

JCM[®] TRAINING OVERVIEW GEN2U™ Printer

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GEN2U™ Printer

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OVERVIEW

This training course addresses the following JCM GEN2U models:

Table 1 GEN2U Printer Versions

Device	Version Difference
GEN2U	RS-232, Netplex, USB



NOTE: The GEN2U (Universal) protocol is configured with Firmware. The firmware determines the protocol and speed.

GEN2U PRINTER UNIT

Figure 1 illustrates the GEN2U Printer Unit.

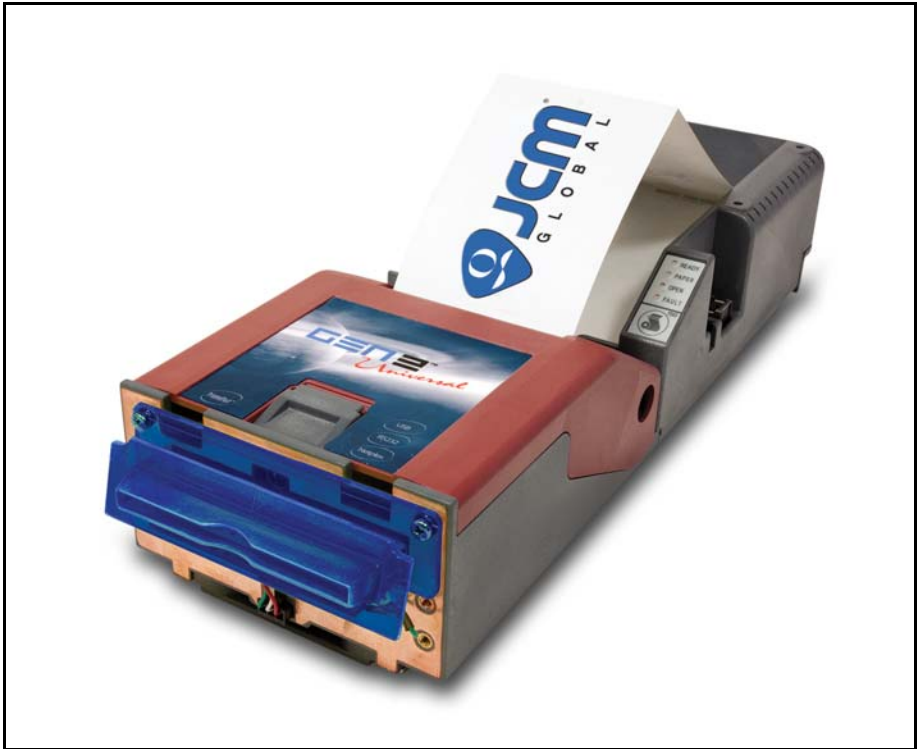


Figure 1 Typical GEN2U Printer Unit



NOTE: For GEN2U Printer Component Locations, refer to Page 4.

COMPONENT LOCATIONS

COMPONENT NAMES

Figure 2 illustrates the GEN2U Component Names and Locations.

