NAME

ipptoolfile − ipptool file format

DESCRIPTION

The **ipptool**(1) program accepts free-form plain text files that describe one or more IPP requests. Comments start with the "#" character and continue to the end of the line. Each request is enclosed by curly braces, for example:

```
# This is a comment
{
  # The name of the test
  NAME "Print PDF File"

  # The request to send
  OPERATION Print−Job

  GROUP operation−attributes−tag
  ATTR charset attributes−charset utf−8
  ATTR language attributes−natural−language en
  ATTR uri printer−uri $uri
  ATTR name requesting−user−name $user
  ATTR mimeMediaType document−format application/pdf

  GROUP job−attributes−tag
  ATTR collection media−col {
    # US Letter plain paper from the "main" tray
    MEMBER collection media−size {
      MEMBER integer x−dimension 21590
      MEMBER integer y−dimension 27940
    }
    MEMBER integer media−top−margin 423
    MEMBER integer media−bottom−margin 423
    MEMBER integer media−left−margin 423
    MEMBER integer media−right−margin 423
    MEMBER keyword media−source "main"
    MEMBER keyword media−type "stationery"
  }

  FILE testfile.pdf

  # The response to expect
  STATUS successful−ok
  EXPECT job−id OF−TYPE integer WITH−VALUE >0
  EXPECT job−uri OF−TYPE uri
}
{
  # The name of the test
  NAME "Wait for Job to Complete"

  # The request to send
  OPERATION Get−Job−Attributes

  GROUP operation−attributes−tag
  ATTR charset attributes−charset utf−8
  ATTR language attributes−natural−language en
```

```
      ATTR uri printer−uri $uri
      ATTR integer job−id $job−id
      ATTR name requesting−user−name $user

      # The response to expect
      STATUS successful−ok
      EXPECT job−id OF−TYPE integer WITH−VALUE $job−id
      EXPECT job−uri OF−TYPE uri
      EXPECT job−state OF−TYPE enum WITH−VALUE >5 REPEAT−NO−MATCH
      EXPECT job−originating−user−name OF−TYPE name WITH−VALUE "$user"

      # Show the job state until completed...
      DISPLAY job-state
      DISPLAY job-state-reasons
    }
```

TOP-LEVEL DIRECTIVES

The following directives can be used outside of a *test*:

{ *test* **}**
> Defines a test.

DEFINE *variable-name value*
> Defines the named variable to the given value. This is equivalent to specifying *−d variable-name=value* on the **ipptool**(8) command-line.

DEFINE−DEFAULT *variable-name value*
> Defines the named variable to the given value if it does not already have a value.

FILE-ID "*identifier***"**
> Specifies an identifier string for the current file.

IGNORE−ERRORS yes

IGNORE−ERRORS no
> Specifies whether, by default, **ipptool**(8) will ignore errors and continue with subsequent tests.

INCLUDE "*filename***"**

INCLUDE <*filename***>**
> Includes another test file. The first form includes a file relative to the current test file, while the second form includes a file from the **ipptool**(8) include directory.

INCLUDE−IF−DEFINED *name* **"***filename***"**

INCLUDE−IF−DEFINED *name* **<***filename***>**
> Includes another test file if the named variable is defined. The first form includes a file relative to the current test file, while the second form includes a file from the **ipptool**(8) include directory.

INCLUDE−IF−NOT−DEFINED *name* **"***filename***"**

INCLUDE−IF−NOT−DEFINED *name* **<***filename***>**
> Includes another test file if the named variable is not defined. The first form includes a file relative to the current test file, while the second form includes a file from the **ipptool**(8) include directory.

SKIP−IF−DEFINED *variable-name*

SKIP−IF−NOT−DEFINED *variable-name*
> Specifies that the remainder of the test file should be skipped when the variable is or is not defined.

STOP−AFTER−INCLUDE−ERROR no

STOP−AFTER−INCLUDE−ERROR yes
> Specifies whether tests will be stopped after an error in an included file.

TRANSFER auto
>   Specifies that tests will, by default, use "Transfer-Encoding: chunked" for requests with attached files
>   and "Content-Length:" for requests without attached files.

