

## The Printer Working Group Standards Process

### Abstract

This document describes the process to be used by the Printer Working Group for the standardization of PWG defined protocols and procedures. It defines the stages in the standardization process, the requirements for moving a document between stages and the types of documents used during this process. A documented process is required to ensure the highest quality standard possible, and to maintain the credibility of the PWG as a standards organization.

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## 1. Introduction

The Printer Working Group (or PWG) is an unincorporated alliance among printer manufacturers, print server developers, operating system providers, network operating systems providers, network connectivity vendors, and print management application developers chartered to make printers and the applications and operating systems supporting them work together better. In order to meet this objective, the PWG will document the results of their work as open standards which define print related protocols, interfaces, procedures and conventions. Printer manufacturers and vendors of printer related software will benefit from the interoperability provided by voluntary conformance to these standards.

In general, a PWG standard is a specification that is stable and well understood, is technically competent, has multiple, independent and interoperable implementations with substantial operational experience, and enjoys significant public support. The PWG may issue a standard as a PWG standard and/or when appropriate submit the standard to other standards organizations, such as the IETF, ISO, ITU, IEEE, or ECMA.

## **2. The PWG Organization**

The Printer working group is composed of representatives from printer manufacturers, print server developers, operating system providers, network operating system providers, network connectivity vendors, and print management application developers.

### **2.1. PWG Officers**

The PWG has a Chair position responsible for organizing the overall agenda of the PWG. The PWG chair is elected by a simple majority of the PWG members to a two year term of office which begins on September 1<sup>st</sup>. Responsibilities of the PWG chair include creating working groups, appointing working group chairs, making local arrangements for PWG meetings (this may be delegated as appropriate), setting the high level PWG agenda, chairing the PWG plenary session, and assisting working group chairs to accomplish their tasks.

The PWG Vice Chair is elected by a simple majority of the PWG members to a two year term of office, beginning September 1<sup>st</sup>. The Vice Chair's responsibilities are to act in the absence of the chair and provide assistance to the Chair in carrying out his or her role, as required.

The PWG Secretary is elected to a two year term of office by a simple majority of the PWG members. It is the secretary's responsibility to record and distribute the minutes of all PWG meetings.

### **2.2. Working Group Officers**

Under the PWG chair are a number of working groups ( WGs) which are chartered for the purpose of developing a specific standard. Working groups are chartered as required to address specific areas of standardization, and are terminated when they have satisfied their charter.

The Chair of a WG is appointed by the PWG Chair. The WG Chair's term is indefinite and would normally be for the entire time that the working group is active. The working group Chair is responsible for creating the WG Charter, setting the agenda for meetings of the WG, chairing WG meetings, appointing editors for WG documents, driving the work of the WG to completion, and reporting status of the WG at PWG plenary sessions.

The Vice Chair of a WG is appointed by the WG chair, with consensus of the WG. The WG Vice Chair's term is indefinite. The Vice Chair acts in the absence of the Chair and assists, as appropriate, in carrying out the responsibilities of the Chair.

A WG secretary is appointed by the WG Chair, with consensus of the WG. The term of office is indefinite. The responsibilities of the Secretary are to record and distribute minutes of working group meetings.

The PWG Steering Committee is composed of the PWG chair and the chairs of all active PWG working Groups.

### **2.3. PWG Meetings**

The annual meeting schedule for the PWG is set in October of each year. Meetings are to be distributed geographically, and should be held approximately every 6 weeks. Meeting location details are to be

published at least 4 weeks in advance of meetings. Decisions made at PWG business meetings require a simple majority, 1 vote per company.

### **3. Formal PWG Standards-Track Publications**

In order to be published as a formal PWG standards-track document, all of the documents described in this section require a formal last call and approval vote by the membership of the PWG. These steps are described in more detail in section 6, and are summarized in Table I.

#### **3.1. *WG Charter***

The first order of business for any working group is to create a charter which clearly describes the scope of their work. In addition, the Charter should define milestones for the working group.

