This document contains information for configuring and operating the JCM® BlueWave™ DX Tool. The BlueWave™ DX is used for multiple functions (e.g., downloading firmware, setting operational parameters, reading the device status) and works with most JCM Banknote Acceptors, Validators and Printers. The BlueWave™ DX features an LCD Display and multi-selection keypad, supports standard SD or SDHC Cards, and communicates with supported devices via a USB 2.0 full-speed connection. Supported devices are listed below.

**Table 1 Supported Devices**

<table>
<thead>
<tr>
<th>JCM Acceptors (Gaming)</th>
<th>JCM Validators (Commercial)</th>
<th>JCM Printers</th>
</tr>
</thead>
<tbody>
<tr>
<td>UBA®-1x and 2x</td>
<td>VEGA™ / VEGA-RC™</td>
<td>GEN2U™</td>
</tr>
<tr>
<td>IVIZION®</td>
<td>TBV™-10x</td>
<td>GEN5™</td>
</tr>
<tr>
<td>iPRO™-10x/iPRO-RC™</td>
<td>EBA®-4x</td>
<td>Other JCM Product</td>
</tr>
<tr>
<td>DBV®-40x/DBV®-50x</td>
<td>Peripheral Network Adapter (PNA)</td>
<td></td>
</tr>
</tbody>
</table>

**BLUEWAVE™ DX TOOL**

Figure 1 illustrates the JCM BlueWave™ DX Tool.

**Personal Notes and Comments**

Add relevant notes or comments regarding your installation here.
**SPECIFICATIONS**

The BlueWave™ DX Tool Specifications are listed in Table 2 below.

<table>
<thead>
<tr>
<th>Table 2 Technical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compatibility</strong></td>
</tr>
</tbody>
</table>
| **Processing Speed** | USB (2.0 Full Speed)  
Download time depends on the memory size of the device.  
Speeds range from 34 seconds (Vega) to 124 seconds (TBV). |
| **Switches** | Power Switch, OK Button, CLR Button, Direction Buttons  
(UP, DOWN, LEFT, RIGHT). |
| **Interface** | USB Host Single Channel (USB 2.0 Full Speed);  
SD or SDHC Memory Card |
| **Display** | Monochrome LCD (122x32 dots with back light);  
LED Power Indicator |
| **Supply Voltage** | Four (4) AAA/LR03 Size Alkaline Batteries;  
Optional +5V Power Supply |

* Refer to Table 1 on page 1 for a table of supported Devices.

**PERSONAL NOTES AND COMMENTS**

Add relevant notes or comments regarding your installation here.
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Add relevant notes or comments regarding your installation here.

COMPONENTS
Figure 2 illustrates the BlueWave™DX Tool’s Primary Component Features.

- a) USB Connector Type A (Host)
- b) LCD (Monochrome)
- c) OK Button
- d) CLR Button
- e) Power LED (RED)
- f) Direction Key Buttons
- g) Power Switch
- h) SD Card Slot
- i) Battery Compartment Cover
- j) Power Plug (Option)
- k) Magnet
- l) Magnet

Figure 2 BlueWave™DX Tool Primary Components
**BLUEWAVE™ DX TOOL FUNCTIONS (SUMMARY)**

Table 3 summarizes the functions supported by the BlueWave™ DX Tool. Detailed descriptions of these functions begin on page 6 of this Operator Guide.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRMWARE UPDATE</td>
<td>Firmware selection and update</td>
</tr>
<tr>
<td>STATISTICS</td>
<td>Displays historical activity</td>
</tr>
<tr>
<td>ENABLED DENOMI</td>
<td>Enabled Banknote by Denomination and Series</td>
</tr>
<tr>
<td>ERROR MESSAGE</td>
<td>Current display of the Unit Error</td>
</tr>
<tr>
<td>VERSION CHECK</td>
<td>Displays Current Firmware in the Unit</td>
</tr>
<tr>
<td>MAINTENANCE</td>
<td>Indication whether maintenance is required or not.</td>
</tr>
<tr>
<td>ACCEPTANCE LOG</td>
<td>Displays the current acceptance rate of the Unit, by Banknote Denomination</td>
</tr>
<tr>
<td>PRINTER CONFIG</td>
<td>Printers, selects the bar code ratio; 4 to 8, 3 to 9 or 4 to 12 (GEN5 Only)</td>
</tr>
<tr>
<td>DEVICE TEST</td>
<td>Provides JCM Tool Suite Performance Testing (iVIZION Only)</td>
</tr>
<tr>
<td>ICB FUNCTION</td>
<td>Set up of the ICB System (Enable/Disable, set Asset Number)</td>
</tr>
<tr>
<td>BWDX BATTERY</td>
<td>Provides status of the Battery condition</td>
</tr>
<tr>
<td>LANGUAGE</td>
<td>Select the displayed language</td>
</tr>
</tbody>
</table>

* Note: Some functions are not supported for certain Units.