TRANSFER chunked
>   Specifies that tests will, by default, use the HTTP/1.1 "Transfer-Encoding: chunked" header. This is
>   the default and is equivalent to specifying −*c* on the **ipptool**(8) command-line. Support for chunked
>   requests is required for conformance with all versions of IPP.

TRANSFER length
>   Specifies that tests will, by default, use the HTTP/1.0 "Content-Length:" header. This is equivalent to
>   specifying −*l* on the **ipptool**(8) command-line. Support for content length requests is required for
>   conformance with all versions of IPP.

VERSION 1.0

VERSION 1.1

VERSION 2.0

VERSION 2.1

VERSION 2.2
>   Specifies the default IPP version number to use for the tests that follow.

TEST DIRECTIVES
>   The following directives are understood within a *test*:

ATTR *out-of-band-tag attribute-name*

ATTR *tag attribute-name value(s)*
>   Adds an attribute to the test request. Out-of-band tags (admin-define, delete-attribute, no-value, not-
>   settable, unknown, unsupported) have no value. Values for other tags are separated by the comma
>   (",") character − escape commas using the " Common attributes and values are listed in the IANA
>   IPP registry − see references below.

ATTR collection *attribute-name* **{ MEMBER** *tag member-name value(s) ...* **}** [... **,{** ... **}**]
>   Adds a collection attribute to the test request. Member attributes follow the same syntax as regular
>   attributes and can themselves be nested collections. Multiple collection values can be supplied as
>   needed, separated by commas.

COMPRESSION deflate

COMPRESSION gzip

COMPRESSION none
>   Uses the specified compression on the document data following the attributes in a Print-Job or Send-
>   Document request.

DELAY *seconds*[*,repeat-seconds*]
>   Specifies a delay in seconds before this test will be run. If two values are specified, the second value
>   is used as the delay between repeated tests.

DISPLAY *attribute-name*
>   Specifies that value of the named attribute should be output as part of the test report.

EXPECT *attribute-name* [*predicate(s)*]

EXPECT ?*attribute-name predicate(s)*

EXPECT !*attribute-name*
>   Specifies that the response must/may/must not include the named attribute. Additional requirements
>   can be added as predicates − see the "EXPECT PREDICATES" section for more information on
>   predicates. Attribute names can specify member attributes by separating the attribute and member
>   names with the forward slash, for example "media−col/media−size/x−dimension".

EXPECT-ALL *attribute-name* [*predicate(s)*]

EXPECT-ALL ?*attribute-name predicate(s)*
> Specifies that the response must/may include the named attribute and that all occurrences of that attribute must match the given predicates.

FILE filename
> Specifies a file to include at the end of the request. This is typically used when sending a test print file.

GROUP tag
> Specifies the group tag for subsequent attributes in the request.

IGNORE−ERRORS yes

IGNORE−ERRORS no
> Specifies whether **ipptool**(8) will ignore errors and continue with subsequent tests.

NAME "*literal string***"**
> Specifies the human-readable name of the test.

OPERATION *operation-code*
> Specifies the operation to be performed.

PAUSE "*message***"**
> Displays the provided message and waits for the user to press a key to continue.

REQUEST−ID *number*

REQUEST−ID random
> Specifies the request-id value to use in the request, either an integer or the word "random" to use a randomly generated value (the default).

RESOURCE *path*
> Specifies an alternate resource path that is used for the HTTP POST request. The default is the resource from the URI provided to the **ipptool**(8) program.

SKIP−IF−DEFINED *variable-name*

SKIP−IF−NOT−DEFINED *variable-name*
> Specifies that the current test should be skipped when the variable is or is not defined.

SKIP−PREVIOUS−ERROR yes

SKIP−PREVIOUS−ERROR no
> Specifies whether **ipptool**(8) will skip the current test if the previous test resulted in an error/failure.

STATUS *status-code* [*predicate*]
> Specifies an expected response status-code value. Additional requirements can be added as predicates − see the "STATUS PREDICATES" section for more information on predicates.

TEST−ID "*identifier***"**
> Specifies an identifier string for the current test.

TRANSFER auto
> Specifies that this test will use "Transfer-Encoding: chunked" if it has an attached file or "Content-Length:" otherwise.

