

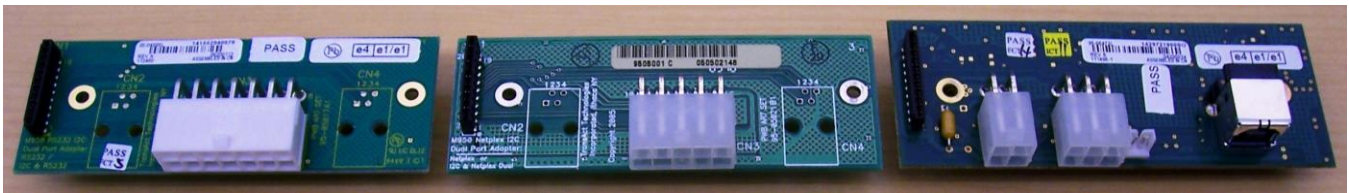
Epic 950 Ticket Printer installed in IGT's AVP Platforms

The following information would be helpful to those that need to support Ticket Printers and is geared specifically to some of the unique requirements that the Epic 950 ticket printer when installed in IGT's newer AVP game platforms.

Ticket Printer Hardware Interfaces

The Epic 950 was designed so that the majority of the printer's hardware is easily removable and flashable with printer firmware to support any interface type. This is possible because the interface board is attached to the printer's frame and remains with the game when the printer is removed and is advantageous because with the Epic 950 you don't need to inventory spare printers that are interface specific.

There are a number of different interface types being used on today's games where Serial is by far the most popular and can be identified by the interface board's Standard 14-pin Molex connector. Legacy IGT game like the S2000 and GameKing use the Netplex interface that can be identified by its 10-pin Molex connector. When IGT came out with their AVP platform they started out with their legacy Netplex interface then migrated to a combo USB/Netplex interface board. This board can be identified by its USB, 6-pin Netplex and 4-pin Power connectors.



Ticket Printer Communication Protocols

Serial printers normally use proprietary communication protocols that are unique to the printer manufacture. GSA (Gaming Standards Association) has defined a new open protocol called GDS (Game Device Standards) for communicating with peripherals over USB but to date no one is shipping games using this protocol.

IGT uses their proprietary Netplex protocol when communicating over the Netplex interface for printing Voucher and their new SPC (Secure Peripheral Communication) protocol when communicating over the USB interface for printing Vouchers and updating printer firmware.

Epic 950 Printer Firmware

The first letter in the Epic 950's firmware naming convention can be used to determine the interface and protocol that the specific version supports e.g. 'S' denotes Serial interface & TransAct's protocol, 'V' denotes Netplex interface & Netplex protocol (IGT Legacy), 'N' denotes Serial interface & Netplex protocol (WMS BlueBird). A backwards compatible firmware family can be determined by the first three digits following this letter e.g. S001xx and S035xx belong to two different families.

The standard naming convention was changed for IGT's AVP platforms that use the combo interface board e.g. firmware that begins with 'IUU' (Ithaca Universal USB) supports game titles that have been "Ported" and 'IUN' (Ithaca Universal Netplex) supports game titles that are being "Emulated". The family for either IUU or IUN firmware can be determined by the first three digits following the first three letters e.g. IUx001xxxx and IUx007xxxx belong to two different firmware families.

WARNING: It is possible that you could have games running both types of firmware and from the printer's perspective the only way to tell what type to use is to printout self-test ticket to see the firmware version loaded in the printer.

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Epic 950 Firmware Boot Loader

The Epic 950 has what is referred to as a Boot Loader that basically contains enough code to allow the printer to be flashed with printer firmware via the serial interface located on the printer's imPort. The Boot Loader's revision can be identified on either the Self-Test ticket to the right of the printed text "BootRev" or on TransAct's Download utility after clicking the "Get Printer Information" button and referencing the textbox titled "Boot Loader Rev".

There is a requirement of a Boot Loader Revision of 1.13 or greater for all IUS, IUN, and IUU printer firmware. If you attempt to flash a printer with an older Boot Loader you will be unable to print a Self-Test ticket and it will not communicate with the game. Flashing the boot loader is quick but it also erases the current firmware leaving the printer in Boot Load Mode so that the firmware can be flashed with the appropriate firmware version. As of this writing, this version of the boot loader is backwards compatible with all firmware versions and is only a requirement for printers using the USB/Netplex interface board. The following is a procedure to update the Boot Loader and printer firmware using TransAct's Download Utility.