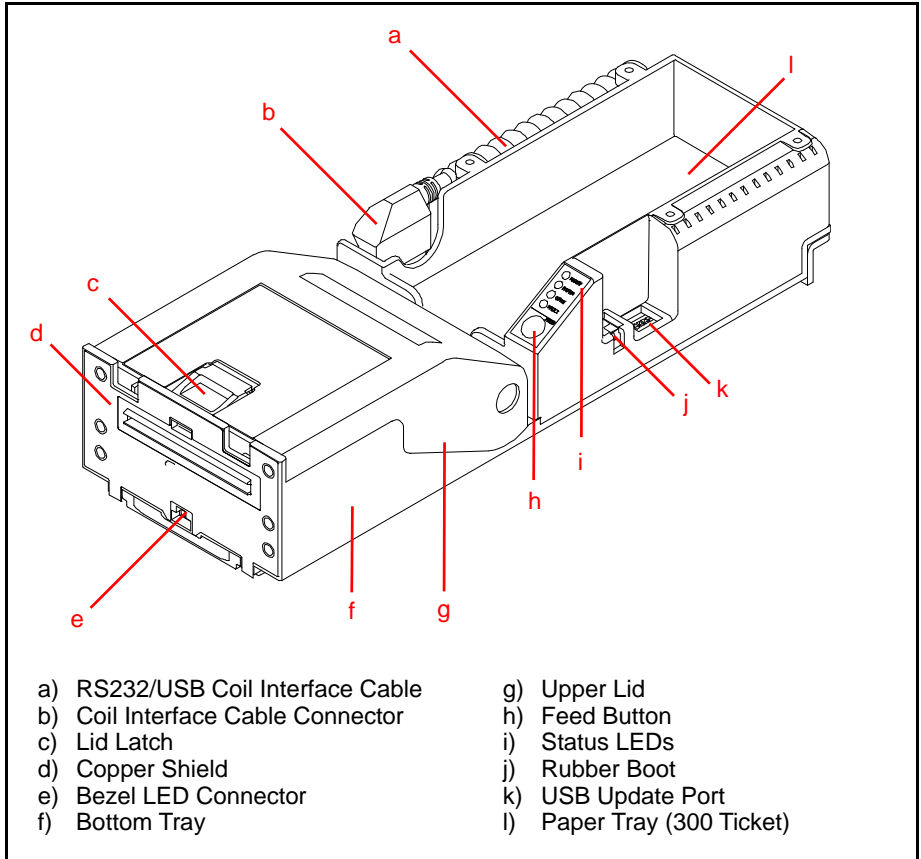


Figure 2 GEN2U Printer Component Names

Lecture Notes

CLEANING PROCEDURES

Regular cleaning of the GEN2U Printer Unit will help promote optimum printer performance. Indications that the Printer may require cleaning include:

- Frequent paper jams
- Partial print output
- Light print quality



NOTE: JCM strongly recommends a thorough cleaning of the GEN2U Printer at least once per year. Additional cleanings may be indicated, depending on environmental conditions where the GEN2U Printer is installed (e.g., smoke-filled or dusty environments).

The JCM Printer Cleaning Kit (P/N 350-00292-100) is recommended for best results cleaning the GEN2U Printer. The Cleaning Kit includes Alcohol Wipes, Cleaning Swabs, and feed-through Cleaning Cards.

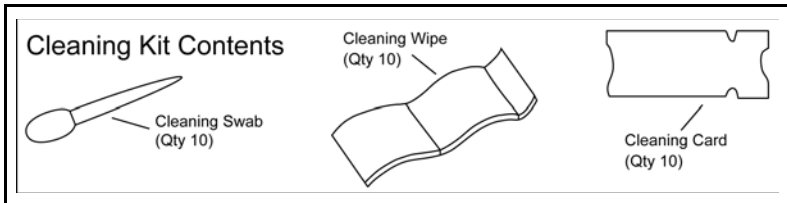


Figure 3 JCM Printer Cleaning Kit (P/N 350-00292-100)



NOTE: GEN2U Printer Sensor Cleaning Methods are listed in Table 2 below. Refer to Figure 4 on the following page for Sensor locations.

Table 2 GEN2U Printer Sensor Cleaning Methods

Symbol	Sensor Type	Cleaning Method
a	Printer Tray (Drawer Open)	Wipe clean with an alcohol swab.
b	Ticket Low (Paper Low)	Wipe clean with an alcohol swab.
c	Paper Out (Index Mark)	Blow clean with compressed air.
d	Lid Open	Wipe clean with an alcohol swab.
e	Ticket Taken Sensor	Wipe clean with an alcohol swab.

To clean the GEN2U Printer, use the following procedure:

1. Press the Lid Latch (refer to Figure 2 **c** on page 4) to open the Printer Lid.
2. Use a cleaning swab dampened with Isopropyl Alcohol to wipe clean the following Sensors (refer to Figure 4 on the following page):
 - Printer Tray Sensor (Figure 4 **a**)
 - Paper Low Sensor (Figure 4 **b**)
 - Lid Open Sensor (Figure 4 **d**)
 - Ticket Taken Sensor (Figure 4 **e**)

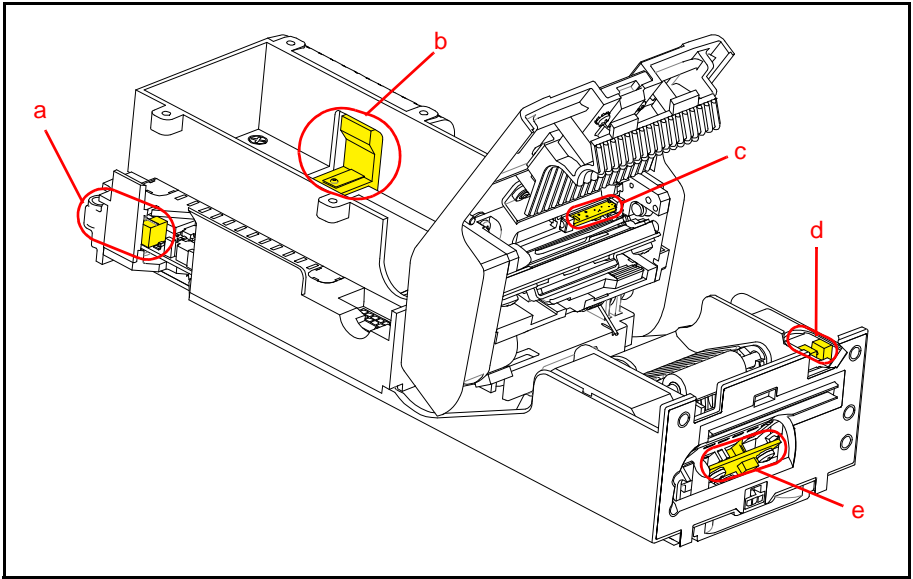


Figure 4 GEN2U Printer Sensor Locations

3. Rotate the Print Head Release Lever (Figure 5 a) leftward, then gently press down on the Lever to lower the Print Head.