TRANSFER chunked
> Specifies that this test will use the HTTP/1.1 "Transfer-Encoding: chunked" header.

TRANSFER length
> Specifies that this test will use the HTTP/1.0 "Content-Length:" header.

VERSION 1.0

VERSION 1.1

VERSION 2.0

VERSION 2.1

VERSION 2.2
>   Specifies the IPP version number to use for this test.

EXPECT PREDICATES
>   The following predicates are understood following the **EXPECT** test directive:

>   **COUNT** *number*
>>   Requires the **EXPECT** attribute to have the specified number of values.

>   **DEFINE−MATCH** *variable-name*
>>   Defines the variable to "1" when the **EXPECT** condition matches. A side-effect of this predicate is that this **EXPECT** will never fail a test.

>   **DEFINE−NO−MATCH** *variable-name*
>>   Defines the variable to "1" when the **EXPECT** condition does not match. A side-effect of this predicate is that this **EXPECT** will never fail a test.

>   **DEFINE−VALUE** *variable-name*
>>   Defines the variable to the value of the attribute when the **EXPECT** condition matches. A side-effect of this predicate is that this **EXPECT** will never fail a test.

>   **IF−DEFINED** *variable-name*
>>   Makes the **EXPECT** conditions apply only if the specified variable is defined.

>   **IF−NOT−DEFINED** *variable-name*
>>   Makes the **EXPECT** conditions apply only if the specified variable is not defined.

>   **IN−GROUP** *tag*
>>   Requires the **EXPECT** attribute to be in the specified group tag.

>   **OF−TYPE** *tag[|tag,...]*
>>   Requires the **EXPECT** attribute to use one of the specified value tag(s).

>   **REPEAT−LIMIT** *number*
>>   Specifies the maximum number of times to repeat if the **REPEAT-MATCH** or **REPEAT-NO-MATCH** predicate is specified. The default value is 1000.

>   **REPEAT−MATCH**

>   **REPEAT−NO−MATCH**
>>   Specifies that the current test should be repeated when the **EXPECT** condition matches or does not match.

>   **SAME−COUNT−AS** *attribute-name*
>>   Requires the **EXPECT** attribute to have the same number of values as the specified parallel attribute.

>   **WITH−ALL−HOSTNAMES "***literal string***"**

>   **WITH−ALL−HOSTNAMES "/***regular expression***/"**
>>   Requires that all URI values contain a matching hostname.

>   **WITH−ALL−RESOURCES "***literal string***"**

>   **WITH−ALL−RESOURCES "/***regular expression***/"**
>>   Requires that all URI values contain a matching resource (including leading /).

>   **WITH−ALL−SCHEMES "***literal string***"**

>   **WITH−ALL-SCHEMES "/***regular expression***/"**
>>   Requires that all URI values contain a matching scheme.

WITH−ALL−VALUES "*literal string***"**
> Requires that all values of the **EXPECT** attribute match the literal string. Comparisons are case-sensitive.

WITH−ALL−VALUES <*number*

WITH−ALL−VALUES =*number*

WITH−ALL−VALUES >*number*

WITH−ALL−VALUES *number*[*,...,number*]
> Requires that all values of the **EXPECT** attribute match the number(s) or numeric comparison. When comparing rangeOfInteger values, the "<" and ">" operators only check the upper bound of the range.

WITH−ALL−VALUES "false"

WITH−ALL−VALUES "true"
> Requires that all values of the **EXPECT** attribute match the boolean value given.

WITH−ALL−VALUES "/*regular expression***/"**
> Requires that all values of the **EXPECT** attribute match the regular expression, which must conform to the POSIX regular expression syntax. Comparisons are case-sensitive.

WITH−HOSTNAME "*literal string***"**

WITH−HOSTNAME "/*regular expression***/"**
> Requires that at least one URI value contains a matching hostname.

WITH−RESOURCE "*literal string***"**

WITH−RESOURCE "/*regular expression***/"**
> Requires that at least one URI value contains a matching resource (including leading /).

WITH−SCHEME "*literal string***"**

WITH−SCHEME "/*regular expression***/"**
> Requires that at least one URI value contains a matching scheme.