#### **3.2. *PWG Requirements Statements***

Prior to the development of a standards specification, the PWG process requires a clear statement of the requirements for that standard be produced. A requirements statement documents the best effort collection of known requirements on a particular protocol, interface, procedure or convention. The requirements statement is important as it leads to a clear, common understanding of the requirements, provides a guide for development of the standard, and can be used as a final test to measure the validity of the resulting specification, e.g. does it meet the requirements. Requirements statements require formal approval that they indeed describe the key requirements. It is not necessary that the resulting standard meet every stated requirement, but the standard should be explicit about which requirements it does not meet, and why.

#### **3.3. *PWG Proposal***

Once consensus has been reached on the general approach, and there is sufficient information to begin writing a standard, the initial specification will be written as a PWG Proposal. A PWG Proposal demonstrates consensus on the approach being used to address the proposed standard and provides the backdrop for further discussion and agreement on details of the specification. This initial specification should be reasonably complete and drives a stake in the ground that will be the basis for all further work on this standard. During the Proposal stage, the working group should also determine whether or not they will submit their work to other standards bodies. A PWG Proposal is equivalent to an initial IETF Internet Draft.

#### **3.4. *PWG Draft***

Once general agreement has been reached among the participants involved in developing the details of a standard, the resulting specification is documented as a PWG Draft. It is expected that the PWG Draft takes into account implementation experience gained from prototype activities done during the development of the document. In order for a specification to be published as a PWG Draft, in addition to the normal last call and approval process, it must be approved by a steering committee composed of the PWG chair and the current chairs of all of the other PWG working groups. This review is intended to ensure consistency, validate that sufficient prototyping has taken place, and identify potential conflicts across the various PWG working groups. PWG Drafts form the basis for comments from outside of the working group and the PWG, and provide the foundation for initial product development and interoperability testing. Implementations can comfortably proceed from a PWG draft, knowing that the PWG Draft will not undergo any significant change as it matures to a published PWG Standard. A PWG Draft is equivalent to an IETF Proposed Standard RFC.

#### **3.5. *PWG Standard***

A specification becomes a PWG standard once it has gone through the formal last call and approval process of section 6, *and*

- General acceptance of the standard can be demonstrated by a simple majority of PWG participating organizations, i.e. they have implemented or have plans to implement the standard.
- Interoperability can be demonstrated between multiple, independent implementations of the PWG Draft Standard.

A PWG Standard is equivalent to an IETF Draft Standard RFC.

### **3.6. Mapping to IETF Documents**

This section summarizes the mapping of PWG standards track documents to IETF documents.

**PWG working group charter** is equivalent to an IETF working group charter.

**PWG Proposal** maps to an initial IETF Internet Draft

**PWG Draft** maps to an IETF RFC Draft Standard.

**PWG Standard** maps to an IETF RFC Proposed Standard. There is no PWG equivalent to the IETF Standard.

## **4. Informal PWG standards-related Documents**

The following documents are considered informal, working documents of the PWG. As such, they require no formal approval process.

### **4.1. PWG White Papers**

During the standards process, PWG members are encouraged to document their proposals for various elements of a standard in a PWG White Paper. White papers provide an informal means for documenting technical proposals and communicating them among PWG members. It is strongly recommended that no item be opened for discussion on the agenda of a PWG meeting without first having been documented in a white paper which has been made available for review at least one week prior to the meeting where the paper is to be discussed. White papers are particularly useful when two or more approaches to a standard exist and need to be debated. White Papers may be updated to reflect group consensus or individual positions on a particular topic. Since a white paper represents current thought and individual contribution, white papers do not require any formal approval. As a result, white papers have no formal status and are subject to change or withdrawal at any time. White papers may also be used to document best practices, implementation hints, and recommended changes to an existing standard. White Papers should be posted to the PWG FTP site and announced on the PWG mailing list prior to their being discussed at a PWG meeting. The most fruitful discussions will occur when people have had adequate time to review white papers prior to their being discussed.

