The Printer Working Group

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IPP Get-User-Printer-Attributes Operation
(*USRATTROP*)

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Status: Initial

4 Abstract: This document proposes a new Get-User-Printer-Attributes IPP operation that
5 allows an IPP Client to retrieve the Printer's settings that are available to the Client's
6 current User.

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 https://ftp.pwg.org/pub/pwg/ipp/whitepaper/tb-userop-20170201.odt
11 https://ftp.pwg.org/pub/pwg/ipp/whitepaper/tb-userop-20170201.pdf

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13 Title: *IPP Get-User-Printer-Attributes Operation (USRATTROP)*

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1 Introduction

This document proposes a new Get-User-Printer-Attributes IPP operation that allows an IPP Client to retrieve the Printer's settings that are available to the Client's current User. It is semantically identical to the existing Get-Printer-Attributes IPP operation [RFC8011], with the key difference that the Printer will always respond with an authentication challenge. Once the Client has authenticated using the User's credentials, the Printer will respond with the settings for that user.

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 Rationale for IPP Get-User-Printer-Attributes Operation

Provide a rationale for the document.

3.1 Use Cases

The need for solutions to this use case emerged during the process of writing the IPP Implementor's Guide v2 .

3.1.1 User Print Policy from Printer

Duncan is at the office and needs to print a 5 page document that contains color diagrams. He has been granted permission to print in color from his office applications by his office network administrator. Duncan opens the document on his tablet, taps to print, and selects the desired Printer, which is at the end of the hallway. The Printer authenticates the tablet using Duncan's credentials, and then provides the tablet with the print choices available to Duncan, which includes the option to print in color or monochrome. He prints the document and then goes on with his work.

Later, Duncan gets a text from his wife that she would like him to print some family pictures on the office printer. He opens the pictures in his photo app, selects the pictures, taps to print, selects the same printer, and is presented only with the option to print in monochrome. He abandons printing the photos.

3.1.2 User Print Policy from Separate Print Policy Server

Garrett is at his office, and needs to print a 10 page slide set that contains color graphs. He has been granted permission to print in color from his office applications by his office network administrator. Garrett opens the document on his laptop, chooses to print, and selects the desired Printer, which is in his office. The Printer authenticates the laptop using Garrett's credentials, and then provides the tablet with the print choices available to Duncan, which includes the option to print in color or monochrome. His network administrator has implemented a separate "print policy server".

3.1.3 User Not Listed In Print Policy But Allowed To Print

Ed is visiting Garrett's office and needs to print a 12 page document that contains color diagrams. Ed is not listed as a user in the print policy. Ed opens the document on his laptop, clicks to print, and selects the Printer recommended by Garrett. The laptop is challenged to authenticate but has no valid credentials. The Printer provides Ed's laptop with the print choices available to unknown users, which does not include the option to print in color. Ed prints the document in grayscale and he and Garrett go to their meeting.

104   3.1.4 User Not Listed in Print Policy and Denied Ability to Print

105   Ed is visiting Duncan's office and needs to print a 3 page document. Ed is not listed as a
106   user in the print policy. Ed opens the document on his laptop, clicks to print, and selects
107   the Printer recommended by Duncan. The laptop is challenged to authenticate but has no
108   valid credentials. The Printer indicates to Ed via his laptop that he has no rights to print
109   from this Printer.

110   3.2   Exceptions

111   There are no exceptions to the use cases in section 3.1.

112   3.3   Out of Scope

113   The following are considered out of scope for this document:

114   1. Definition of print policies.
115   2. Definition of non-IPP protocols that can provide similar functionality.

116   3.4   Design Requirements

117   The design requirements for this document are:

118   1. Define a mechanism for IPP that allows a Client to acquire the set of print
119   features available from a particular Printer for a particular User.
120   2. Define the appropriate mechanism to refer a Client to a separate IPP Print Policy
121   Server.
122   3. Register all attributes and operations with IANA.

123   The design recommendations for this document are:

124   1. Recommend suitable authentication methods that could provide a high quality
125   user experience.

126   4   Technical Solutions/Approaches

127   The existing Get-Printer-Attributes operation itself has the correct semantics, but the
128   expectation of all legacy Clients is that the Printer will not respond to a Get-Printer-
129   Attributes operation with an HTTP challenge. Adding additional operation attributes to the
130   Get-Printer-Attributes operation to allow that operation to be used for this purpose was
131   similarly deemed inappropriate. As such, a new operation was deemed necessary.

132 ## 4.1 Get-User-Printer-Attributes Operation

133 This REQUIRED operation allows a Client to request the values of the attributes of a
134 Printer. The semantics of this operation are identical to the semantics for the Get-Printer-
135 Attributes operation, with the difference that the Client MUST be prepared to respond to an
136 HTTP authentication challenge.

137 If the Client initiates the Get-User-Printer-Attributes operation over a non-TLS connection,
138 the Client MUST be prepared to receive an HTTP 426 response to upgrade the connection
139 to TLS [RFC2817].

140 Internationalization Considerations

141 For interoperability and basic support for multiple languages, implementations use the
142 "Universal Character Set (UCS) Transformation Format -- 8 bit (UTF-8)" [RFC3629]
143 encoding of Unicode [UNICODE] [ISO10646] and the Unicode Format for Network
144 Interchange [RFC5198].

145 # 5 Security Considerations

146 The security considerations for the Get-User-Printer-Attributes operation are identical to
147 those listed for IPP/1.1 [RFC8011] and IPP/2.0 [PWG5100.12].

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182   standard:

183   Turanga Leela - Planet Express
184   Zapp Brannigan - Democratic Order of Planets

8 Change History

8.1 February 1, 2017

Editorial changes.

8.2 January 30, 2017

Initial draft.