WITH−VALUE "*literal string***"**
> Requires that at least one value of the **EXPECT** attribute matches the literal string. Comparisons are case-sensitive.

WITH−VALUE <*number*

WITH−VALUE =*number*

WITH−VALUE >*number*

WITH−VALUE *number*[*,...,number*]
> Requires that at least one value of the **EXPECT** attribute matches the number(s) or numeric comparison. When comparing rangeOfInteger values, the "<" and ">" operators only check the upper bound of the range.

WITH−VALUE "false"

WITH−VALUE "true"
> Requires that at least one value of the **EXPECT** attribute matches the boolean value given.

WITH−VALUE "/*regular expression***/"**
> Requires that at least one value of the **EXPECT** attribute matches the regular expression, which must conform to the POSIX regular expression syntax. Comparisons are case-sensitive.

WITH−VALUE−FROM *attribute-name*
> Requires that the value(s) of the **EXPECT** attribute matches the value(s) in the specified attribute. For example, "EXPECT job−sheets WITH−VALUE−FROM job−sheets−supported" requires that the "job−sheets" value is listed as a value of the "job−sheets−supported" attribute.

STATUS PREDICATES
> The following predicates are understood following the **STATUS** test directive:

> **DEFINE−MATCH** *variable-name*
>> Defines the variable to "1" when the **STATUS** matches. A side-effect of this predicate is that this **STATUS** will never fail a test.

> **DEFINE−NO−MATCH** *variable-name*
>> Defines the variable to "1" when the **STATUS** does not match. A side-effect of this predicate is that this **STATUS** will never fail a test.

> **IF−DEFINED** *variable-name*
>> Makes the **STATUS** apply only if the specified variable is defined.

> **IF−NOT−DEFINED** *variable-name*
>> Makes the **STATUS** apply only if the specified variable is not defined.

> **REPEAT−LIMIT** *number*
>> Specifies the maximum number of times to repeat. The default value is 1000.

> **REPEAT−MATCH**

> **REPEAT−NO−MATCH**
>> Specifies that the current test should be repeated when the response status-code matches or does not match the value specified by the STATUS directive.

OPERATION CODES
> Operation codes correspond to the hexadecimal numbers (0xHHHH) and names from RFC 8011 and other IPP extension specifications. Here is a complete list of names supported by **ipptool**(8):

>> Activate−Printer
>> CUPS−Accept−Jobs
>> CUPS−Add−Modify−Class
>> CUPS−Add−Modify−Printer
>> CUPS−Authenticate−Job
>> CUPS−Delete−Class
>> CUPS−Delete−Printer
>> CUPS−Get−Classes
>> CUPS−Get−Default
>> CUPS−Get−Devices
>> CUPS−Get−Document
>> CUPS−Get−PPD
>> CUPS−Get−PPDs
>> CUPS−Get−Printers
>> CUPS−Move−Job
>> CUPS−Reject−Jobs
>> CUPS−Set−Default
>> Cancel−Current−Job
>> Cancel−Job
>> Cancel−Jobs
>> Cancel−My−Jobs
>> Cancel−Subscription
>> Close−Job
>> Create−Job
>> Create−Job−Subscriptions
>> Create−Printer−Subscriptions
>> Deactivate−Printer
>> Disable−Printer
>> Enable−Printer

Get−Job−Attributes
Get−Jobs
Get−Notifications
Get−Printer−Attributes
Get−Printer−Support−Files
Get−Printer−Supported−Values
Get−Subscription−Attributes
Get−Subscriptions
Hold−Job
Hold−New−Jobs
Identify−Printer
Pause−Printer
Pause−Printer−After−Current−Job
Print−Job
Print−URI
Promote−Job
Purge−Jobs
Release−Held−New−Jobs
Release−Job
Renew−Subscription
Reprocess−Job
Restart−Job
Restart−Printer
Resubmit−Job
Resume−Job
Resume−Printer
Schedule−Job−After
Send−Document
Send−Hardcopy−Document
Send−Notifications
Send−URI
Set−Job−Attributes
Set−Printer−Attributes
Shutdown−Printer
Startup−Printer
Suspend−Current−Job
Validate−Document
Validate−Job

