

# IPP Expert Test System

The goal of Internet Printing is to allow end users to print documents to a remote printer the same way they would print to a local or network-attached printer. The medium through which this is done is the Internet. Browsers and other applications provide methods for locating, selecting and configuring remote printers, submitting jobs and obtaining job status.

To standardize the processes of Internet Printing, the Internet Engineering Task Force (IETF) has developed the Internet Printing Protocol, or IPP. Now, Genoa Technology offers a simple, thorough way to test your printer's implementation of this emerging standard – the IPP Expert.

Genoa Technology's IPP Expert is a protocol analyzer that rigorously tests conformance of printers and print servers to the IPP 1.0 specification. With over 1,500 test cases, the IPP Expert checks the full range of IPP requests and responses, both mandatory and optional. The IPP Expert also provides a framework to make it easy to create customized test cases, so you can test your printer's unique, proprietary features with Internet Printing.

The IPP Expert emulates the user's applications and sends commands/requests over the Internet to the printer or print server. Based on the printer/server's responses, the IPP Expert evaluates its conformance to specification.

The IPP Expert's comprehensive suite of test cases checks for:

- correct sequences of events
- syntax errors
- range of data
- correct data types
- valid/invalid sequence handling

IPP Expert intelligently senses unsupported features and skips the corresponding test cases.

## IPP Expert Overview

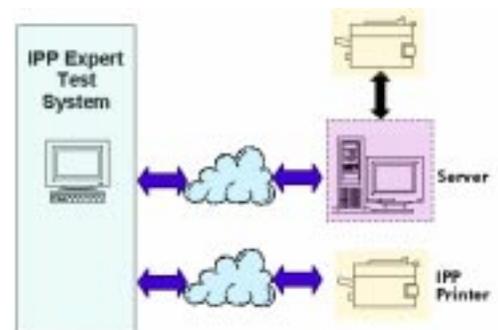
Internet printing can work in one of three ways:

- The user can print as usual through the operating system, but is able to access printers that are on Internet, not just on the local area network.
- The user can send a print-formatted file (such as a PDF or PostScript file) to a printer.
- The user can send a URL, and the printer will fetch the document and print it.

The IPP defines a list of printer capabilities and print job submission and feedback commands. It uses a client-server architecture. The client, which can be a web browser or desktop client, can submit, query or cancel a print job, and query the status of a printer. The IPP Expert Test System emulates this client to thoroughly exercise the server's capabilities.

## Features

- **Comprehensive printer/print server conformance test**
- **Analyzes IPP requests and responses**
- **Over 1,500 test cases**
- **Framework to customize test cases for unique features**
- **Tests all mandatory and optional provisions**



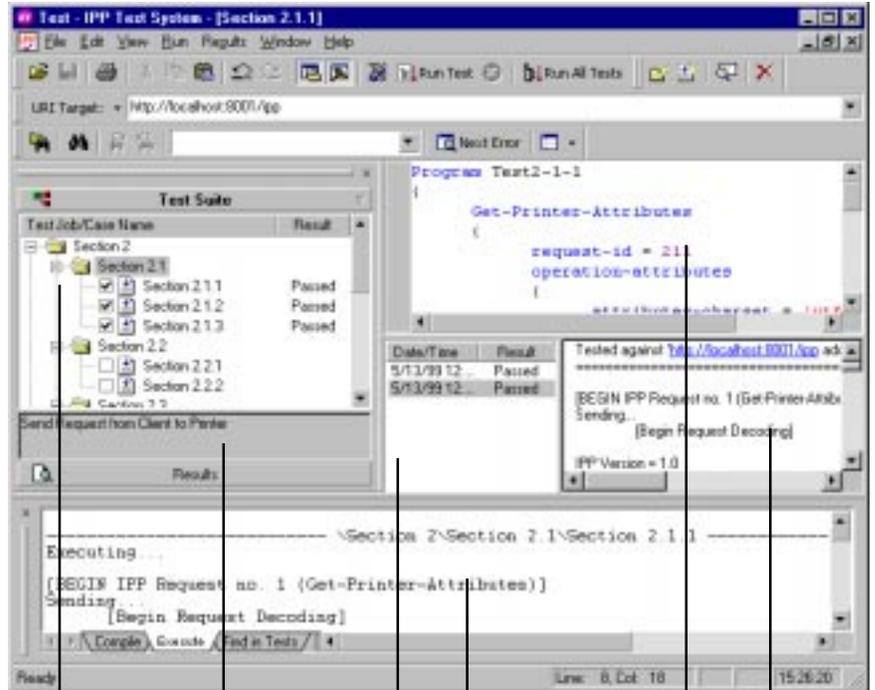
The server can be implemented inside a network-connected printer, or at the print-server or network-server level.

The server identifies the printer or printers with a unique URL, and a database of each of the printer's capabilities (e.g., color, duplex). The server can then accept print requests over the Internet, perform simple negotiations (e.g., "I cannot print that document since I am not a color printer"), and provide feedback about status (e.g., "I am processing a job," or "I have a paper jam"). The IPP uses HTTP 1.1 for the negotiation between client and server.

## Test Management

### The IPP Expert Test System

employs several levels of test case organization and management. The test case is the definition of what element is to be tested and the code necessary to perform the test. A combination of test cases organized according to type is a test job. Test jobs can be combined into a collection grouped for a specific purpose, a test suite.



#### **Workspace Window**

**Test Suite**  
Test Jobs/Cases Viewer  
**Results**  
All Test Results Viewer

#### **Description Window**

Depending on the selected item in the Test Suite Window, displays a description for the Test Job/Case.

#### **Available Test Results Viewer**

Displays the current Test Case available results.

#### **Output Window**

**Compile tab:** Test compilation results and descriptions for identified errors.  
**Execution tab:** Displays the data exchanged during test execution and the test result.  
**Find in Tests tab:** Results for the Find in Tests command.

#### **Test Results Viewer**

Displays the selected result content (selected in the Available Results Viewer).

#### **Test Case Viewer**

Displays the Test Case item content (double-clicked in the Workspace Window, Test suite folder).

## Minimum System Requirements

- Windows 95, 98 or NT
- Pentium 100 MHz
- 32 MB of memory
- 5 MB free disk space
- VGA display adapter supported by Windows

## PUTTING TECHNOLOGY TO THE TEST

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