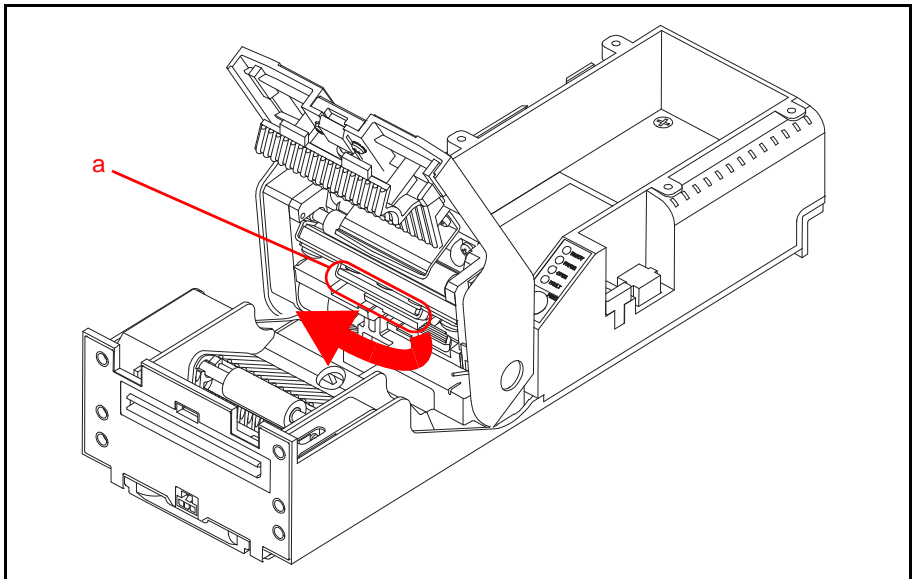


Figure 5 GEN2U Print Head Release Lever

4. Wipe the Print Head surface (Figure 6 a) clean using a new cleaning swab.

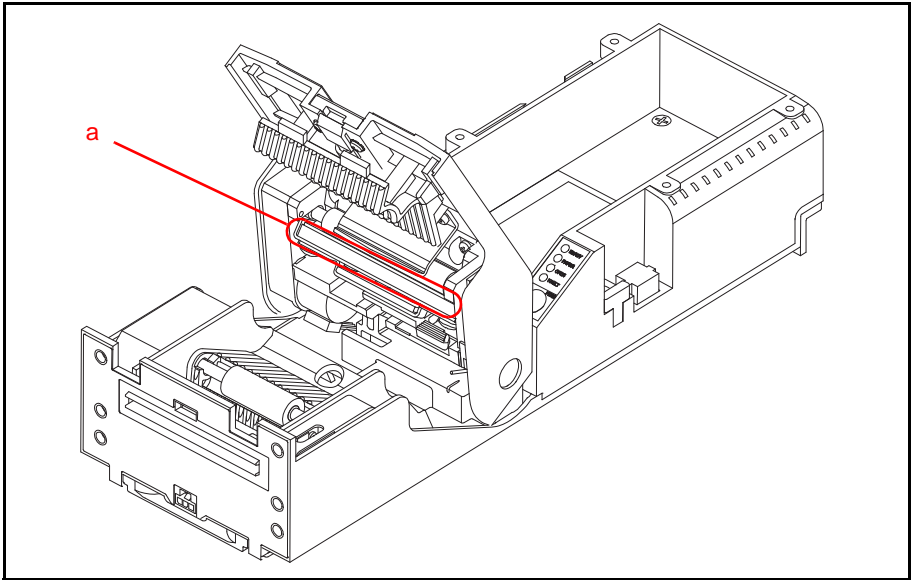


Figure 6 Clean Print Head

5. To clean the Print Head Rollers (Figure 7 a) and the Presenter Assembly's Feed Rollers (Figure 7 b), turn the Rollers by hand while wiping them with a new Cleaning Wipe or a clean Microfiber cloth (slightly dampened with Isopropyl Alcohol).

