



EPSON®

EPSON FP-81 II RT and FP-90 III RT

Fiscal Printer Intelligent Features Guide

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REVISION HISTORY

Rev	Pages	Comments	Date	Author(s)
		Previous revisions available on request		
I	Various	Updated graphic file references Added new "Receipt as Images" Options parameter. Added Background Program option. Added Receipt JSON option. Added E-mail TX OPTIONS table to include new "Automatic E-mail sending with Z-Report" function. Added launching of PHP scripts "on the fly". Added PHP script type 3 (run in background).	15/12/2015	Philip Barnett
J	26, 33, 34	Added JSON file changes. Uploading Background Program chapter enhanced and USB pen drive note added. USB Pen drive chapter enhanced. Added Remote Request Job section.	18/11/2016	Philip Barnett
K	Various	Added RT models. Updated references to SSL, certificates, RNDIS and generally.	19/03/2019	Philip Barnett
L	All	Chapter 14 Receipts as Images removed as function obsolete. Updated status pages. Added CORS Origin. Updated PHP information. E-mail: - Added note that SSL e-mail option is for future use. - Added EHLO sub parameter. - Added troubleshooting chapter. Added text file handling. JSON file chapter updated completely. Document updated throughout.	29/12/2023	Philip Barnett

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1 Overview

1.1 Description

The aim of this guide is to provide basic information to software designers who want to make use of the intelligent fiscal printer web functionality. This encompasses browser access, PHP, Samba, graphics, pen drives and e-mail plus uploading.

1.2 List of Related Documents

- Epson_FP_Manuale_Operatore
- Fiscal ePOS Print Solution Dev Guide
- Protocollo di Comunicazione

1.3 Abbreviations

- BMP: Bit Map Picture
- CGI: Common Gateway Interface
- CSS: Cascading Style Sheets
- DDN: Device Data Notification
- DNS: Domain Name System / Server
- FAT: File Allocation Table
- FP: Fiscal Printer
- HTTP: HyperText Transfer Protocol
- HTTPS: HyperText Transfer Protocol Secure sockets
- LAN: Local area Network
- MF: Memoria fiscale (fiscal memory daughter board)
- MPD: Memoria Permanente di Dettaglio (electronic journal)
- MPR: Memoria Permanente di Riepilogo (fiscal memory)
- NVRAM: Non-volatile RAM
- PHP: PHP HyperText Preprocessor
- PID: Product ID
- RAM: Random Access Memory
- RNDIS: Remote Network Driver Interface Specification
- RRJ: Remote Request Job
- SDP: Server Direct Print
- SF: Scheda fiscale (fiscal main board)
- SMTP: Simple Mail Transfer Protocol
- SQL: Structured Query Language
- SSID: Service Set Identifier
- SSL: Secure Sockets Layer
- TCP/IP: Transmission Control Protocol / Internet Protocol
- TLS: Transport Layer Security
- URL: Uniform Resource Locator
- USB: Universal Serial Bus
- VID: Vendor ID
- XML: eXtensible Markup Language

2 Web Server

Intelligent fiscal printers are also web servers. To make use of this functionality, the following steps must be performed:

1. Configure the IP address, subnet mask and default gateway via SET 19. If the wireless adapter is used, continue further down the SET 19 menu structure to enable wireless mode and set the SSID. If necessary configure the encryption details. Note that an externally powered USB hub is required if both a wireless adapter and a keyboard and/or pen drive are to be connected at the same time. Please refer to the *Epson_FP_Manuale_Operatore* document for the exact procedure.
2. Connect either the intelligent fiscal printer LAN port to the Ethernet network by cable or insert the wireless adapter into the type A USB port (or hub). Be careful not to confuse the LAN and display ports since they are both of the RJ-45 type. The LAN port has the  symbol next to it.
3. Configure the User ID and password if required (SET 34 WEB SERVER sub menu).
4. Configure SSL if required (SET 34 WEB SERVER sub menu).
5. Configure cross-domain name (SET 34 WEB SERVER sub menu. Default is wildcard asterisk *). Configuration via the keyboard is not possible.
6. If required, configure PHP (SET 34 PHP sub menu) and load php-cgi service (available on request).
7. Activate or deactivate web application loading at printer restart (SET 34 WEB APPLICATION sub menu).
8. Open a browser and set the URL to the printer IP address only (<http://xxx.xxx.xxx.xxx> or <https://xxx.xxx.xxx.xxx>).
9. Verify that the following root directories appear:
 - cgi-bin ^[1]
 - www

^[1] The cgi-bin folder is hidden in the case of the RT Server. The folder can still be accessed by typing cgi-bin in the URL browser field.

