Internet Printing Protocol Scheme

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Abstract

IPP is an application level protocol that can be used for distributed printing on the Internet. Related IPP documents:

   Design Goals for an Internet Printing Protocol
   Internet Printing Protocol/1.0: Model and Semantics
   Internet Printing Protocol/1.0: Encoding and Transport

This document describes a possible solution to an IESG request for a separate naming scheme for IPP. This is for further discussion, no consensus is yet reached on this in the IPP WG.

Introduction

The quick summary is that IPP should support a new scheme 'ipp', which clients and servers use in IPP attributes. Such attributes are in a message body whose Content-Type is application/ipp. A client maps 'ipp' URLs to 'http' URLs, and then follows the HTTP/1.1 rules for constructing a Request-Line and HTTP headers.

The IPP document will not prohibit implementations from supporting other schemes in IPP attributes, but such support is not defined by this document.

Details
scheme in the following IPP attributes. Each of these attributes identifies a printer or job object. The ‘ipp’ scheme is not intended for use in ‘uri’ valued attributes not in this list.

job attributes -
  job-uri
  job-printer-uri

printer attributes -
  printer-uri-supported

operation attributes -
  job-uri
  printer-uri

If the scheme of the target URL in a request (i.e. the value of "printer-uri" or "job-uri" operation attribute) is some scheme ‘x’, other than ‘ipp’, the behavior of the IPP object is not defined by this document. However, it is RECOMMENDED that if an operation on an IPP object creates a new value for any of the above attributes, that attribute has the same scheme ‘x’. It is also RECOMMENDED that if an IPP object returns any of the seven attributes above in the response, that the IPP object returns those URL values as is, regardless of the scheme of the target URL.

If the client obtains a target URL from a directory service, the scheme of the target URL SHOULD be ‘ipp’. If the scheme is not ‘ipp’, the behavior of the client is not defined by this document, but it is RECOMMENDED that the client use the URL as is as the target URL.

Although user interfaces are beyond the scope of this document, it is RECOMMENDED that if software exposes the URL values of any of the above seven attributes to a human user, that the human see the URL as is.

When a client sends a request, it MUST convert an ‘ipp’ target URL to an ‘http’ target URL for use in the HTTP Request-Line and HTTP headers as specified by HTTP/1.1. However, the ‘ipp’ target URL remains as is for the value of the "printer-uri" or "job-uri" attribute in the message body. If the scheme of the target URL is not ‘ipp’, the behavior of the client is not defined by this document, but it is RECOMMENDED that the client use the target URL as is in the Request-Line and HTTP headers.

A client converts an ‘ipp’ URL to an ‘http’ URL by:

1) replacing the ‘ipp’ scheme by ‘http’
2) adding an explicit port 631 if the URL does not contain an explicit port.

When an IPP client sends a request directly (i.e. no proxy) to an ‘ipp’ URL such as "ipp://myhost.com/myprinter/myqueue", it MUST open a TCP connection to some port (this example uses the IPP default port
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631) on some host ("myhost.com" in this example) with the following headers:

- POST /myprinter/myqueue HTTP/1.1
- Host: myhost.com:631
- Content-type: application/ipp
- Transfer-Encoding: chunked

"printer-uri" "ipp://myhost.com/myprinter/myqueue" (encoded in application/ipp message body)

When an IPP client sends a request via a proxy, such as "myproxy.com", to an ‘ipp’ URL, such as "ipp://myhost.com/myprinter/myqueue", it MUST open a TCP connection to some port (8080 in this example) on some proxy ("myproxy.com" in this example) with the following headers:

- POST http://myhost.com:631/myprinter/myqueue HTTP/1.1
- Host: myproxy.com:8080
- Content-type: application/ipp
- Transfer-Encoding: chunked

"printer-uri" "ipp://myhost.com/myprinter/myqueue" (encoded in application/ipp message body)

The proxy then connects to the IPP origin server with headers that are the same as the "no-proxy" example above.

References

[IPP-MOD]
Isaacson, S., deBry, R., Hastings, T., Herriot, R., Powell, P.

[IPP-PRO]

[IPP-REQ]
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Author’s Address

Carl-Uno Manros
Xerox Corporation
701 Aviation Blvd.
El Segundo, CA 90245
manros@cp10.es.xerox.com