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JAPAN  
E-mail: Shohin@jcm-hq.co.jp
Table 7 lists the BlueWave™DX Tool, Cables and Accessories available.

<table>
<thead>
<tr>
<th>JAC No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>214780</td>
<td>BlueWave™ DX (DT-300) Unit</td>
</tr>
<tr>
<td>302-100010R</td>
<td>USB Male A to Male B Connectors (3 foot length)</td>
</tr>
<tr>
<td>302-100011R</td>
<td>USB Male A to Mini-B Connectors (3 foot length)</td>
</tr>
<tr>
<td>451-000124R</td>
<td>SDHC 8GB SD Card</td>
</tr>
</tbody>
</table>

STANDARD SD CARD SET-UP

To prepare an SD Memory Card for use, proceed as follows:

1. Insert a Standard SD Memory Card (SDHC acceptable) into a Memory Card Adapter Slot connected to a PC.

   **Caution:** JCM strongly recommends using a Brand name SD Card (e.g., Sandisk®, Patriot®, Kingston®). Some “Generic” Brands do not conform to Standard Protocol formatting specifications.

2. Create a Sub-directory (folder) for each JCM Banknote Validator, Acceptor, Printer or device in the root directory of the SD Card.

   **NOTE:** Specify each directory name as `DeviceName System` (e.g., for an iVIZION folder, the directory name should read: `iVIZION System`). Be sure to include a character space between `DeviceName` and `System`. Refer to Table 4 for examples.

   **Table 4 Device Names**

<table>
<thead>
<tr>
<th>Device Name</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td>iVIZION</td>
<td>VEGA</td>
</tr>
<tr>
<td>UBA System</td>
<td>TBV-100</td>
</tr>
<tr>
<td>iPRO System</td>
<td>DBV400</td>
</tr>
<tr>
<td>DBV500</td>
<td>PNA System</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EBA40 System</th>
<th>GEN2U System</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN5 System</td>
<td>PNA System</td>
</tr>
</tbody>
</table>

3. For each Acceptor or Banknote Validator, change the suffix in the Firmware name to `.com`.

   For example, change the suffix in UBA Firmware version `u10_23044_id003.usa` to `u10_23044_id003.com`.

   **NOTE:** For GEN Printers and Peripheral Network Adapters (PNAs), no change is needed for the Firmware name. The suffixes `.dfu` or `.sha` should be left as is.

4. Save the Firmware file to the SD Card in the appropriate `DeviceName System` folder.

   Firmware stored in the sub-directory of a Device System Folder will not be accessed by the BlueWave™DX.

   **NOTE:** The first twenty (20) Firmware versions in each Device folder will be displayed. If more than 20 files are stored in a folder, only the first 20 files will be accessible.

   **Caution:** Do not delete or modify the `BWDXCARD.INF`, `BWDXINFO.INF` or `BWDXFW0xxx.hex` files. These are Operating System files that must remain in the root directory.
GENERAL OPERATING INSTRUCTIONS

1. Connect a USB Cable between the Acceptor, Validator, Printer or other device and the BlueWave™DX Tool’s USB Connector Type A (refer to Figure 2 a on page 3).
2. Apply AC Power to the Acceptor, Validator, Printer or other device.
3. Slide the BlueWave™DX Tool’s Power Switch to the ON position (refer to Figure 2 g on page 3).
4. Press the UP and DOWN Arrow Keys to select the desired function (refer to Figure 2 f on page 3).
5. Press the LEFT and RIGHT Arrow Keys to scroll through and select the desired data (refer to Figure 2 f on page 3).
6. Press the CLR button to navigate back to the previous screen (refer to Figure 2 d on page 3).

ABOUT BLUEWAVE™ DX FUNCTIONS

BOOTLOADER

The Bootloader function is used to update the operating Firmware in the BlueWave™DX Tool. Two different Update Modes are available:

- BlueWave™DX Firmware Update Mode - Updates the Firmware in the BlueWave™DX Tool.
- BlueWave™DX EEPROM Update Mode - Updates the EEPROM Configuration Data (Language Preference) in the BlueWave™DX Tool.

FIRMWARE UPDATE MODE

To enter Firmware Update Mode:

1. Ensure that the Firmware update has been copied to the root directory of the SD Memory Card.

   NOTE: The filename will be similar to BWDXFW0xxx.hex where xxx refers to the Firmware Version.