3 Status Pages

The intelligent fiscal printer comes bundled with two printer status web pages. Click the following sequence to access the main status page:

- `www → printer_status → get_status.html`

or enter one of the following URLs:

- http://xxx.xxx.xxx/www/printer_status/get_status.html
- https://xxx.xxx.xxx/www/printer_status/get_status.html

The following page should appear:

Stato Stampante Fiscale

Risultato	true	Stato MF	0
Codice		Stato Stampante	Carta in esaurimento
Descrizione	2	Stato DGFE / MPD	OK
Versione SF	10.01	Stato Cassetto	Chiuso
Versione MF	04.3	Stato Scontrino / Documento	Fiscale/Non fiscale chiuso
Versione fpmate	1044	Stato Operativo	Stato registrazione

Versione pagine 1.21

Aggiorna	Stato RT
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The above example shows everything in order and the printer ready for use. It also warns that the paper is low (Carta in esaurimento).

You can click the "Stato RT" button or enter one of the following URLs:

- http://xxx.xxx.xxx/www/printer_status/get_rt_status.html
- https://xxx.xxx.xxx/www/printer_status/get_rt_status.html

The following page should appear:

Stato RT

Tipo Dispositivo RT	Interno (Negozio / locale fisso)	Numero File > XX Giorni	4 (SET 15/25 = 003)
Stato Main	02	Numero File Rifiutati	12
Stato Sub	08	Scadenza Cert. Dispositivo	26/07/2026
Stato RT Attuale	In Servizio	Scadenza Cert. CA AE	11/01/2038
Day Opened	1 (True)	Modalità Training Demo Simulatore	0
Periodo Inattivo	False		
Numero File Da Inviare	4		

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Aggiorna

Stato Stampante

4 Uploading

Intelligent fiscal printers can store web pages and process uploaded PHP and graphic files. The fpmate.cgi web service can also be updated (zip file available on request).

4.1 Connecting and Using the Upload Service

1. Click the following sequence:

cgi-bin → upload.cgi

or enter one of the following URLs:

- SSL deactivated – <http://xxx.xxx.xxx.xxx/cgi-bin/upload.cgi>
- SSL activated – <https://xxx.xxx.xxx.xxx/cgi-bin/upload.cgi>

2. An upload page should appear:

UPLOAD FILE (ver. 1.11)

File type: webapp.zip - image.bin - image.bmp

File Upload: Nessun file selezionato (Choose the file to upload)

3. Click "Scegli file" and browse to the file or zip file to upload. The filename must not contain any spaces.
4. Watch the intelligent printer display and click "upload". Please be patient as it may take time for the printer to unzip the file.

4.2 Uploading Web Applications

This chapter does not apply if WEBAPP MEM TYPE = 1 (USB Pen Drive option is enabled).

Web pages are saved to non-volatile fiscal board FLASH memory and the SD card. They are available even after a power interruption. Files and folders are not uploaded individually; a zip of the entire structure has to be uploaded after which the printer automatically executes an unzip. After loading, it copies the structure to working RAM and the SD card. It also copies the zip to non-volatile FLASH memory from where it can be later optionally loaded during the printer boot sequence. The structure can contain CSS styling, JavaScript and images just like any other web server plus can execute PHP server side scripts. The printer can also process a single automatic PHP script file as described in the PHP section.

To upload web applications, the following steps must be performed:

1. Create a zip file of your web application pages making sure that the home page path is located in the root directory. The zip filename should be less than 33 characters long (excluding the extension) and must not contain any spaces or special characters such as (.).
2. Follow the instructions for connecting to the upload service.
3. Browse to the web application zip file created in step 1.
4. Wait until the message "WEB APPLICATION SALVA IN MEMORIA..." is replaced by the message "WEB APPLICATION FINE SALVATAGGIO". This should coincide with an updated web page response to the browser that contains the following lines:

Filename: <file>.zip

Filesize: xxxxxx bytes

Content of the file: application/x-zip-compressed

upload OK

extracting: <file_1>

extracting: <file_2>

extracting: <file_3>

Etc

Note that if the zip is small, the message will disappear immediately from the display and conversely if the zip is large, the message will not appear immediately.

4.3 Uploading PHP Files

PHP files must be included in the web pages zip file. The automatic PHP script that can be executed during commercial document emission must reside under /www/webapp/. The PHP service (available on request) has to be uploaded to the intelligent fiscal printer (file php-cgi.zip). The fiscal printer retains the PHP functionality after a power interruption. The PHP service also includes SQLite.

4.4 Uploading Graphic Files

Graphic files are not saved to non-volatile memory and are therefore lost after the printer is powered off completely. After having uploaded an image, the file is processed and then kept or deleted only during the print out of either a commercial document or management document according to the SET 34 GRAPHIC FILE → TYPE setting. Please refer to the *Epson FP Manuale Operatore* guide. Please note that the /www/graphic/ folder should only contain one file – If more than one file exists, graphic file management is deactivated by the printer. The filename must not contain any spaces and must not be longer than 35 characters long including the .bin / .bmp extension in lower case.

