

Universal Printer Driver (UPD) Meeting
May 19, 1998
7- 9 pm
Washington DC

Attendees:

Sandra Matts	HP - Boise
Don Wright	Lexmark
Brian Batchelder	HP - Vancouver
Harry Lewis	IBM
Ron Bergman	DataProducts
Ats Nakamura	Canon
Lee Farrell	Canon
Dave Kuntz	HP – NPSD/Roseville

phone

Bob Taylor	HP
Ed Davis	HP
Philip Stallbaumer	HP

Minutes

Original goal of the UPD is to create a standard that will allow printer vendors to write drivers that will be widely supported on multiple platforms. Current driver development model today is for the printer vendor to write one driver for each operating system and printer. A unique driver is developed for Win 3.1, Window 95/98, Windows NT 3.51, Windows NT 4.0 (kernel), OS/2, and Unix. Drivers tend to be a static entity that must be installed for each printer. Plug and Play does offer some automatic installation – but only for Windows and only if the printer is directly connected. Also if the printer is modified, for example a duplexer added or another type of tray added, the user may have to install additional software. It would be advantageous if the driver automatically and dynamically configured itself to support new features added through hardware or software. Benefits of a Universal Printer Driver are easier (automatic) upgrading of printer feature support (even from the Web), less development time for printer vendors, more consistent drivers across different platforms, improved Unix printing.

Printer vendors currently see the need for a UPD since it will involve less development with a hopefully improved customer experience. However, it was noted there has to be OS support for UPD. Plan is to invite Microsoft to attend the next UPD meeting in Monterey to gauge their interest. The UPD meeting will be held the afternoon of the 7th.

Don't want to sacrifice quality or the ability to differentiate. There must be a mechanism for printer vendors to extend or enhance the UPD for differentiation or unforeseen feature product support. Also it was noted that while the UPD has the potential to provide good default printing for a large number of printers – vendors still want to have the ability to write monolithic drivers for any particular operating system if they so choose.

Requirements were pulled from the previous meetings for the UPD:

- **Universal**
- **Localizable** – software and OSs are starting to ship one worldwide binary for all languages. It's important that the UPD be easily localized.
- **Platform independent**
- **Extensible** – a lot of discussion on how to maintain extensibility and OS independence. Must define callbacks in an OS independent method. A couple of ideas are to use Java or download from Web.
- **PDL independent**
- **Color Management System**
- **Device independent**

- **Protocol independent**
- **Job attributes** – job tickets, booklets, overlays
- **Bidirectional and unidirectional**

Paul Moore from Microsoft presented the Unidriver / GPD architecture in an earlier meeting as a possible UPD. There was interest in looking at the GPD spec. Paul emailed me that the GPD spec is available on the NT 5.0 beta2 CD. Not everyone has access to the Beta 2 CD – but I'll try to make the GPD spec available.

Things for people to think about:

- ◆ How to design callbacks that are OS independent.
- ◆ Dynamically configurable – one scenario is the driver queries the printer for the GPD. In the GPD – there can be a statement such as Trays = 3 or Trays = GetNumberOfTrays (). The driver then queries the printer for the number of trays currently attached.
- ◆ Unidirectional and bidirectional

Minutes / Notes from Harry Lewis (IBM)
 Universal Print Driver meeting
 7pm Tuesday

This was the 3rd meeting in recent history about the concept of a Universal Printer Driver, but the first meeting under the new PWG charter and with an official chairperson (Sandra Matts - HP). The meeting was held Tuesday evening, so attendance was light (Lexmark-1, IBM-1, Canon-2, HP-3, DataProducts-1).

Since the workgroup is in it's early stages, most of the discussion revolved around brainstorming, goals and requirements. One question that we discussed at large was "Why design a UPD"? The summary of views expressed during this discussion are that printer vendors spend a lot of resource developing printer drivers - specific to each computer operating system and PDL. While printer vendors don't want to loose the ability to distinguish their products, some base level of support across platforms would give us quicker time to market, reduced driver development and maintenance costs, and support for legacy raster devices in new operating systems with little or no effort on the part of the printer vendor. Also, vendors of very low cost printers see the UPD as a means of establishing support in nontraditional clients like cameras.

Some key views expressed about the goals and vision of a Universal Print Driver are:

- Key customer concern for printer vendors - "Make my driver issues go away".
- A standardized base level of support enhanced via plug-IN's.
- Reduce development and maintenance of monolithic drivers.
- Platform independent semantics and syntax to describe the printer that work with standard, OS provided, drivers.
- Would still like the option to develop monolithic drivers but this may be limited by the OS. If the OS limits, we want to be sure there are other avenues to value enhance.
- The proposed Generic Printer Description (GPD) specification appears to be HP and/or Microsoft confidential.
- Extensibility callbacks in JAVA rather than OS specific programming API.
- Need a way to address Standard Color Profiles like ICC, ICM-2 etc.
- There will always be some very device specific driver requirements not met in the base support (dithering, halftone tables, unannounced features).
- Need a way to extend the UPD and/or GPD spec as new features migrate from unique value to industry norm.
- Ideally, GPDs need to become more dynamic with defaults stored in the OS but allowing Printer MIB attributes to be obtained via SNMP or the print protocol and/or allowing the Printer to upload a GPD to the client or server for use by the driver.
- Need cross platform OS participation, cooperation, buyin Windows, OS2, UNIX)

As a new PWG working group, UPD needs to for a Charter, Requirements, Milestones, and we need White Paper submissions and Proposals. Harry Lewis to solicit involvement from IBM OS platforms. Sandra Matts to invite Microsoft to next meeting or arrange separate meeting at Microsoft around the 21st of July.