### **4.2. PWG Working Drafts**

The internal working documents of a PWG working group are PWG Working Drafts. Working Drafts are point-in-time snapshots of a PWG Proposal or PWG Draft. They have no official status and may be updated to reflect group consensus at any point in time. Since a working draft represents current thought on a standard, working drafts do not require any formal approval.

### **4.3. Implementer's Guide and Frequently Asked Questions**

Where appropriate, a working group may create an Implementer's Guide and a Frequently Asked Questions (FAQ) for a standard. These documents are not formal standards-track documents, but provide valuable information to implementers.

## **5. Publication of PWG documents**

All of the PWG standards-related documents described in this paper must be available in at least PDF format (although others may be provided as well) and published on the PWG's FTP site. Any document identified as one of PWG Requirements Statement, PWG Proposal, PWG Draft, or PWG-Standard represent formal PWG approved documents, and are published by the PWG only after passing the appropriate last call and approval process.

White Papers and Working Drafts are also published to the PWG's FTP site, but are considered working documents which have no formal approval status. They may be published at any time by the author(s).

Internal working versions of all PWG document should also be maintained in a widely available word processing format, to provide for collaboration between document editors and contributors.

### **5.1. Posting to Web Sites and Distribution Lists(DL)**

Each PWG working group SHALL have a Distribution List (DL) for the posting of notices related to that working group, and to provide a forum for discussion and voting by WG participants. When documents are posted to the PWG FTP site, the editor/author of the document should also post a notice to the DL. It is also recommended that working groups provide a web site where information about the activities of the working group can be provided. The Web site should point to current standards-track documents.

### **5.2. Document Editors**

The Working group chair will appoint an editor for each standard. Normally an editor will work in this capacity throughout the life-cycle of a standard, although exceptions may occur. Editors are responsible for reflecting the decisions of the working group, rather than their own personal views. Ultimately, the editor has responsibility for the quality of the document, making sure that it is readable and has a coherent style, even when it has multiple authors.

## **6. The Standards Process**

The PWG process defines five distinct stages of development. With the exception of the last stage, each stage has a formal exit checkpoint which represents a Last Call (LC) and approval of the standards-related document(s) associated with that stage. These stages are

- The Charter Stage
- The Proposal Stage
- The Specification Stage
- The Implementation Stage
- The Maintenance Stage

### **6.1. The Last Call**

Last calls represent the final opportunity for issues to be raised against a document and formal approval of that document. The WG chair announces a last call on a document with rough consensus of the working group. Last calls are posted to members of all of the PWG working groups via the PWG-ANNOUNCE distribution list (DL). Once a document successfully passes last call and is approved by the PWG, it is published as a formal PWG standards-track document and work on that standard moves to the next stage in the process. Last call periods may vary, based upon the content of the document, but must be at least ten working days to provide adequate time for review. All issues raised during last call must be answered. A Last Call issue may be answered with one of

- Issue is resolved and document will be updated to reflect the resolution
- Issue is resolved but no change is required in the document
- Issue is unresolved, but document will be approved anyway

## 6.2. Formal Approval

Once all of the last call issues have been responded to, a formal vote is taken on approval of the document and exit to the next stage. This vote may be taken in a regular PWG meeting and/or on the DL of the appropriate working group. Each organization represented on the PWG has one vote.

Where rough consensus is required for approval, rough consensus means

- approval by 2/3 of those casting votes, with no strong opposition
- approval by 85% of those casting votes, in the face of strong opposition

Strong opposition is registered when one or more companies formally call for an 85% vote. It is the responsibility of the WG chair to ensure that the results of a vote are fair and representative. Whenever an individual member of the PWG has an issue with a Chair's decision, he or she can appeal that decision to the membership of the PWG at large.

PWG Drafts also require approval of the PWG Steering Committee. PWG Standards require the final approval of the PWG chair. These checks and balances are in place to ensure that the resulting specification meets the exit criteria for that stage of the process.