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To upload graphic files, the following steps must be performed:

1. Prepare a BMP or Epson raster format bin file taking care to make sure that:
 - a. The filename is no more than 31 characters long (excluding the extension).
 - b. The filename does not contain any spaces or special characters such as (.
 - c. The filename extension is lower case (i.e. either .bmp or .bin).

Epson recommends a file size less than 20KB.

The printer can accept monochromatic, 16 colour and 256 colour BMP formats. However, since it only ever prints monochromatic, monochromatic format files should be used as no quality benefit is gained from using the other formats. Monochromatic files are also smaller and get processed and printed much quicker.

2. Follow the instructions for connecting to the upload service and browse to the graphic file prepared in step 1.
3. Click "upload". The updated web page should contain the following lines:

Filename: <file>.bin or .bmp

Filesize: xxxxxx bytes

Content of the file: image/bmp or application/octet-stream

upload OK

4. Check that the file exists under:

www → graphic

or enter one of the following URLs:

- SSL deactivated – <http://xxx.xxx.xxx.xxx/www/graphic>
- SSL activated – <https://xxx.xxx.xxx.xxx/www/graphic>

4.5 Uploading Text Files

The SET 34 GRAPHIC FILE function can also handle text files. The file extension must be .bin lower case and the file must be 8-bit ASCII encoded adhering to codepage 437. UTF-8 and UNICODE encodings are not supported. The SET 34 TYPE value can only be 100 or 200. See previous chapter for more details.

4.6 Uploading Fpmate CGI Web Service

A new fpmate web service version may sometimes be available on request. A zip file called fpmate.zip must be uploaded and takes effect immediately by substituting the cgi-bin/fpmate.cgi file. The update is also saved to NVRAM. However, the original version bundled with the firmware still remains available. The SET 34 FPMATE.CGI UPDATE submenu contains the FPMATE UPDATE parameter and it indicates one of two possible printer start-up source locations (from where fpmate.cgi should be copied from) as follows:

- 0 – At start-up, load original version bundled with the firmware
- 1 – At start-up, load updated version

Please bear in mind that whenever FPMATE.CGI UPDATE = 1, the printer will not revert to the original version if it cannot load or cannot find the updated one. In this case, the fpmate.cgi file will be missing from the cgi-bin directory and web requests will fail.

4.7 Uploading Background Program

A background program can be launched on the fiscal printer during start up. The service is activated via the SET 34 BACKGROUND PROGRAM submenu where it is also possible to indicate the name of the script. The script file must be included in the web pages zip file so that it initially resides under /www/webapp/. During start up, the file is then stored in a hidden directory together with any files where the filename before the file extension is the same. For example:

- Background_program.sh (name programmed in SET 34)
- Background_program.php (related file)
- Background_program.pinc (related file)

Please use the following recommended sequence:

1. Load web application that also includes the background program files using Upload Service.
2. Confirm that the background files reside under /www/webapp/
3. Program the printer SET 34:
 - a. Activate the service
 - b. Set the name (for example, Background_program.sh)
4. Restart the printer
5. Confirm that background files no longer reside under /www/webapp/
6. Confirm that your script is running
7. Restart the printer again
8. Confirm that your script is running

4.8 Uploading SSL Certificates

A file with the specific fiscal_printer.zip name must be uploaded. SET 34 WEB APPLICATION sub menu WEB APPLICAT sub-parameter must be set to 1 and MEM TYPE must be 0. Full details are available on request.

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5 Web Application Testing

5.1 Connecting to the fiscal printer homepage

1. Connect to the intelligent fiscal printer root page.
2. Click the following sequence:

www → webapp → index.html (or index.htm)

or enter one of the following URLs:

- SSL deactivated – <http://xxx.xxx.xxx.xxx/www/webapp/index.html>
- SSL activated – <https://xxx.xxx.xxx.xxx/www/webapp/index.html>

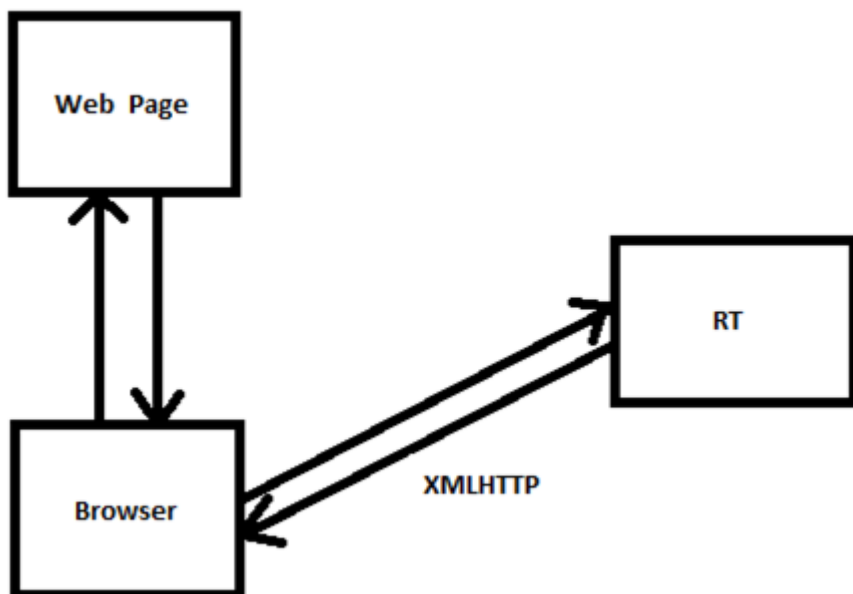
Your homepage should appear.

