Instant Issuance Desktop System
S3300e and S3600

SDK JSON REST-API

Matica Fintec Spa

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1.1 Document Changes

Version	Changes
1.4.0	Add Print command for S3600
1.4.1	Removed “Group” on error answer

1.2 Introduction

Web service is running on the machine

The connection between the remote host and the machine is secured and dedicated using:

- JSON REST-API format over HTTPS with GET / POST commands

Keys advantage of the solution are:

- No Library (DLL) and any kind of software is provide … this document IS the SDK .. just a PDF documentation.
- No drivers need to ne install in the user PC or Server
- Platform independent: Windows, Linux, Apple, Android …
- And any programming languages: C++, C#, Java, Phyton …
- Very simple commands to drive and control the machine
- Single Wire functionality:
  - Mag, Emboss, Print, Chip Contact and Contactless are all done using the Json commands
- High scalability from 1 to many (hundreds) machine connected
- LAN TCPIP interface
- Dedicated independent port channel to get real time machine status

If the machine is USB ONLY (not suggested) we install a software package on the user PC that will make the machine running using the new SDK Web Service Json REST-API in local host (127.0.0.1)

1.3 Web Services

The machine comes from factory with a fix IP configuration **192.168.70.70**
Read in following chapter how to change the IP settings

2 web services are running in the machine:

- Port 33200 https://192.168.70.70:33200/action
  used to send commands to machine

- Port 33201 https://192.168.70.70:33201/action
  used to get the real time machine status GetInfoJson

1.4 JSON-API format

The Communications is Synchronous.
Host send over https a POST Json command and wait the Json answer at the end of command.

Send Json command sample:

```
{"Command": "Restore"}
```

Answer:

- if command is executed correct the answer is

```
{"Answer": "OK"}
```

- if command goes in error the answer is

```
{"Answer": "KO",
"Error": {
      "code": "4200",
      "message": "Card jam" }
}
```

1.5 Communication Test

It is possible to test the communication with the machine to see if the LAN is working correct and the machine is life.

You can send any Json command using **/echo** in place of **/action**
Machine will reply the same Json command send as echo

- Port 33200 https://192.168.70.70:33200/**echo**
  used to send commands to machine

2 JSON Commands on Port 33200

https://192.168.70.70:**33200**/action

2.1 Restore

Restore and clear the machine

```
{"Command": "Restore"}
```

Answer if the restore is complete correct

```
{"Answer": "OK"}
```

Answer in case of error

```
{"Answer": "KO",
"Error": {
    "code": "4200",
    "message": "Card jam"}
}
```

2.2 LoadCard

Load Card from selected feeder

- 0 = front manual feeder
- 1 … 6 = automatic feeder

```
{"Command":"LoadCard",
"Feeder_ID":"0"}
```

Standard Answer

2.3 EjectCard

Eject Card to selected stacker

- 0 = front manual exit
- 1 … 6 = exit stacker box
- -1 = card will be drop inside the machine (used only for testing)

```
{"Command":"EjectCard",
"Reject_ID":"0"}
```

Standard Answer

2.4 WriteMAG

To write the mag stripe tracks

coercivity	= 1 for LOCO, = 2 for HICO
tk1	= Track 1 data. Leave “” or remove to not writing the track
tk2	= Track 2 data. Leave “” or remove to not writing the track
tk3	= Track 3 data. Leave “” or remove to not writing the track

```
{"Command":"WriteMAG",
"MagData": {
   "coercivity":"2",
```

```
   "tk1":"A0000810596710002^MATICA FINTEC ITALY^1811123001",
   "tk2":"0000810596710002=1811123001",
   "tk3":""
   }
}
```

Standard Answer

2.5 ReadMAG

To read the mag stripe data

- 1 = to read Track 1
- 2 = to read Track 2
- 3 = to read Track 3

```
{"Command":"ReadMAG",
"Track_ID":"1"}
```

Answer

```
{"Answer": "OK",
"Data": "K0000810596710001^MATICA FINTEC ITALY^1811123001"}
```

2.6 Emboss

To emboss the card

font	= 0 for Standard Gothic, = 1 for OCR7B, = 8 for CVV2
cpi	= 100 for Standard Gothic, = 070 for OCR7B, = 140 for CVV2. Is the character spacing express in inch/10
x	= X coordinate of text measured from card-LEFT-edge to character-LEFT-edge express in mm/10
y	= Y coordinate of text measured from card-TOP-edge to character-BOTTOM-edge express in mm/10
text	= Text to emboss
Tipper_ON	= Y enable tipper, = N not use the tipper

```
{"Command":"Emboss",
    "Emboss_Line": [
         {"font":"1","cpi":"070","x":"090","y":"340","text":"2345 0129 7368 5057"},
         {"font":"0","cpi":"100","x":"310","y":"340","text":"06/19"},
         {"font":"0","cpi":"100","x":"060","y":"510","text":"ALEXANDER HAMILTON"},
         {"font":"8","cpi":"140","x":"430","y":"240","text":"12345"}
         ],
    "Tipper_ON": "Y"
}
```