2. To enter the Firmware Update Mode, press and hold the UP and DOWN Arrow keys (refer to Figure 2 f on page 3) while sliding the Power Switch to the ON position (refer to Figure 2 g on page 3). The display will identify the current Firmware version and the updated Firmware version.
3. Press the OK button to update Firmware (refer to Figure 2 c on page 3).

EEPROM UPDATE MODE

To enter EEPROM Update Mode:

1. Press and hold the LEFT and RIGHT Arrow keys (refer to Figure 2 f on page 3) while sliding the Power Switch to the ON position (refer to Figure 2 g on page 3).
2. Press the OK button to update the EEPROM (refer to Figure 2 c on page 3).

ICB FUNCTION (iVIZION/iPRO UNITS)

To set the status of the ICB (Intelligent Cash Box) Function on iVIZION and iPRO Units, proceed as follows:

1. Press the UP and DOWN Arrow keys to select ICB Function from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3). The current status of the ICB (Enabled/Disabled) is displayed.
3. To change the current status, press the OK button.
4. Press the DOWN Arrow key to display the M/C Number.
5. To edit the M/C Number:
   a. Press the OK button.
   b. Press the LEFT and RIGHT Arrow keys to select each digit (refer to Figure 2 f on page 3).
   c. Press the UP and DOWN Arrow keys to increase or decrease the displayed number (refer to Figure 2 f on page 3).
   d. Press the OK button to end the edit.
6. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

BWDX BATTERY

To view the Battery Level (Battery Voltage), proceed as follows:
1. Press the UP and DOWN Arrow keys to select BWDX BATTERY from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3). The Level indicator displays Battery Voltage.

   NOTE: The Battery Level is also indicated by the Battery Symbol located in the top right corner of the LCD (Monochrome) Display (refer to Figure 1 on page 1).
3. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

LANGUAGE

To select a Language option, proceed as follows:
1. Press the UP and DOWN Arrow keys to select LANGUAGE from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3).
3. Press the UP and DOWN Arrow keys to select the desired Language option:
   - ENGLISH
   - DEUTSCH
   - ESPANOL
4. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

SLEEP MODE

The BlueWave™DX Tool will enter Sleep Mode (a powered-down state) after 10 minutes if no operation is performed.
To awaken the BlueWave™DX Tool from Sleep Mode and resume normal operation, press any key or button on the Unit.
Sensor Designations (iVIZION Unit Device Test)
Figure 3 illustrates a sample BlueWave™ DX Tool Sensor Test LCD Display for an iVIZION Unit Device Test. Each Sensor is identified using Line 1 and Line 2. As an example, the display shown in Figure 3 provides the following information:
• EX indicates the Exit Sensor (Figure 3 a);
• An Active Sensor condition is indicated by an * symbol displayed in the third line of the Sensor Test Display (Figure 3 b);
• EN* indicates the Entrance Sensor is active (Figure 3 c); and
• NB* indicates the Normal Box is installed (Figure 3 d).

Sensor Designations are shown in Table 6 below.

Table 6 Sensor Designations

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX</td>
<td>Exit Sensor</td>
</tr>
<tr>
<td>R2</td>
<td>CIS R2</td>
</tr>
<tr>
<td>R1</td>
<td>CIS R1</td>
</tr>
<tr>
<td>L1</td>
<td>CIS L1</td>
</tr>
<tr>
<td>L2</td>
<td>CIS L2</td>
</tr>
<tr>
<td>EN</td>
<td>Entrance Sensor</td>
</tr>
<tr>
<td>NF</td>
<td>Nearly Full</td>
</tr>
<tr>
<td>NB</td>
<td>Normal Cashbox</td>
</tr>
<tr>
<td>LB</td>
<td>Large Cashbox</td>
</tr>
<tr>
<td>SH</td>
<td>Stacker Home</td>
</tr>
<tr>
<td>FO</td>
<td>Feed Out</td>
</tr>
<tr>
<td>FI</td>
<td>Feed In</td>
</tr>
</tbody>
</table>

Firmware Update (Operational Mode/Forced Download Mode)
On most JCM Devices, the Firmware can be updated with the Device in Operational Mode (No DIP Switches set to ON). If a Device does not download Firmware in Operational Mode, then Forced Download Mode must be used to download Firmware to the Device. Table 5 identifies the Forced Download Mode DIP Switch Settings for the following JCM Devices.