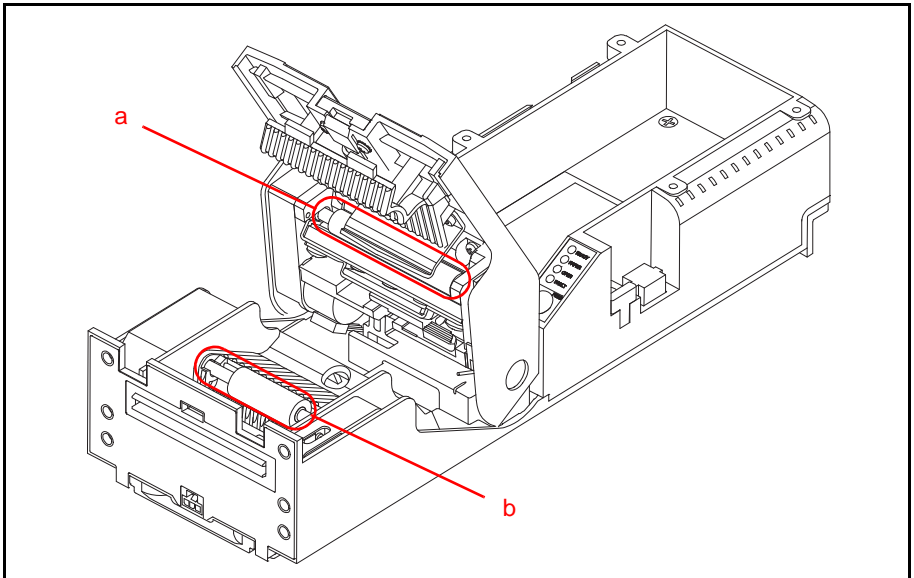


Figure 7 Clean Print Head Rollers and Feed Rollers

CLEANING CARD PROCEDURE

The Cleaning Card can be used for a quick cleaning of the GEN2U Print Head and Paper Path.



NOTE: Make sure the Printer's Power Supply is properly connected.

To use the Cleaning Card, follow this procedure:

1. Open the EGM service door.
2. Pull the Printer out of the EGM on its Sliding Base.
3. Remove the Ticket Stock from the Paper Tray (Figure 8 a).
4. Remove the Cleaning Card from its protective packaging.
5. Insert the Cleaning Card into the Ticket In Slot (Figure 8 b). It will automatically load in the proper position.
6. Press and hold the Feed Button (Figure 8 c) to feed the Cleaning Card through the Printer's Paper Path.
7. Carefully remove the Cleaning Card from the Printer's Ticket Out Slot.



NOTE: Each Cleaning Card is intended for single use only. Always use a new Cleaning Card for each cleaning cycle.

8. Feed 2 or 3 Tickets through the Printer to remove Alcohol residue before reloading Ticket Stock into the Paper Tray.

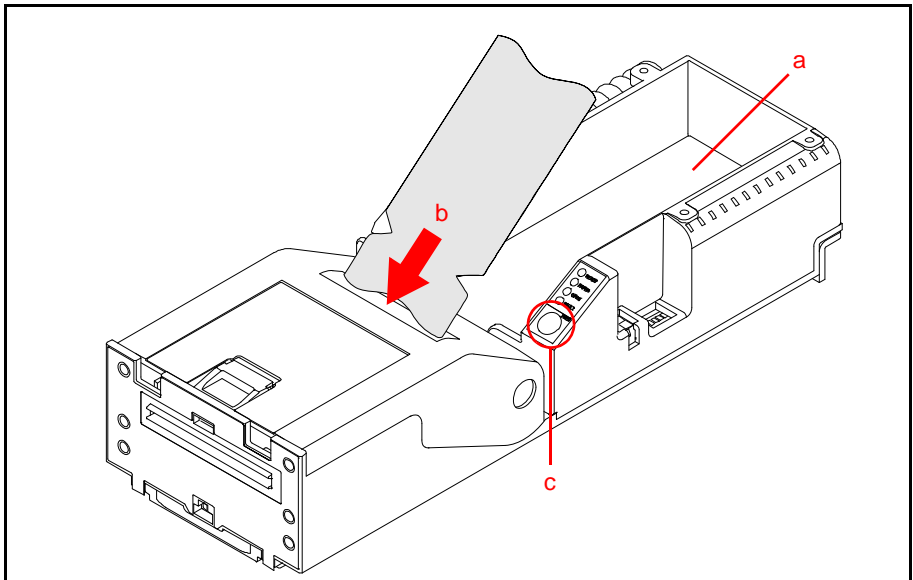


Figure 8 Feed Cleaning Card into Ticket In Slot

GEN2U COMMUNICATIONS

Table 3 lists the supported GEN2U Data Communication Speeds (Baud Rates) for the following Gaming device manufacturers.

Table 3 GEN2U Communication Speeds

Baud Rate (Data Communications Speeds)	Game Manufacturer
38,400 (RS-232 Common)	Most EGM (e.g., Scientific Games, ATI, Everi)
9600 (RS-232)	Other EGM (e.g., Konami)
19200 (Netplex)	IGT

PRINTING A CONFIGURATION TICKET

To print a Ticket with the current Configuration and Firmware information, proceed as follows:

1. Remove power from the GEN2U Printer.
2. Press and hold the FEED Button.
3. Reapply power to the GEN2U Printer.
4. Continue to press and hold the FEED Button until the Configuration Ticket begins to print, then release the Button.

