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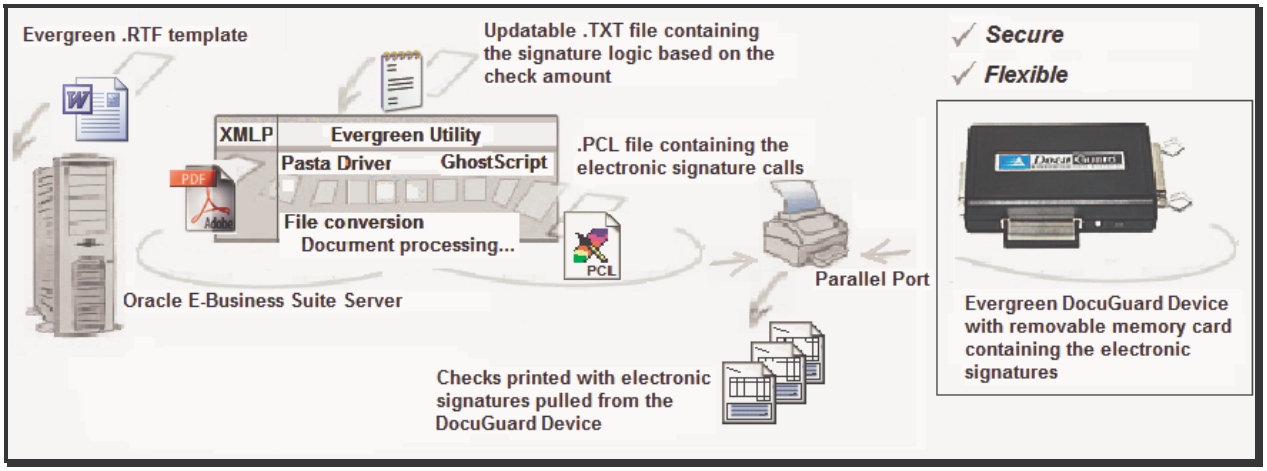
White Paper:

Secure Check Printing with Oracle BI Publisher (XMLP)



Signature security for check printing is a primary concern within ERP environments. Various security mechanisms exist, but these solutions are often inconvenient or less secure than needed. Evergreen Data Systems has been offering a **convenient and secure solution** for several years.

This solution, known as **DocuGuard**, stores items such as check signatures, MICR font, and check overlays on a flash memory card. Items stored on the card are loaded when needed to a printer via a **DocuGuard device** (external "**black box**") **attached to the printer's parallel port**. When the card is inserted into the device, items on the card are automatically copied to the printer's memory. These items are accessible through standard PCL macro calls embedded in the Oracle output file sent to the printer. After printing is completed, removing the flash memory card automatically removes the items from the printer. The card can then be stored in a secure location such as a safe or a locked drawer.

An alternate solution to the Docuguard device is the use of a DIMM/SIMM card that is inserted into the printer. The DIMM/SIMM card can be programmed with the same aforementioned items.

Originally designed to interface with text files produced by Oracle Reports, DocuGuard can also be used with PDF files produced by **Oracle BI Publisher**, formerly called **Oracle XML Publisher (XMLP)**. **Evergreen's automated solution** creates standard **PCL** from a **PDF** file and embeds the appropriate PCL macro calls within the new file. The PCL file is then sent to the check printer, and the appropriate items such as electronic signatures are combined with the incoming data stream to create the final printed checks.

The Evergreen solution runs on the Oracle Applications server and utilizes a binary executable (compiled program) which is called from the **Oracle Pasta configuration file** (pasta_pdf.cfg), and the printer used must be registered with the printer type "--Pasta Universal Printer Type". The executable invokes **GhostScript** to generate a **PCL file** from the **PDF file** created by BI Publisher. GhostScript is also used to create an ASCII file (standard TEXT file) which consists of the text found within each check image part of the PDF file. GhostScript is an interpreter for Portable Document Format (PDF) files, and the version entitled **GPL GhostScript** is a freeware, distributed with the GNU General Public License.

The text for each check within the ASCII file is parsed to extract the check amounts and to create an array variable of check amounts for determining the appropriate signature logic. Evergreen also provides a **configurable setup file (standard TEXT file)** that contains the signature logic based on some "key" check amounts and the mappings between check amounts and signatures. This file contains the appropriate Evergreen PCL codes for the signature calls. The customer can update this setup file at any time to reflect any new print business requirement. The amount values from the setup file are also extracted and stored in an array variable of "key" amount values to refer to.
The "check amount" values within the array are then compared against the "key amount" values, and the array is updated with the signature macro calls for each check amount. The header for each check within the PCL file is modified by inserting the macro calls that correspond to the signatures stored on the DocuGuard memory card.

After all header updates in the PCL file have been completed, the PCL filename is passed back from the Evergreen executable to the Pasta driver (pasta_pdf.cfg) for printing. When the PCL data stream is received, the printer creates a composite page for each check consisting of the original check image generated by BI Publisher and the appropriate signatures as identified by the macro calls contained within the header of each check. The Evergreen PCL file is saved on the Oracle Applications server, in the same system directory where the original PDF file created by BI Publisher has been saved.

For **added security**, if the flash memory card is not installed in the "black box" a large exclamation point will appear in the signature areas to prevent anyone from manually adding an unauthorized signature.
From within Oracle, if the user previews the PDF output file for the concurrent request of the payment batch run, the PDF file opens in an Adobe window but without showing the signatures. Only the related PCL file contains the signature calls.

In addition, Evergreen is able to embed PCL print control commands to select for example different paper output trays.
Evergreen also provides **custom check templates (Microsoft .RTF files)** to accommodate specific print requirements, like "void" or "overflow" checks which usually do not require any signatures. The label "*** VOID ***" is printed in place of the signatures.