STATUS CODES

Status codes correspond to the hexadecimal numbers (0xHHHH) and names from RFC 8011 and other IPP extension specifications. Here is a complete list of the names supported by **ipptool**(8):

client−error−account−authorization−failed
client−error−account−closed
client−error−account−info−needed
client−error−account−limit−reached
client−error−attributes−not−settable
client−error−attributes−or−values−not−supported
client−error−bad−request
client−error−charset−not−supported
client−error−compression−error
client−error−compression−not−supported
client−error−conflicting−attributes
client−error−document−access−error

client−error−document−format−error
client−error−document−format−not−supported
client−error−document−password−error
client−error−document−permission−error
client−error−document−security−error
client−error−document−unprintable−error
client−error−forbidden
client−error−gone
client−error−ignored−all−notifications
client−error−ignored−all−subscriptions
client−error−not−authenticated
client−error−not−authorized
client−error−not−found
client−error−not−possible
client−error−print−support−file−not−found
client−error−request−entity−too−large
client−error−request−value−too−long
client−error−timeout
client−error−too−many−subscriptions
client−error−uri−scheme−not−supported
cups−error−account−authorization−failed
cups−error−account−closed
cups−error−account−info−needed
cups−error−account−limit−reached
cups−see−other
redirection−other−site
server−error−busy
server−error−device−error
server−error−internal−error
server−error−job−canceled
server−error−multiple−document−jobs−not−supported
server−error−not−accepting−jobs
server−error−operation−not−supported
server−error−printer−is−deactivated
server−error−service−unavailable
server−error−temporary−error
server−error−version−not−supported
successful−ok
successful−ok−but−cancel−subscription
successful−ok−conflicting−attributes
successful−ok−events−complete
successful−ok−ignored−notifications
successful−ok−ignored−or−substituted−attributes
successful−ok−ignored−subscriptions
successful−ok−too−many−events

TAGS

Value and group tags correspond to the names from RFC 8011 and other IPP extension specifications. Here are the group tags:

document−attributes−tag
event−notification−attributes−tag
job−attributes−tag
operation−attributes−tag
printer−attributes−tag

subscription−attributes−tag
unsupported−attributes−tag

Here are the value tags:

admin−define
boolean
charset
collection
dateTime
default
delete−attribute
enum
integer
keyword
mimeMediaType
nameWithLanguage
nameWithoutLanguage
naturalLanguage
no−value
not−settable
octetString
rangeOfInteger
resolution
textWithLanguage
textWithoutLanguage
unknown
unsupported
uri
uriScheme

VARIABLES

The **ipptool**(8) program maintains a list of variables that can be used in any literal string or attribute value by specifying "*$variable-name*". Aside from variables defined using the *-d* option or **DEFINE** directive, the following pre-defined variables are available:

**$$**   Inserts a single "$" character.

$ENV[*name***]**
          Inserts the value of the named environment variable, or an empty string if the environment variable is not defined.

$filename
          Inserts the filename provided to **ipptool**(8) with the *-f* option.

$filetype
          Inserts the MIME media type for the filename provided to **ipptool**(8) with the *-f* option.

$hostname
          Inserts the hostname from the URI provided to **ipptool**(8).

$job−id
          Inserts the last "job−id" attribute value returned in a test response or 0 if no "job−id" attribute has been seen.

$job−uri
          Inserts the last "job−uri" attribute value returned in a test response or an empty string if no "job−uri" attribute has been seen.

$notify−subscription−id
    Inserts the last "notify−subscription−id" attribute value returned in a test response or 0 if no "no-
    tify−subscription−id" attribute has been seen.

$port
    Inserts the port number from the URI provided to **ipptool**(8).

$resource
    Inserts the resource path from the URI provided to **ipptool**(8).

$scheme
    Inserts the scheme from the URI provided to **ipptool**(8).

$uri   Inserts the URI provided to **ipptool**(8).

$uriuser
    Inserts the username from the URI provided to **ipptool**(8), if any.

$user
    Inserts the current user's login name.

SEE ALSO
ipptool(1), IANA IPP Registry (http://www.iana.org/assignments/ipp-registrations), PWG Internet Printing
Protocol Workgroup (http://www.pwg.org/ipp), RFC 8011 (http://tools.ietf.org/html/rfc8011)

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