Table 5 Forced Download Mode DIP Switch Settings

<table>
<thead>
<tr>
<th>Device</th>
<th>Forced Download Mode DIP Switches ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>UBA®-1x, UBA®-2x</td>
<td>6, 7, 8</td>
</tr>
<tr>
<td>iVIZION®</td>
<td>6, 7, 8</td>
</tr>
<tr>
<td>iPRO®</td>
<td>6, 7, 8</td>
</tr>
<tr>
<td>TBV®</td>
<td>1, 6, 7, 8</td>
</tr>
<tr>
<td>VEGA™</td>
<td>1, 7, 8</td>
</tr>
<tr>
<td>EBA®-40</td>
<td>6, 7, 8</td>
</tr>
<tr>
<td>DBV®-400</td>
<td>6, 7, 8</td>
</tr>
<tr>
<td>DBV®-500</td>
<td>6, 7, 8</td>
</tr>
</tbody>
</table>

To update Firmware to the JCM Device, proceed as follows:
1. Connect a USB Cable between the BlueWave™ DX Tool and the JCM Device.
2. Turn Power to the BlueWave™ DX Tool and the JCM Device ON. The Firmware Update screen will be displayed (default).
3. Press the OK button to select the Firmware Update function. NOTE: The BlueWave™ DX Tool will identify the attached device and display the appropriate Firmware versions.
4. Press the UP and Down Arrow keys to select the Firmware version for update (refer to Figure 2 f on page 3).
5. Press the OK button to start the download (refer to Figure 2 c on page 3). The DOWNLOAD COMPLETE display appears when downloading is complete.
6. Press the CLR button to navigate back to the previous menu (refer to Figure 2 d on page 3).

Statistics
To view the Unit Statistics, proceed as follows:
1. Press the UP and DOWN Arrow keys to select STATISTICS from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data and display:
   – Device Model
   – Firmware Version
   – Acceptance Rate (Banknotes Total)
   – Acceptance Rate (Tickets Total)
   – Acceptance Rate by Banknote Denomination and Banknote Series
4. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).
**ENABLED DENOMI**
To view Enabled Denomination data, proceed as follows:
1. Press the UP and DOWN Arrow keys to select ENABLED DENOMI from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data:
   - Country
   - Banknote Denomination
   - Banknote Series
4. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

**ERROR MESSAGE**
To view the Device Status, proceed as follows:
1. Press the UP and DOWN Arrow keys to select ERROR MESSAGE from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data:
   - Country
   - Banknote Denomination
   - Banknote Series
4. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

**VERSION CHECK**
To view Firmware Version information, proceed as follows:
1. Press the UP and DOWN Arrow keys to select VERSION CHECK from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3).
   The Firmware Version information will be displayed:
   - M: Country Code, Device Model, Protocol
   - V: Firmware Version Number
   - S: Device Serial Number
3. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

**MAINTENANCE**
To view the Maintenance Data, proceed as follows:
1. Press the UP and DOWN Arrow keys to select MAINTENANCE from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data display.
   The Device Response will indicate Required or Not Required.
4. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

**ACCEPTANCE LOG**
To view the Acceptance Log data, proceed as follows:
1. Press the UP and DOWN Arrow keys to select Acceptance Log from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data:
   - BV Model (Banknote Validator)
   - Firmware Version
   - Inserted Count (Total Banknotes + Tickets)
   - Acceptance Rate (Ticket Total)
   - Acceptance Rate (Banknotes by each Denomination and Banknote Series)
4. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

**PRINTER CONFIG (GEN5 PRINTER ONLY)**
To view the Printer Configuration Data, proceed as follows:
1. Press the UP and DOWN Arrow keys to select PRINTER CONFIG from the Menu (refer to Figure 2 f on page 3).
2. Press the OK button (refer to Figure 2 c on page 3).
3. Press the UP and DOWN Arrow keys to select the Barcode format.
   - 4 to 8 (default)
   - 3 to 9
   - 4 to 12
4. Press the OK button to change the ratio (refer to Figure 2 c on page 3).
5. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

**DEVICE TEST (iVIZION UNIT ONLY)**
To conduct a Device Test for the iVIZION Unit, proceed as follows:
1. Place the iVIZION Unit in Test Mode (DIP Switch #8 ON).
2. Press the UP and DOWN Arrow keys to select DEVICE TEST from the Menu (refer to Figure 2 f on page 3).
3. Press the OK button (refer to Figure 2 c on page 3).
4. Press the UP and DOWN Arrow keys to select the desired Test.
5. Press the OK button to start the Test.
6. Press the CLR button to stop the Test.
7. Press the CLR button to return to the Main Menu (refer to Figure 2 d on page 3).

NOTE: For information on Sensor Designations, refer to Sensor Designations (iVIZION Unit Device Test) on page 10. For details on available function tests, refer to the iVIZION Operation and Maintenance Manual (JCM P/N 960-100929R).