Lecture Notes

JCM PRINTER BASIC DRIVER

The JCM Printer Basic Driver is used to test and troubleshoot the GEN2U Printer. To test the GEN2U Printer, proceed as follows:

1. Remove power from the GEN2U Printer Unit.
2. Connect the GEN2U Printer to a PC using the Evaluation Harness DB-9 Connector.
3. Reapply power to the GEN2U Printer Unit.
4. From the PC Desktop, double-click on the JCM Printer Basic Driver icon.
5. Click to select the Communication Protocol - either RS-232 or Netplex Communications (Figure 9 a).



NOTE: Printers with USB Firmware will always have RS-232 Communications active.

6. Click to select the COM Port Number where the GEN2U Printer is connected (Figure 9 b).

The JCM Printer Basic Driver User Interface is displayed (refer to Figure 10 on page 11).

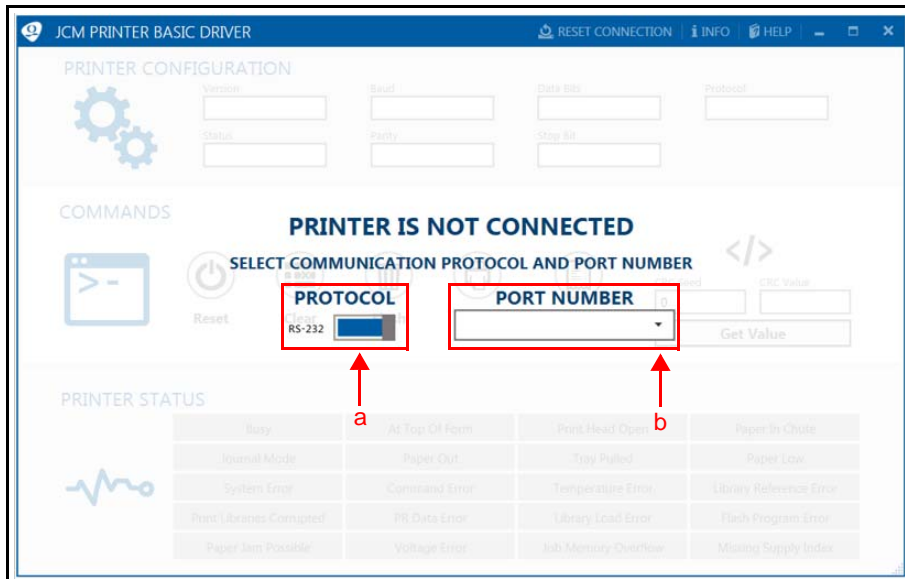


Figure 9 JCM Printer Basic Driver UI (Opening Screen)

7. Print Ticket Information (Figure 10 a).

- Verify Configuration information.
- Verify the Print quality of the Ticket Information.

An Active condition for a Sensor or Printer Error will be displayed in the Printer Status section as a RED highlighted box, as shown in Figure 10 b below. When the Active condition is cleared, the RED highlight disappears from the Printer Status display.

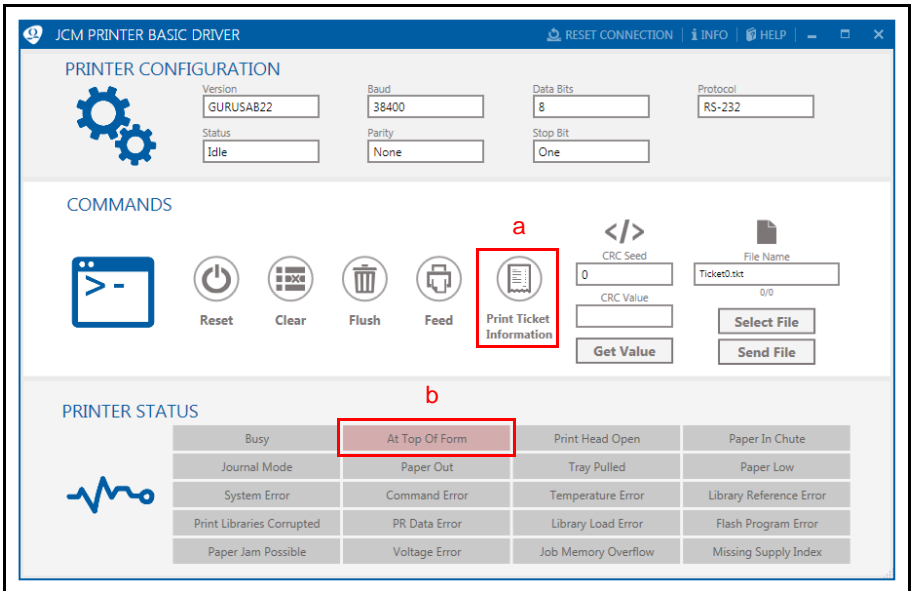


Figure 10 JCM Printer Basic Driver UI (Active Condition displayed)

Lecture Notes

ABOUT GEN2U FIRMWARE

GEN2U FIRMWARE IDENTIFICATION

GEN2U Printer Firmware is identified as shown in Table 4 below.