5.2 EpsonFpDemoWeb

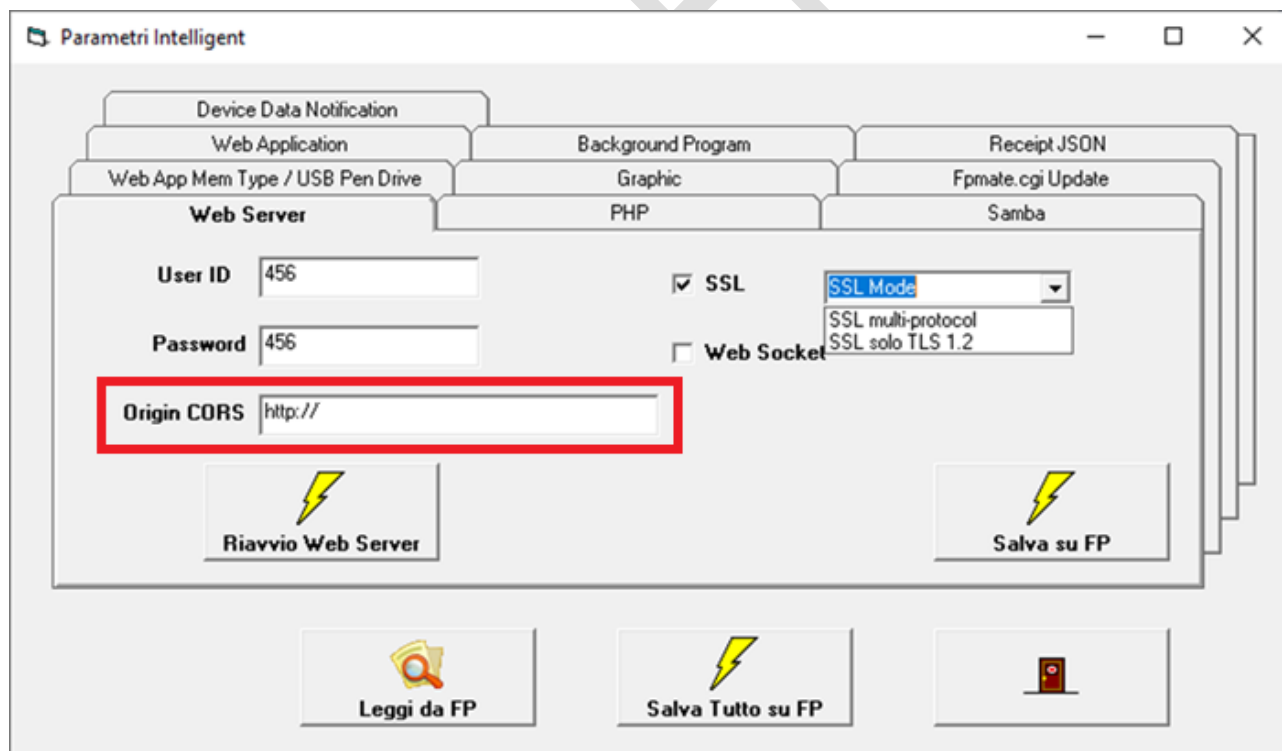
If the EpsonFPDemoWeb application was uploaded, print a test commercial document as follows:

1. Click "Commercial document" top row option.
2. Click "Begin Fiscal Receipt".
3. Fill out the following fields:
 - a. Description.
 - b. Quantity.
 - c. Unit Price.
4. Click "Print Rec Item".
5. Fill out the following fields:
 - a. Description.
 - b. Payment.
6. Click "Print Rec Total".
7. Click "End Fiscal Receipt"
8. Click "Send".

5.3 Cross-Domain Security



The browser security settings could prevent cross-domain XMLHTTP requests from being sent. In this case, the CORS Origin value should be changed from * to the URL of your web site. This can be programmed using EpsonFpWizard:



6 Web Application Loading at Printer Restart

It is possible to select whether or not to load the web application from NVRAM during a printer restart. By default, web application loading is deactivated. Loading can be activated or deactivated via the SET 34 WEB APPLICATION sub menu where the following parameter can be set:

- WEB APPLICAT. (0 = Deactivated or 1 = Activated)

This parameter has no effect if the USB Pen Drive option is activated.