## 7. Maintenance

Many PWG standards are extensible and provide the ability for additional functionality to be registered. Such registrations when approved have the same status as the standard to which the feature is being added. In addition, as implementation work proceeds, clarifications may be required to guarantee interoperability. This section addresses the process to be followed for:

- registrations of new operations and type 2 enums, keywords, and attributes, and
- clarifications of the standard and any approved registrations

from the time a PWG Draft standard is published through the life of the standard. Note that major changes or additions to a standard are not considered maintenance, but occur as part of the normal iterative standards development process described earlier.

Proposals for registrations and clarifications will follow the following process:

1. Each WG will appoint a Maintenance Editor for their PWG Draft standard and PWG standard.
2. Anyone can initiate a proposal for a clarification or registration by starting a discussion on the appropriate project DL.
3. After there is some agreement on the DL for the need of a clarification or the suitability of a registration, the proposer and the standard's Maintenance Editor work out a proposal. Such a proposal should include:
  - Status of the proposal, including previous reviews.
  - A description of the requirement being met or the problem being solved.
  - Description of the proposed solution.
  - The exact text to be incorporated into the standard at some future date.
4. To make the status of proposed registrations and clarifications clear to PWG participants and others, the Maintenance Editor will keep them in the appropriate sub-directory
  - <ftp://ftp.pwg.org/pub/pwg/xxx/DOC/proposed-registrations>
  - <ftp://ftp.pwg.org/pub/pwg/xxx/DOC/proposed-clarifications>where xxx is the project and DOC is the base document against which changes are proposed.
5. All proposals must be published according to section 5 of this document.
6. Reviews of proposed registrations and clarifications may occur at a meeting or on the DL.

7. The proposal will undergo sufficient reviews and updates until, in the opinion of the WG Chair, there is consensus that the proposal is ready for Last Call as described in section 6.1.
8. If, in the opinion of the WG Chair, the Last Call discussions achieve a consensus of approval, the Maintenance Editor will move the approved registration or clarification to the appropriate sub-directory for each project
  - ftp://ftp.pwg.org/pub/pwg/ xxx/DOC/approved-registrations
  - ftp://ftp.pwg.org/pub/pwg/ xxx/DOC/approved-clarificationsand announce the approval to the entire PWG via the PWG-ANNOUNCE DL.
9. Periodically, the Maintenance Editor will incorporate the approved registrations and clarifications into the version of the standard that the PWG keeps to record all approved registrations and clarifications. Such an updated version of the standard will have a new minor version of the standard, along with a Change History Appendix that lists each change.