Table 4 GEN2U Firmware Identification*

Identifier	Example
Printer Type - First two characters e.g., 'GU'	'GU' = GEN2U
Protocol - One character 'R' = RS-232 'N' = Netplex 'U' = USB	'GUR' = RS-232
Version number - Remaining characters (variable length)	'GUR0001213.dfu' = GEN2U, RS-232, Version 001213 'GUN0010506.sha' = GEN2U, Netplex, Version 0010506 'GUU001A508.sha' = GEN2U, USB, Version 001A508

* Various Game Manufacturers may have requested different Firmware naming formats. Be sure to verify which Firmware version is approved for use within a Property's jurisdiction.

GEN2U FIRMWARE STRUCTURE

GEN2U Firmware consists of three (3) Levels and two (2) Classes, as described in Table 5 and Table 6 below.

Table 5 GEN2U Firmware Levels

Level	Contents
Application Level	Contains Ticket Formatting, Content and Specific Details for a Ticket, such as Jurisdictional requirements and Protocol (RS-232, Netplex, USB)
BSP Level	Board Support Level, contains the Printer Operational components
Boot Code	Boot Code consists of Printer Startup/Power Up routines.


Table 6 GEN2U Firmware Classes

Class	Description
GDS (Gaming Device Standard)	Used by most Game Manufacturers, GDS is indicated by extension .dfu
SPC (Specific Printer Command)	Used by IGT and WMS, SPC is indicated by extension of .sha; May be either Netplex- or USB-specific.

Lecture Notes

ABOUT OTP PRINTER UNITS

One-Time Programmable (OTP) Printer Units (Figure 11) can be identified as follows:

- The Printer Unit's Serial Number label **does not** feature an RoHS  Symbol.
- The CPU Module is a plug-in (removable) type.



NOTE: The OTP Units cannot be updated using the JCM DFU Downloader Application. The IGT Download Application must be used.

ADDITIONAL CHECK FOR OTP UNITS

1. Print a Configuration Ticket, then review the Configuration information.
2. Verify whether the second to last character of the Firmware Version is a 2 or a 4. (e.g.: GUU01xxx2x.sha' or GUN001xx4x.sha').
3. These units cannot be updated using the JCM DFU Downloader Application. The IGT Download Application must first be used to update the Firmware version.



NOTE: Once the Firmware has been updated using the IGT Download Application, firmware updates can be performed as needed using the JCM DFU Downloader Application (described on the following page).



Figure 11 One-Time Programmable (OTP) CPU

USING THE JCM DFU DOWNLOADER

To update the GEN2U Printer Firmware, proceed as follows:

1. Connect a USB Cable between the USB Update Port on the right side of the GEN2U Printer (refer to Figure 2 k on page 4) and the PC.
2. Apply power to the GEN2U Printer.
3. From the PC Desktop, double-click on the JCM DFU Downloader Application icon to launch it.

The Printer status will display as 1 device connected (Figure 12 a).

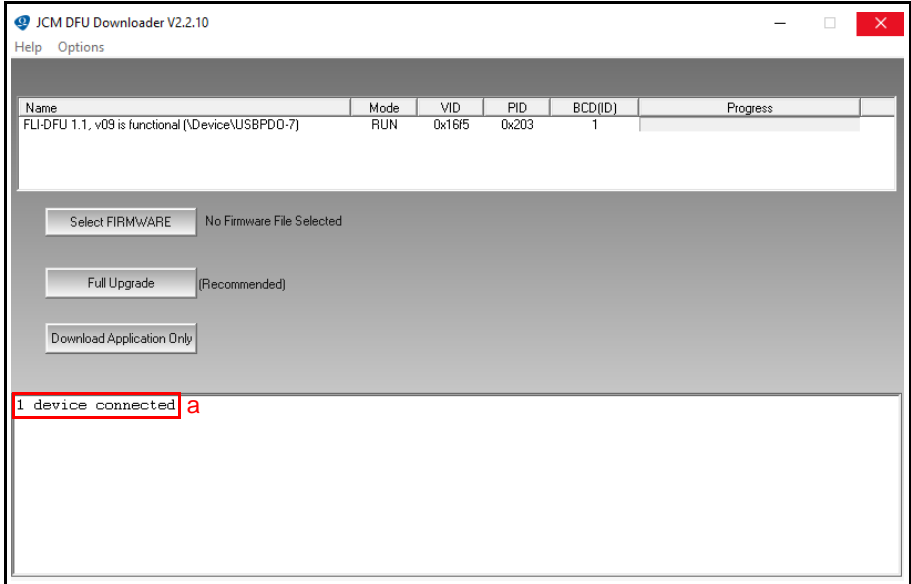


Figure 12 JCM DFU Downloader Application UI

4. If no Printer is detected, Drivers will need to be installed. (Drivers are installed automatically when the Printer is connected to a PC.)



NOTE: If Printer Drivers need to be installed manually, contact JCM Technical Support at (800) 683-7248.