If MEM TYPE = 2, the above parameter must be 0 otherwise the files will be overwritten by the NVRAM files. When MEM TYPE = 2, it allows the use of dynamic data such as databases. Since they are stored on the SD card (and can be modified by a PHP script), they can be maintained after a reboot.

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7 E-mail

7.1 Description

Intelligent fiscal printers can generate e-mail messages and send them to mail gateways for onward transmission. This is a legacy function and has nothing to do with the Scontrinosmart E-Receipt function. To make use of this functionality, the following steps must be performed:

1. Configure the e-mail parameters via SET 32. DNS names can be used. Usernames and passwords through AUTH PLAIN authentication and TLS can be used. TLS can be used. Please refer to the *Epson FP Manuale Operatore* document for the exact procedure. Make sure that the SET 19 DNS address or addresses are programmed. The following parameters can be programmed:
 - TX SERVER (Server type. For example: smtp) ^[1]
 - TX SRV NAME (Server IP address or DNS name) ^[1]
 - TX PORT – The following ports are typically used:
 - 25 – AUTH PLAIN both deactivated and activated
 - 587 – TLS
 - 465 – SSL (For future use)
 - TX USER (Used when AUTH PLAIN or TLS is activated)
 - TX PASSWORD (Used when AUTH PLAIN or TLS is activated)
 - TX OPTIONS (See table below)
 - FROM (Sender) – Cannot be blank otherwise no mail will be sent
 - TO (FISC.) – Recipient when commercial document or Z report content is sent
 - TO (NOTIF.) – Recipient when warnings are sent. For example: DGFE full or removed etc.
 - DOC/TXT/BMP
 - EHLO – Hostname used during handshake with SMTP server

^[1] The printer does not support the OAuth 2.0 protocol. Therefore, it is not possible to choose an SMTP server that requires this protocol, such as gmail.

TX OPTIONS Table

Byte Position	Value
1	- 0 = AUTH PLAIN deactivated - 1 = AUTH PLAIN activated - 2 = TLS activated - 3 = SSL activated (For future use)
2	Automatic E-mail sending with Z-Report: - 0 = Deactivated - 1 = Activated

2. The send e-mail request must arrive prior to the opening of a commercial document or the printing of a Z report. Automatic fiscal report can be activated. Direct invoice e-mails can also be sent. The send request is only valid for the subsequent operation meaning that it must be re-requested prior to a second, third commercial document/invoice etc. The request can be done in two ways:
 1. Through a specific key on the keyboard connected to the fiscal printer USB port.
 2. Via a fiscal command sent by a PC or web request.

Via Keyboard

A chosen key must be associated with function 197. Please refer to the *Epson FP Manuale Operatore* document for the exact procedure or see below. The key is simply pressed before opening a commercial document or printing a Z report. Direct invoice e-mails can also be sent. To cancel the request, press the key again.

Via PC

Currently Direct IO must be employed. Please refer to the following chapter in the *Protocollo di Comunicazione* document:

- H1=1; H2=146 – SEND COMMERCIAL DOCUMENT / DIRECT INVOICE / FISCAL CLOSURE BY E-MAIL

In both cases the following messages appear on the display:

- INVIO E-MAIL ATTIVATO (E-mail transmission activated)

And if sent a second time:

- INVIO E-MAIL ANNULLATO (E-mail transmission cancelled)

If no destination address has been set, the following message appears:

- IMPOSSIBILE ORA (impossible now)

7.2 Practical Request via Keyboard

Program the e-mail parameters

The following example configures amongst other parameters the Vodafone Italia SMTP gateway. Press:

1. 3 3 3 3 → CHIAVE → 3 2
2. If smtp wording is missing or different press:
 - STORNO to blank out any previous setting followed by 8 3 → 7 7 → 8 4 → 8 0 → CONTANTE/TOTALE to set value to "smtp".
 - Else if "smtp" wording is already present just press CONTANTE/TOTALE.
3. Enter the SMTP gateway IP address including leading zeroes and dots. The example here is 80.84.1.120 which is associated with smtp.vodafone.net:

1 6 → 2 4 → 2 0 → 1 4 → 1 6 → 2 4 → 2 0 → 1 4 → 1 6 → 1 6 → 1 7 → 1 4 → 1 7 → 1 8 → 1 6 → CONTANTE/TOTALE. If you make a mistake press STORNO to clear the display and try again. Others include for example Telecom Italia's Alice address out.aliceposta.it which is 82.57.200.132. When not using authentication, make sure that the fiscal printer is within the same network as the SMTP gateway. This is because SMTP mail requests without authentication from outside the network tend to fail with the error "Relay Access Denied".
4. Leave E-MAIL TX PORT set to 25.
5. Optionally set E-MAIL TX USER.
6. Optionally set E-MAIL TX PASSWORD.
7. Set E_MAIL TX OPTIONS to:
 - 0 – No AUTH PLAIN – Key in 1 6 to set 0.
 - 1 – AUTH PLAIN – Key in 1 7 to set 1.
 - 2 – TLS – Key in 1 8 to set 2.
 - 3 – SSL (For future use).
8. Set E-MAIL FROM as desired.
9. Set E-MAIL TO (FISC.) as desired.
10. Leave the remaining parameters.