Standard Answer

2.7 MoveToChip

Move the card in chip position

- 1 = contact chip position
- 2 = contactless chip position

```
{"Command":"MoveToChip",
"Chip_Station":"1"}
```

The card is move to chip position and the ATR is automatically read.

```
{"Answer": "OK",
"Data": "3b6a00008066a10902016306"}
```

If ATR is not read → Data = “”

2.8 ChipReset

Reset the chip card and get the ATR

`Unpower` = y → force removing the contact to power OFF and then ON the chip
`Unpower` = n → the chip is reset keeping the power ON

```
{"Command":"ChipReset",
"Unpower":"y"}
```

```
{"Answer": "OK",
"Data": "3b6a00008066a10902016306"}
```

If ATR is not read → Data = “”

2.9 ApduExchange

Exchange APDU with the chip card. The APDU is in Hex format

```
{"Command":"ApduExchange",
"APDU":"00A404000E315041592E5359532E4444463031"}
```

The chip APDU answer is return to Data

```
{"Answer": "OK",
"Data": "6A82"}
```

2.10 CoverOpen

Activate the electrical solenoid to open the cover

- 0 = Open ALL the machine covers
- 1 = Open the Machine top cover
- 2 = Open the Feeder cover

```
{"Command": "CoverOpen",
"Parameter":"0"}
```

Standard Answer

2.11 **Print**

Print card on direct card printer (only S3600)

```
{"Command": "Print",
    "Front_Color": "... ",
    "Front_Black": "... ",
    "Front_Overlay": "... ",

    "Rear_Color": "... ",
    "Rear_Black": "... ",
    "Rear_Overlay": "... "
}
```

- The image file can be in BMP, JPG, TIF, PNG, GIF format.
- Image size are:
  - Color
  - Black
  - Overlay
- The image must be converted to base64 for sending over the HTTPS.
- To print only in Front do not add the Rear images, and vice versa.
- To print just in black, you can send only the Black image or leave the Color and Overlay image empty
  - `"Front_Color": "",`
  - `"Front_Black": "... ",`
  - `"Front_Overlay": ""`
- To print only color, you leave empty the Black image
  - `"Front_Color": " ... ",`
  - `"Front_Black": "",`
  - `"Front_Overlay": "full"`
- Overlay can be sent as image or if you just type "**full**" the full overlay will be applied.
  - `"Front_Overlay": "full"`
- It is not necessary to specify the ribbon because is autodetect by the printer.
- In case of Black ribbon:
  - If command send both Color and Black images → Color image will be ignored and print only the Black image
  - If command send only Color image → will be printed in BW using dithering Floyd-Steibeck

To test you can use this useful links:

- Encode Image to Base64: https://base64.guru/converter/encode/image
- Decode Base64 to Image: https://base64.guru/converter/decode/image

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C# Sample

```
private string ConvertToBase64(string path)
{
   string base64String = string.Empty;

   if (!string.IsNullOrEmpty(path) && path != "full")
   {
            base64String = "" + Convert.ToBase64String(File.ReadAllBytes(path));
   }
   return base64String;
}
```

2.12 **Job Settings**

Set the printing ribbon contrast (only S3600)

```
{"Command": "JobSettings",
    "blackContrast": "5",
    "colorContrast": "5",
    "overlayContrast": "5"
}
```

The range is from 0 to 15

3 Command on Port 33201

https://192.168.70.70:**33201**/action

3.1 GetInfoJson

The GetInfoJson can be send anytime, also while the machine is busy on other command.
This will allow a real time machine control.

```
{ "Command":"GetInfoJson" }
```

Answer


```
{
    "Answer" : "OK",
    "Machine_Configuration" :
    {
        "machine_model" : "S3300e",
        "machine_name" : "S3300E MATICA",
        "machine_sn" : "1234567890",
        "number_of_feeders" : "6",
        "card_exit" : "2",
        "card_reject" : "1",
        "card_counter" : "1234"
    },
    "Machine_Status" :
    {
        "machine_status" : "READY",
        "card_inside" : "yes",
        "cover_open" : "no",
        "error_message" : "",
        "feeder_0_card_presence" : "no",
        "feeder_1_card_presence" : "yes",
        "feeder_2_card_presence" : "yes",
        "feeder_3_card_presence" : "yes",
        "feeder_4_card_presence" : "no",
        "feeder_5_card_presence" : "no",
        "feeder_6_card_presence" : "no",
        "tipper_status" : "Ready",
        "tipper_temperature" : "140",
        "tipper_near_end" : "no",
        "tipper_end_ribbon" : "no",
        "rear_infiller_near_end" : "yes",
        "rear_infiller_end_ribbon" : "no",
        "top_infiller_near_end" : "no",
        "top_infiller_end_ribbon" : "no",
        "ribbon_type": "K",
        "ribbon_card_left": "1528"
    }
}
```