 **The Printer Working Group**

1 **IPP "save-password" Attribute**
2 **(SAVEPASSWORD)**

3 ## Status: Initial

4 Abstract: This document is a whitepaper that proposes the creation of a new "save-
5 password" Job Template attribute that provides the Job with a persistent password that will
6 need to be provided when initially printing or re-printing that Job.

7 This document is a White Paper. For a definition of a "White Paper", see:
8 http://ftp.pwg.org/pub/pwg/general/pwg-process30.pdf

9 This document is available electronically at:

10 http://ftp.pwg.org/pub/pwg/ipp/whitepaper/tb-savepassword-20171205.odt
11 http://ftp.pwg.org/pub/pwg/ipp/whitepaper/tb-savepassword-20171205.pdf

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13   Title: IPP "save-password" Attribute *(SAVEPASSWORD)*

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1　Introduction

Users and network administrators are increasingly concerned about network and data security, and this extends to printing. Most all Users are familiar with sending a Job to a Printer and the Printer processing that Job fairly immediately, and some do so using a "job password" that prevents the Job from being processed until the User provides that password on the Printer's control panel to approve its release to processing. The IPP "job-password" Job Template attribute [PWG5100.11] and related attributes provide support for this workflow. Some Printers also support saving jobs for later re-print. Some Users wish to take advantage of both capabilities; however, since "job-password" is a Job Template attribute, and the act of saving the Job is considered that Job's processing, the "job-password" attribute does not persist beyond its being saved. What is needed to support a password protected saved job is an attribute that persists beyond the conclusion of the Job, such as a Document Description attribute.

2　Terminology

2.1　Protocol Roles Terminology

This document defines the following protocol roles in order to specify unambiguous conformance requirements:

Client: Initiator of outgoing IPP session requests and sender of outgoing IPP operation requests (Hypertext Transfer Protocol -- HTTP/1.1 [RFC7230] User Agent).

Printer: Listener for incoming IPP session requests and receiver of incoming IPP operation requests (Hypertext Transfer Protocol -- HTTP/1.1 [RFC7230] Server) that represents one or more Physical Devices or a Logical Device.

2.2　Other Terms Used in This Document

User: A person or automata using a Client to communicate with a Printer.

2.3　Acronyms and Organizations

IANA: Internet Assigned Numbers Authority, http://www.iana.org/

IETF: Internet Engineering Task Force, http://www.ietf.org/

ISO: International Organization for Standardization, http://www.iso.org/

PWG: Printer Working Group, http://www.pwg.org/

3   Requirements for IPP "save-password" Attribute

3.1   Rationale for IPP "save-password" Attribute

Users and network administrators are increasingly concerned about network and data security, and this extends to printing. Most all Users are familiar with sending a Job to a Printer and the Printer processing that Job fairly immediately, and some do so using a "job password" that prevents the Job from being processed until the User provides that password on the Printer's control panel to approve its release to processing. The IPP "job-password" Job Template attribute [PWG5100.11] and related attributes provide support for this workflow. Some Printers also support saving jobs for later printing or re-printing. Some Users wish to take advantage of both capabilities; however, since "job-password" is a Job Template attribute, and the act of saving the Job is considered that Job's processing, the "job-password" attribute does not persist beyond its being saved. What is needed to support a password protected saved job is an attribute that persists beyond the conclusion of the Job, such as a Document Description attribute.

3.2   Use Cases

3.2.1 Printing a Saved Document with a Persistent Password

Wilma has written a document that she intends to save on her departmental MFD, to allow some of her peers to print copies as needed. But as the document contains sensitive information, she wishes to only allow those who know the document's password to re-print copies. She is familiar with providing a password when configuring a print job, and she is also familiar with configuring the job to be saved in the printer. She provides a password in and also chooses to have the job saved. She submits the job to the printer. The printer saves the job content but protects it with the password provided.

3.3   Exceptions

There are currently no exceptions.

3.4   Out of Scope

The following are considered out of scope for this document:

1. How the Document or Documents in a Job are stored by the Printer
2. Protocols for bar
3. Requirements for bla

3.5 Design Requirements

The design requirements for this document are:

1. Define attributes for foo and bar
4. Define operations for bla
5. Register all attributes and operations with IANA

The design recommendations for this document are:

1. Reusing UI controls with similar enough purposes so that the user doesn't need to be confused by e.g. needing to interact with different controls for different kinds of passwords.

