Printing Profile for Devices Using the IEEE P1394.3 (PPDT) Transport Protocol

Proposal Draft 0.10:24
June 30, 2000

Sponsor
Printer Working Group (PWG) - http://www.pwg.org/

Working Group
1394 Printer Working Group (1394PWG) - http://www.pwg.org/p1394

Proposed by: Brian Batchelder, Hewlett-Packard. (Brian_Batchelder@hp.com)

(Note: This proposal looks like an official draft because it was the easiest way to communicate what I believe should be included in the profile. Neither the format, nor the content, has been in any way approved by the 1394PWG.)

Draft Revision History

Revision	Date Issued	Description
0.10	June 30, 2000	Initial Proposal

Introduction

This profile was produced by the 1394 Printer Working Group (1394PWG), a working group of the Printer Working Group (PWG).

At the time this profile was completed, the key contributors to the effort were as follows:

Greg LeClair, Epson, *Chair*

Larry Stein, Warp-9, *Secretary* , *Editor*

Brian Batchelder, HP
James DePoy, Canon
Lee Farrell, Canon
Mike Fenelon, Microsoft
Satoshi Fujitani, Ricoh
Dave Kuntz, HP
Fumio Nagasaka, Epson
Chuck Rice, HP
Jerry Thrasher, Lexmark
Shigeru Ueda, Canon
Karen Van der Veer, HP
Forrest D. Wright, Lexmark

(Note: This list comes from the meeting minutes of 2000.05.15. It should be updated as appropriate)

Contents

1. Overview

1.1 Scope

1.2 Purpose

2. Definitions

The following terms and acronyms are used in this profile. The definitions are not intended to be absolute, but they do reflect the use of the terms in this profile.

Device:
Instance:
Protocol Layer: One of the seven protocol layers as defined by the ISO-OSI model.
Service:

3. Compliance

3.1 Overview

This section contains a summary of the compliance criteria for this profile. All devices claiming compliance with this profile shall comply with the following criteria.

3.2 Compliance criteria

4. Protocols

4.1 Overview

4.2 Physical Layers

4.2.1 Overview

The physical layers for 1394 devices are defined in the IEEE 1394-1994, 1394a-2000 and P1394b standards. Other 1394 physical layers may be defined in the future.

4.2.2 Required Functionality

Devices compliant with this profile must implement one or more of the 1394 physical layers.

4.2.3 Optional Functionality

Devices compliant with this profile may implement other physical layers.

4.2.4 Service Requirements

Devices compliant with this profile must provide the following physical layer services:

4.3 Transport Layers

4.3.1 Overview

The transport layers for devices compliant with this profile are defined in the ANSI NCITS 325-1998 (SBP-2) and IEEE P1394.3 (PPDT) standards.

4.3.2 Required Functionality

Devices compliant with this profile must implement both SBP-2 and PPDT.

4.3.3 Optional Functionality

Devices compliant with this profile may implement other transport layers for printing.

4.3.4 Service Requirements

Devices compliant with this profile must provide the following transport layer services:

4.4 Application Layers

4.4.1 Overview

4.4.2 Required Functionality

4.4.3 Optional Functionality

4.4.4 Service Requirements

4.5 Config ROM

4.5.1 Overview

Configuration ROM is a mechanism for advertising device configuration information. The architecture of Config ROM is defined in the IEEE P1212 standard. 1394-1994, 1394a-2000, P1394b, SBP-2 and IEEE P1394.3 define specific config ROM requirements for support of those standards.

4.5.2 Required Functionality

4.5.2.1 General

Devices implementing this profile shall meet the specific config ROM requirements for each protocol implemented for compliance with this profile.

4.5.2.2 Keyword Leaf

All devices implementing this profile shall include the following keyword in the Master Keyword Leaf and the keyword leaf for each instance complying with this profile:

- PRINTER

4.5.3 Optional Functionality

4.5.3.1 Keyword Leaf

All devices implementing this profile and the following functionality shall include the appropriate keywords in the Master Keyword Leaf and the keyword leaf for each instance complying with this profile:

Functionality	Keyword
Color Printing	COLOR
Black Printing	BLACK
Image Printing	IMAGE
Photo Printing	PHOTO
Duplexing	DUPLEX
Impact Printing	IMPACT
Inkjet Printing	INKJET
Laser Printing	LASER
Thermal Printing	THERMAL
Dye sublimation Printing	DYE-SUB

Devices may contain other keywords.

4.5.3.2 Feature Directory

PPDT instances may optionally include descriptions of advertised features in feature directories. Feature directories are pointed to by both the PPDT Instance and Unit directories representing the instance that supports the services.
(The 1394PWG may wish to consider standardizing definitions for some features, e.g. DPI, color depth, paper sizes, etc.)

4.5.3.3 Service ID Leaf

Services accessible via 1394.3 are advertised using a Service ID leaf in a 1394.3 feature directory. The following are services that may optionally be included:
PRINT-DATA: A generic data service that may be used by the host operating system to connect to a device-specific driver. The actual service accessed via PRINT-DATA is device specific. The device-specific driver understands the details of using this service.
PRINT-STATUS: A generic status service that may be used by the host operating system to connect to a device-specific driver. The actual service accessed via PRINT-STATUS is device specific. The device-specific driver understands the details of using this service.

5. Applications

5.1 Overview

5.2 Device, Instance and Service Discovery

5.2.1 Overview

Instance discovery is performed using Config ROM. Every 1394 device contains a config ROM. Every PPDT device contains an instance directory for each functional instance that supports PPDT. Therefore, each printing instance that supports this profile will be represented by an instance directory.
Service discover is also performed using Config ROM. Each PPDT instance directory points to a feature directory that contains a list of services provided by the instance.

5.3 Printing

5.3.1 Job Management

5.3.2 Print Data

5.4 Device Management

5.4.1 Printer Status

5.4.2 Printer Control

Annex A
Bibliography

(informative)

[1] IEEE Draft Std. 1394.3, Draft Standard for a High Performance Serial Bus Peer-to-Peer Data Transport Protocol (PPDT) available at http://www.pwg.org/p1394/dot3.html#DRAFTS
[2] Winsock-2 API available at http://www.stardust.com.

Annex B
Device Implementation Issues

(informative)

B.1 Overview

This annex contains information to help implementers of devices that comply with this profile.

Annex C
Host Implementation Issues

(informative)

C.1 Overview

This annex contains information to help implementers of hosts that access devices that comply with this profile.