Associate a key with function 197

The key sequence is as follows:

- 3 3 3 3 → CHIAVE → 2 9 → <press desired key> → 1 9 7 → CONTANTE/TOTALE → CHIAVE

Activate Mail Request

Press the key associated with function 197 (previous step). Print a commercial document or Z report. Direct invoice e-mails can also be sent. Check destination e-mail inbox.

QWERTY POS Associations

If you happen to be using a PC QWERTY keyboard, please bear in mind the following key associations:

- C = CHIAVE
- F2 = STORNO
- Invio /Enter (bottom right hand corner) = CONTANTE/TOTALE
- For numbers, use the row above QWERTY

7.3 E-mail Troubleshooting

To troubleshoot e-mail issues, the following files that reside under the www/logs directory can be analysed:

- rt_log.txt
- email_log.txt

Whenever e-mail sending cannot be completed, the printer may enter into a continuous retry cycle. In this case, the printer needs to be switched off by removing the power in order to "clean" the job.

8 SSL (Browser to Printer)

The embedded intelligent fiscal printer web server supports SSL. SSL is enabled via the SET 34 WEB SERVER sub menu where the following parameters can be set:

- USER ID
- PASSWORD
- SSL MODE (0 = deactivated, 1 = activated or 2 = activated TLS 1.2 only)

Changes to the SSL MODE requires a printer restart.

With SSL activated, connections from the browser must be made via HTTPS on port 443 as HTTP on port 80 will no longer be active. By default a certificate warning will need to be confirmed to proceed. To avoid this warning, you can choose between a pre-installed certificate or you can upload your own self-signed one. A certificate authority file can also be loaded into your browser. Information regarding certificate management is available on request.

9 PHP

9.1 Description

Intelligent fiscal printers support PHP and SQLite in web pages and also a custom script that can be executed automatically during commercial document emission. The custom script is executed after payment but before commercial document closure. The PHP service (available on request) has to be uploaded to the intelligent fiscal printer (file php-cgi.zip). The PHP service includes SQLite. The PHP script can also be launched "on the fly" from either a keyboard sequence or by the 1-140 native PC command.

9.2 Programming

PHP is enabled via the SET 34 PHP sub menu where the following parameters can be set:

- **PHP MODE:**
 - 0 = Deactivated or
 - 1 = Activated
- **SCRIPT TYPE:**
 - 0 = Automatic script deactivated.
 - 1 = Automatic script executes after payment but before fiscal logo. The printer waits for a response file in the /www/graphic/ folder (5 seconds). The response is appended (printed) to the commercial document after which the response file is deleted.
 - 2 = Automatic script executes after cutting the paper. The printer doesn't wait for a response file in the /www/graphic/ folder.
 - 3 = Run script in background:
 - At printer restart
 - After reprogramming of Web Server parameters
 - After Web Server restart
 - 4 = Automatic script executes after fiscal daily closure
- **SCRIPT NAME.** Default automatic script name is rec_ending_script.php *

* The PHP script of the same name must have been included in the web pages zip uploaded via the /cgi-bin/upload.cgi web service and must reside under /www/webapp/. This script can make use of the rec.json file described below and can deposit a file in the /www/graphic folder.

If the PHP mode is deactivated, the automatic script and background script are also deactivated.

9.3 Launching PHP Script "on the fly"

The PHP script can also be launched "on the fly" from either a keyboard sequence using key function 200 or by the 1-140 native PC command.

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10 Samba

Epson fiscal printers support Samba. The Samba service (available on request) has to be uploaded to the intelligent fiscal printer (file samba.zip). Samba is enabled via the SET 34 SAMBA sub menu where the following parameter can be set:

- SAMBA MODE (0 = Deactivated or 1 = Activated)

Activating and deactivating Samba requires a printer restart. With Samba activated, the following two shares are accessible:

1. cgi-bin
2. www

In the www share, the webapp sub-directory can be used to deposit XML files where they will be processed automatically by the embedded fpmate.cgi service.

The printer cannot run both PHP and Samba services at the same time. If both are activated in programming, the PHP service has the priority. In this case, the Samba service is not started.

11 USB Pen Drive

Epson fiscal printers support the use of USB Pen Drives. A single USB Pen Drive can be enabled by setting the SET 34 WEBAPP MEM TYPE sub menu value to 1.

Activating and deactivating USB Pen Drives require a printer restart.

The web server root is determined as follows:

- Deactivated – The web server root contains the files and folders loaded either from the fiscal board FLASH memory or previously uploaded via upload.cgi.
- Activated – The USB Pen Drive is mounted as the web server root.

The USB Pen Drive must contain a single FAT32 formatted partition. "Partitionless" mode is not supported. Please contact Epson for instructions on preparing a USB pen drive.