1. Make the cable connections as depicted in the **Printer Setup** section of the [Download Instructions](#)
2. Change the printer's mode as documented in the **Enter Download Mode** section of the [Download Instructions](#)
3. Run the [Download Utility](#) and configure the utility's port setting as documented in the [Download Instructions](#)
4. Click the **Get Printer Information** button and verify that the **Boot Loader Rev:** PB9501-x.xx is 1.13 or greater
5. If the Boot Loader doesn't require updating, skip to step #11
6. Download the latest [Boot Loader](#) file form our FTP site
7. Click the **Select file to Download** button and browse to where you saved the file in step #6
8. Select the boot loader file <*.bot> and click the **Open** button
9. Begin flashing the printer by clicking the **Download Now** button
10. After the download completes, wait for the printer's LED's to indicate it is back in Download Mode before proceeding. The READY lamp should be blinking and the FAULT lamp on solid.
11. Most firmware files are available in the [Firmware directory](#) on our FTP site. [IUS \(Serial\)](#), [IUN \(Netplex\)](#), [IUU \(USB\)](#). If the version you need is not available, please use the contacts listed on the last page of this document.
12. Click the **Select file to Download** button and browse to where you saved the firmware file in step #11
13. Select the firmware file <*.cbt> and click the **Open** button
14. Begin flashing the printer by clicking the **Download Now** button
15. After the download completes, wait about 10 seconds for the flash process to complete. Only the READY lamp should be blinking at a constant interval.
16. Power cycle the printer, printout a Self-Test ticket and verify the BootRev and Firmware version.

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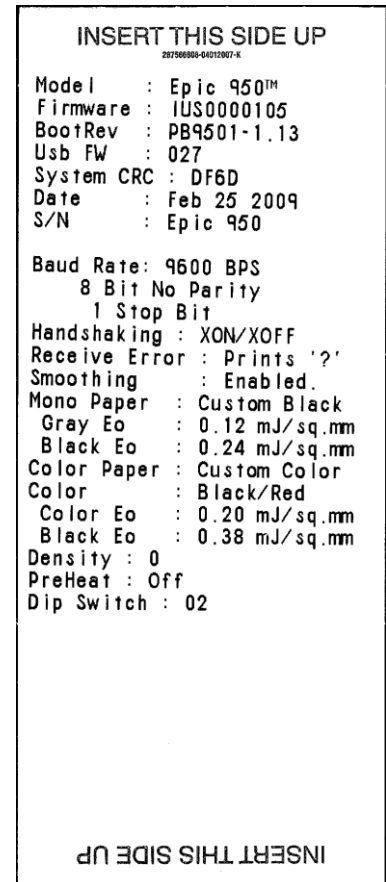
USB/Netplex Interface Board's Firmware:

Unlike the Serial and Netplex interface boards, the USB/Netplex interface board has additional circuitry that converts Serial to USB and some program storage to provide the USB Device identification and other functionality. The USB interface board's firmware revision is identified by printing and referencing a Self Test Ticket where the line titled "Usb FW" has the revision number to the right of this text.

By now you might be wondering what 'IUS' (Ithaca Universal Serial) is used for. This is a factory firmware that is loaded in all IGT production USB/Netplex printers and is the only way to update firmware residing on the USB/Netplex interface board. From time to time the interface board's firmware may require updating to resolve known issues and as of this writing a new firmware version [IUS0000105](#) was just released that updates the interface board's firmware to revision **027** to fix some know issues. See the sample self test ticket image on the right.

From a Slot Tech perspective this doesn't complicate matters so long as you understand how it works and have a procedure to follow. The following is an easy procedure to update the interface board's firmware and verify the revision number.

1. Take a spare printer and flash it with the 'IUS' following the instructions above. Note – the printer can be flashed using a printer frame with the Serial interface but if you do, note that the "Usb F/W" information will not printout on the Self-Test ticket.
2. Take the printer without its frame and onto the gaming floor as a temporary flashing tool.
3. Identify the printers that need their interface board's firmware updated by printing out a Self-Test ticket. Note - the firmware version should begin with ether 'IUN' or 'IUU' and the "Usb F/W" should be less then the revision number above.
4. Remove the printer from its frame and install the spare printer. The printer will need about 10 seconds with POWER APPLIED to update the interface board's firmware and once done, the READY lamp will be on solid. Note – follow your standard practices with regards to hot swapping or powering the game down.
5. Reinstall the original printer, printout another Self-Test ticket and verify the revision number.



TransAct Firmware Disclaimer - The firmware within all gaming ticket printers are subject to regulatory approval. It is the casino's responsibility to ensure that only approved firmware for the specific game platform is installed to avoid potential fines imposed by the regulatory body. Please contact the game manufacture and/or regulatory agency to confirm the approval status prior to changing to a version other then what was originally flashed by the game manufacture.

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