4   IPP Attributes

4.1   Printer Description Attributes

4.1.1 save-password-supported (rangeOfInteger(0:255))

The "save-password" Printer Description attribute specifies whether the Printer supports the persistent Job password specified by the "save-password" Job Template attribute, and if so, what range of lengths the Printer's password policy requires for the unencrypted value of "save-password". If the Client allows the User to provide it with an unencrypted password value shorter than the lower bounds of "save-password-supported", the behavior is undefined but the Job may never print.

4.1.2 save-password-encryption-supported (1setOf (type2 keyword))

The "save-password-encryption-supported" Printer Description attribute specifies the encryption formats supported by the Printer for encrypting "save-password". Any of the keywords registered for the "job-password-encryption" attribute may be listed in the "save-password-encryption-supported" attribute.

4.1.3 save-password-repertoire-configured (1setOf (type2 keyword))

The "save-password-repertoire-configured" Printer Description attribute specifies the set of repertoires the Printer is configured to accept for a Job's "save-password-repertoire" attribute. The values specified in "save-password-repertoire-configured" MUST be listed in "save-password-repertoire-supported".

4.1.4 save-password-repertoire-supported (1setOf (type2 keyword))

The "save-password-repertoire-supported" Printer Description attribute specifies the range of repertoires the Printer supports that may be configured for listing in the Printer's "save-password-repertoire-configured" attribute. The keywords specified in the "save-password-

150 repertoire-supported" keywords must be defined and registered in the PWG for the "job-
151 password-repertoire" attribute [PWGRepertoire].

4.2   Job Template Attributes

4.2.1 save-password (octetString(255))

154 The "save-password" Job Template attribute specifies a password for the Job, which is
155 semantically analogous to the "job-password" Operation attribute [PWG5100.11]. The
156 Printer MUST NOT process the Job unless a User provides the "save-password" to
157 authorize the Printer to allow its release. The "save-password" attribute MUST persist with
158 the Job, even when the Job persists as a "saved job" [PWG5100.11].

159 The Client MUST provide the "job-save-disposition" Job Template attribute when it
160 provides the "save-password" attribute.

4.2.2 save-password-encryption (type2 keyword)

162 The "save-password-encryption" Job Template attribute specifies the encryption type the
163 Client employed to encrypt the password value specified in the "save-password" Job
164 Template attribute. This attribute MUST be present if the "save-password" attribute is
165 present.

4.2.3 save-password-repertoire (type2 keyword)

167 The "save-password-repertoire" Job Template attribute specifies the repertoire selected for
168 the "save-password" attribute. This attribute MUST be present if the "save-password"
169 attribute is present.

5   Internationalization Considerations

171 For interoperability and basic support for multiple languages, conforming implementations
172 MUST support the Universal Character Set (UCS) Transformation Format -- 8 bit (UTF-8)
173 [RFC3629] encoding of Unicode [UNICODE] [ISO10646] and the Unicode Format for
174 Network Interchange [RFC5198].

175 Implementations of this specification SHOULD conform to the following standards on
176 processing of human-readable Unicode text strings, see:

177 • Unicode Bidirectional Algorithm [UAX9] – left-to-right, right-to-left, and vertical

178 • Unicode Line Breaking Algorithm [UAX14] – character classes and wrapping

179 • Unicode Normalization Forms [UAX15] – especially NFC for [RFC5198]

180 • Unicode Text Segmentation [UAX29] – grapheme clusters, words, sentences

181 • Unicode Identifier and Pattern Syntax [UAX31] – identifier use and normalization

182 • Unicode Collation Algorithm [UTS10] – sorting

183 • Unicode Locale Data Markup Language [UTS35] – locale databases

184 Implementations of this specification are advised to also review the following informational
185 documents on processing of human-readable Unicode text strings:

186 • Unicode Character Encoding Model [UTR17] – multi-layer character model

187 • Unicode in XML and other Markup Languages [UTR20] – XML usage

188 • Unicode Character Property Model [UTR23] – character properties

189 • Unicode Conformance Model [UTR33] – Unicode conformance basis

190   6   Security Considerations

191 The IPP extensions defined in this document require the same security considerations as
192 defined in the IPP/1.1: Model and Semantics [RFC8011] plus additional security
193 considerations below.

194   6.1   Human-readable Strings

195 Implementations of this specification SHOULD conform to the following standard on
196 processing of human-readable Unicode text strings, see:

197 • Unicode Security Mechanisms [UTS39] – detecting and avoiding security attacks

198 Implementations of this specification are advised to also review the following informational
199 document on processing of human-readable Unicode text strings:

200 • Unicode Security FAQ [UNISECFAQ] – common Unicode security issues

201   7   References

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9   Change History

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