5. Click on Select FIRMWARE.
The PC's web browser opens automatically.
6. Select the proper Firmware version.
The JCM DFU Downloader screen will indicate the following information:
 - File Name
 - File Type (DFU, SHA)
 - Printer Model Format

7. Click on Full Upgrade.

If the Upgrading Boot/BSP-Alert! message (Figure 13 a) is displayed, then an Upgrade Key must be inserted into the 4-pin Connector adjacent to the GEN2U Printer's USB Upload Port (Figure 13 c).

8. Remove the Rubber Plug from the 4-pin Connector (Figure 13 b).

9. Insert the Upgrade Key into the GEN2U Printer's 4-pin Connector (Figure 13 c).

10. Click the Yes screen button (Figure 13 d) to continue.

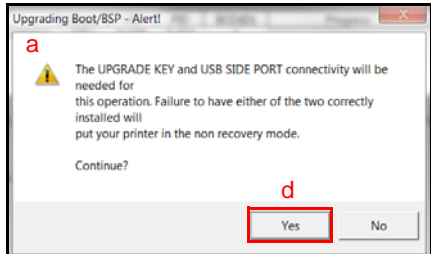
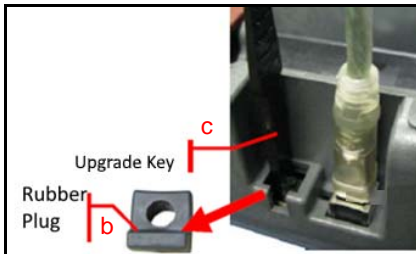


Figure 13 Insert Upgrade Key/Upgrading Boot/BSP Alert! Message

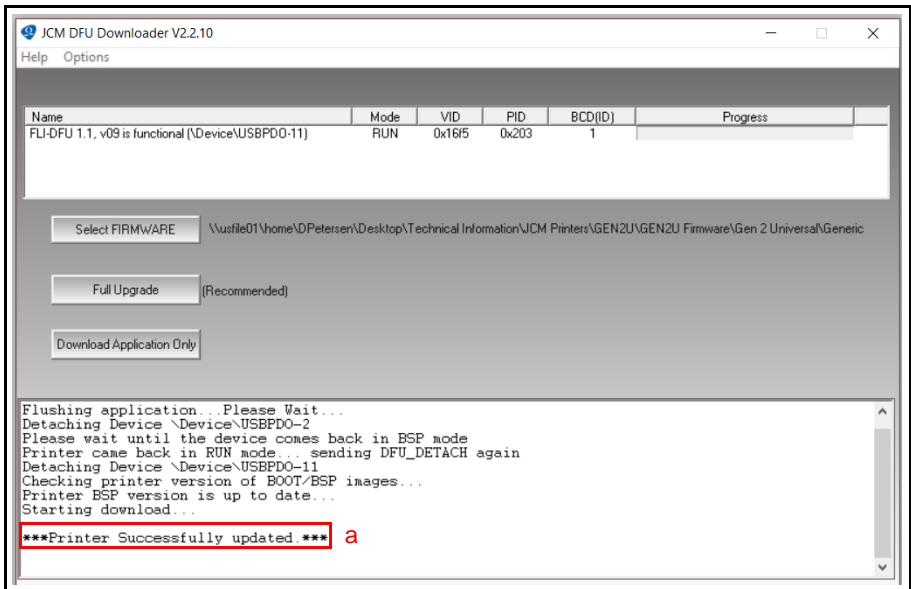
11. When the Printer status indicates *****Printer Successfully Updated.***** (Figure 14 a), the Firmware Update is complete.

Figure 14 JCM DFU Downloader Firmware Update Complete

BLUEWAVE™DX DOWNLOAD

The JCM BlueWave™DX Tool offers an alternate method for updating the Firmware on the GEN2U Printer. To do so, proceed as follows:

SETUP FOR THE BLUEWAVEDX TOOL

1. Within the BlueWaveDX Tool's SD Card root directory, create a new GEN2U System folder.
2. The Firmware files for the GEN2U Printer should be placed within the new GEN2U System folder.



NOTE: Sub-folders are not recognized.

UPDATING FIRMWARE USING THE BLUEWAVEDX TOOL

1. Connect a standard USB Male "A" to Male "B" cable from the BlueWaveDX Tool's USB Connector Type A (Figure 15 a) to the GEN2U Printer's USB Update Port (Figure 15 b).
 2. Turn the BlueWaveDX Tool's Power Switch ON (Figure 15 c).
 3. When the Firmware Update screen appears, press the OK Button (Figure 15 d).
 4. Press the UP and DOWN arrow keys (Figure 15 e) to scroll through the list of available GEN2U Firmware versions.
 5. Press the OK Button (Figure 15 d) to select the desired Firmware version.
 6. Press the OK Button again to start the download.
 7. When the Download Complete message is displayed, press the CLR Button (Figure 15 f) to return to the Main Menu
- OR
- Press the OK Button (Figure 15 d) to download Firmware to another Printer.