Please note that in this mode the web server does not perform any redirection to index.html:

- <http://xxx.xxx.xxx.xxx/> will not redirect to index.html
- <http://xxx.xxx.xxx.xxx/index.html/> will load index.html

Please bear in mind that the upload.cgi and fpmate.cgi services plus the printer status page are no longer accessible. The fpmate.cgi file can be copied to your USB pen drive away from the printer. The file is available on request.

12 Graphic Files

12.1 Setup

Graphic file setup is performed via the SET 34 GRAPHIC FILE sub menu where the following parameter can be set:

- TYPE (3 digit code)

12.2 Description

Graphic files are processed and/or kept or deleted only during the print out of either a commercial document or management document according to the SET 34 GRAPHIC FILE → TYPE parameter. Please refer to the *Epson FP Manuale Operatore* guide. Please note that the /www/graphic/ folder should only contain one file – If more than one file exists, graphic file management is deactivated by the printer. The folder is cleaned by disconnecting the power to the printer completely. Please note that graphics are not reproduced in E-Receipts. Typical routines are as follows:

Coupons

1. If necessary deactivate the rec ending script as it may conflict by saving its own graphic file in the /www/graphic/ directory. Rec ending scripts are deactivated via SET 34 PHP → SCRIPT TYPE = 0.
2. Upload the coupon file.
3. Configure SET 34 GRAPHIC FILE → TYPE setting it to either 100 or 200.
4. If TYPE = 100, print a commercial document. If TYPE = 200, print either a commercial or management document.
5. Check that the coupon is appended to the commercial document or is in the last part of the management document body.
6. If TYPE = 100, print another commercial document to make sure that the coupon is printed again. If TYPE = 200, print either a commercial or management document to make sure the coupon is not printed again.
7. If necessary, reprogram the rec ending script (SET 34 PHP → SCRIPT TYPE).

Logos in NVRAM

1. If necessary deactivate the rec ending script as it may conflict by saving its own graphic file in the /www/graphic/ directory. Rec ending scripts are deactivated via SET 34 PHP → SCRIPT TYPE = 0.
2. Upload the logo file.
3. Configure SET 34 GRAPHIC FILE → TYPE setting it to one of nine values ranging from 210 to 290. The second byte indicates the logo index from 1 to 9.
4. Print a commercial or management document. This activates NVRAM storage.
5. Configure the four HEADER FOOTER indexes (SET 15 / 09, 10, 19 and 20) as desired.
6. Execute a print out and check that the header and footer are as expected.
7. If necessary, reprogram the rec ending script (SET 34 PHP → SCRIPT TYPE).

13 Text Files

The SET 34 GRAPHIC FILE function can also be used with text files. Please see the previous chapter Coupons section. The file extension must be .bin lower case and the file must be 8-bit ASCII encoded adhering to codepage 437. UTF-8 and UNICODE encodings are not supported. Please note that the lines are not reproduced in E-Receipts.

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14 USB Network Mode

After having activated LAN WIRED-WIFI-USB option 2, the physical RJ-45 printer LAN port is not used any more. From the point of view of the PC, the IP addresses of the printer and the virtual USB network on the PC port should both belong to a distinct subnet with respect to the other LAN ports and their networks on the PC.

The PID VID pair from the printer changes to 0525h and A4A2h.

After having connected the PC, the following device becomes available:

- RNDIS Ethernet Gadget

Windows XP Driver

A .inf file will need to be downloaded from the web, modified and installed as a driver. This can also be supplied on request.

Windows 7 and Later Driver

The driver already exists. The following network adapter driver can be used:

- "Microsoft Corporation" → "Remote NDIS based Internet Sharing Device"

Sometime a different .inf file is required. This can be supplied on request.

Internet Connection Sharing

If ICS is activated on the PC, the printer can access the Internet using the PC as a gateway. This means for example that an RT printer can transmit daily takings to the tax authority.

Useful Links

http://www.webos-internals.org/wiki/USBnet_Setup

http://docwiki.gumstix.org/index.php?title=Windows_XP_usbnet

Full instructions and inf files are available on request.

15 Background Program

15.1 Description

Intelligent fiscal printers can execute background programs (scripts). The Background Program is enabled via the SET 34 BACKGROUND PROGRAM sub menu where the following parameters can be set:

- BACKGROUND PROGRAM MODE:
 - 0 = Deactivated or
 - 1 = Activated
- NAME. Default script name is E015_client.sh

Please refer to the [Uploading Background Program](#) section for additional details.

16 Receipt JSON

16.1 Description

File saving is activated via the SET 34 RECEIPT JSON sub parameter where:

0 = Deactivated or
1 = Activated

The JSON file is saved in the following location:

- Commercial documents /www/json_files/rec.json
- Z Report daily closures: /www/json_files/zrep.json

Please note that new files overwrite existing ones.

