Disable Device Control" \(p.24\)](#).

Response to Disable Device Control

When no device control is required, notifies that there is no device control data by returning the response as shown below to a HTTP request from the TM intelligent printer.

Refer to `Test_DeviceData.php` in the sample program.

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: 0
```