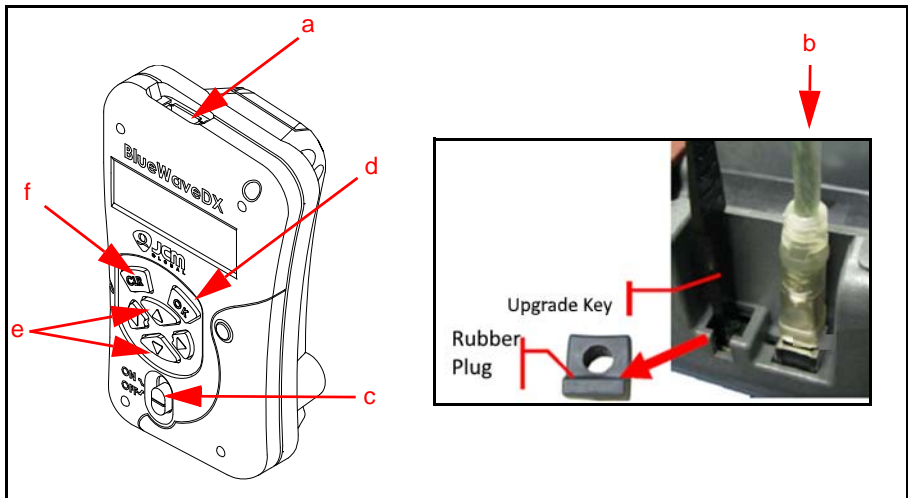


Figure 15 BlueWaveDX Tool Primary Controls/GEN2U USB Update Port

SWITCH THE PAPER LOW SENSOR OFF

For Firmware versions dated 07/06/11 and later, the GEN2U Printer's Paper Low Sensor can be switched off and on, as needed. To do so:

1. Press the Lid Latch to open the GEN2U Printer Lid (refer to Figure 2 c on Page 4).
2. Press the FEED Button three (3) times rapidly.



NOTE: If the Paper Low Sensor becomes enabled, the GREEN READY LED will flash three (3) times. If the Paper Low Sensor becomes disabled, the RED FAULT LED will flash three (3) times.

BEZEL LED INDICATIONS

The Bezel LED will display the following Bezel LED Indications.

Table 7 Bezel LED Indications

Bezel Display	Status
Solid ON	Printer is ready and in idle
Slow Blink	Paper Low or Printer Error
Fast Blink	Ticket Printing/Ticket in Chute
OFF	Printer Power is OFF

STATUS LED INDICATIONS

The Status LEDs will indicate the operational state of the GEN2U Printer.

Table 8 Status LED Indications

Condition	Ready	Paper	Open	Fault
Powered OFF				
Ready	Blinking			
Flushed				
Paper Out				
Print Head Release Lever Up or Lid Open				
Temperature Error				
Voltage Error				
Print Head Error				
Missing Index Mark				
Paper Jammed				Blinking

Lecture Notes

ERROR CONDITIONS

Table 9 Error Conditions

Error	Error Description	Resolution
Paper Out	Results when the Printer does not detect Paper present.	Load a new Paper Stack.
Head Up or Open	Results from raising the Print Head Release Lever or opening the Lid.	Raise and Lock the Yellow Lever on the Print Head.
Temperature	Results when the Printer is operating outside of its allowable temperature range. If the Printer is operating in an environment where the ambient temperature is roughly room temperature, this error would most likely be due to a hardware problem.	The Printer will automatically resume operation after the detected head temperature falls within range.
Voltage	Results if the Printer detects a Power Supply Voltage (+24VDC to +25VDC) outside its allowable range. This error could be due to a poor cable connection.	The Printer will automatically resume operation after the Power Supply is detected to be within range.
Print Head	Results when the Printer senses an internal error due to connectivity or an interfacing problem with the Thermal Print Head. This error could be due to a cable problem between the Main Controller Board and the Printer engine.	The Printer will remain in this error state until the power is cycled or the Unit is reset. If the problem persists, the Printer will require service.
Missing Black Index Mark	Results if the black Index Mark is not detected within approximately 10" of paper feeding or printing. This error indicates the presence of the wrong kind of paper in the Printer, or that the paper was inserted in the wrong direction (so that the black Index Mark is rotated 180 degrees).	Reload paper in proper orientation.
Paper Jam	Results when the Printer detects an error in the Paper Path.	Open the Printer Head and inspect the Paper Path for a Jammed Ticket.

Lecture Notes

MAINTENANCE EQUIPMENT

Table 10 Maintenance Equipment

JAC No.	Description
350-00292-100	Cleaning Kit
150-00013-100	Evaluation Harness
350-00258-100	24VDC Power Supply
302-100010R	USB Cable Male A to Male B
302-100004R	USB to Serial Adapter
JU-H30812-S1	4 Port Hub
100-00368-102	Upgrade Key

Lecture Notes

PERSONAL NOTES AND COMMENTS

Add relevant notes and comments regarding your installation here.

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