The commercial document structure includes a transaction breakdown and the payment methods used. recDate is a single UTC string. Below is an example:

```
{
  "serialNumber": "99IEB000300",
  "recHeader": [
    "Epson Italia Spa",
    "Via Vigano' de Vizzi, 93/95",
    "20092 Cinisello Balsamo (MI)",
    "P.Iva: 07511580156",
    "Tel: 02660321"
  ],
  "recNumber": "1",
  "zRepNumber": "Z0126",
  "recDate": "2023-08-10T17:24:34+02:00",
  "recAmount": "11.00",
  "customerId": "",
  "lotteryId": "",
  "docType": "SALES",
  "salesItem": [
    {
      "type": "01",
      "description": "1 x 10 REP 1",
      "quantity": "1.000",
      "unitPrice": "10.00",
      "amount": "10.00",
      "department": "01",
      "vatItem": "01"
    }
  ]
}
```

```

    {
      "type": "04",
      "description": "Sconto tipo 0",
      "quantity": "0.001",
      "unitPrice": "0.00",
      "amount": "1.00",
      "department": "01",
      "vatItem": "01"
    },
    {
      "type": "01",
      "description": "1 x 1 REP 1",
      "quantity": "1.000",
      "unitPrice": "1.00",
      "amount": "1.00",
      "department": "01",
      "vatItem": "01"
    },
    {
      "type": "01",
      "description": "1 x 1 REP 2",
      "quantity": "1.000",
      "unitPrice": "1.00",
      "amount": "1.00",
      "department": "02",
      "vatItem": "02"
    }
  ],
  "payment": [
    {
      "paymentType": "cash",
      "amount": "11.00"
    }
  ],
  "recEnd": "true"
}

```

The following keys are only present in newer firmware:

- serialNumber
- zRepNumber
- lotteryId
- docType

The docType key values are as follows:

- SALES
- REFUND
- VOID

The optional customerId key is set in the commercial document XML file with a printRecMessage XML element having the messageType attribute set to 7.

The "type" key values are as follows:

- 01 PrintRecItem, printRecRefund or PLU
- 02 Return (obsolete)
- 03 Correction (storno)
- 04 Last item or department discount
- 05 Subtotal discount
- 06 Last item or department surcharge
- 07 Subtotal surcharge
- 08 Void last item
- 09 Deposit (acconto)
- 10 Free of Charge (Omaggio)
- 11 Single-use voucher (Buono monouso)

The "paymentType" key values are as follows:

- cash Type 0 index 00 to 05
- check Type 1 index n/a
- card Type 2 index 01 to 10 (Electronic)
- ticket Type 3 index 01 to 10 or
Type 4 index 01 to 99
Types 3 and 4 are for Luncheon vouchers (Buoni pasto)
- nc goods+services Type 2 index 00 or
Type 5 index 00
- nc goods Type 5 index 01
- nc services Type 5 index 02
- nc invoice Type 5 index 03
- nc DCR to SSN Type 5 index 05
- discount generic Type 6 index 00
- discount multiuse Type 6 index 01
- automatic Used when an automatic commercial void document is emitted
(the original payment details are not available)
- voidReceipt Commercial document was cancelled either by printRecVoid or
resetPrinter command

nc prefix means Not paid (Non riscosso).

discount prefix means payment discount (Sconto a pagare).

automatic is only present in newer firmware. Amount is always zero.

eanCode and deductible keys are no longer used.

The Z Report fiscal daily closure structure includes daily and department totals. For example:

```
{
  "serialNumber": "99IEB000300",
  "recHeader": [
    "      Epson Italia Spa      ",
    "      Via Vigano'de Vizzi, 93/95      ",
    "      20092 Cinisello Balsamo (MI)      ",
    "      P.Iva: 07511580156      ",
    "      Tel: 02660321      "
  ],
  "customerId": "      ",
  "recDate": "2023-08-10T18:23:45+02:00",
  "grossDailyAmount": "108.00",
  "netDailyAmount": "97.74",
  "recNumber": "5",
  "zRepNumber": "Z0127",
  "department": [
    { "dep": "1", "grossAmount": "2.00", "netAmount": "1.64", "vatRate": "22.00" },
    { "dep": "2", "grossAmount": "103.00", "netAmount": "93.64", "vatRate": "10.00" },
    { "dep": "21", "grossAmount": "3.00", "netAmount": "2.46", "vatRate": "22.00" }
  ],
  "recEnd": "true"
}
```

The recNumber key indicates the number of commercial documents of the day.

All natures have a VAT rate of zero percent. They can be distinguished by the department number.

17 Remote Request Job

17.1 Description

The remote request job capability can be divided into two functions:

1. Device Data Notification
2. Server Direct Print

Device Data Notification (DDN)

After having read a barcode or QR code, the printer immediately generates a request to the server. The request contains the specific code. The server responds accordingly.

Server Direct Print (SDP)

The printer periodically polls a server for a new job. The response either contains a "no job" indication or an XML job file.

In both cases, full details are available on request.