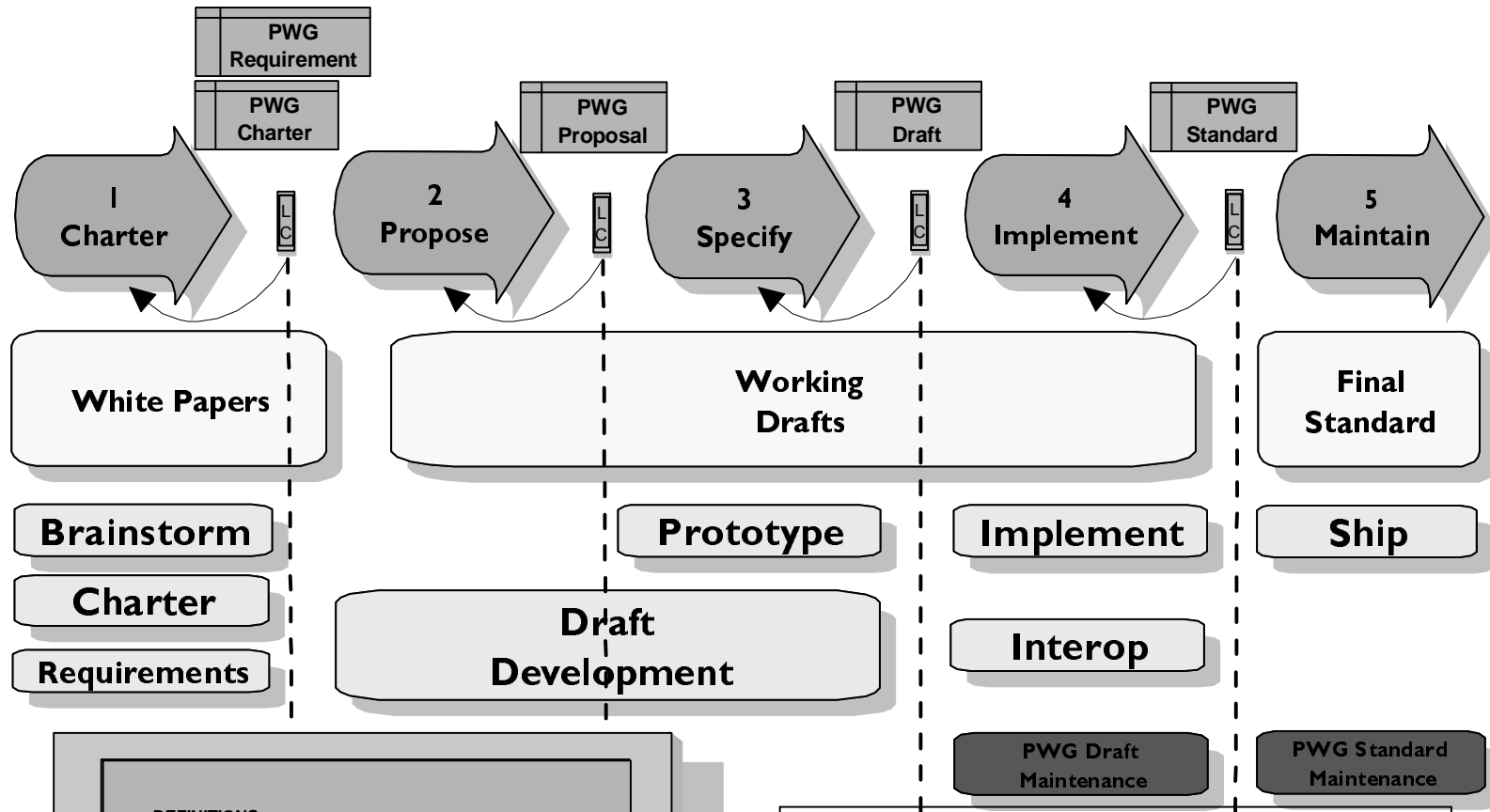
## **8. Process Summary**

The PWG process is summarized in the following table:

<b>Stage</b>	<b>Work in this Stage</b>	<b>Internal Documents</b>	<b>Formal PWG Documents</b>	<b>Exit Criteria</b>
Charter	Identify need Brainstorm ideas Develop Charter Develop Requirements Statement	White Papers	Charter Requirements Statement	Last Call on Requirements and Charter Rough Consensus
Proposal	Develop PWG Proposal	White Papers Working Drafts	PWG Proposal	Last Call on PWG Proposal Rough Consensus
Specification	Develop PWG Draft Prototyping	White Papers Working Drafts	PWG Draft	Last Call on PWG Draft Approval by 85% of votes Approval by PWG Steering Committee Two or more working prototypes
Implementation	Develop PWG Standard Product Implementation begins Interoperability Testing Maintain PWG Draft <ul style="list-style-type: none"> <li>• Clarifications</li> <li>• Registrations</li> <li>• New required function</li> </ul>	White Papers Working Drafts	Updates to PWG Draft PWG Standard	Last Call on PWG Standard Approval by 85% of votes Approval by PWG Chair Simple Majority of PWG implementing Demonstrated interoperability
Maintenance	Maintain PWG Standard <ul style="list-style-type: none"> <li>• Clarifications</li> <li>• Registrations</li> <li>• New required function</li> </ul>	White papers Working Drafts	Maintenance updates to PWG Draft and PWG Standard	n/a

Table I: Summary of PWG Process





**DEFINITIONS**

Rough Consensus (RC) - One vote per Company  
 2/3 Majority / No Strong Opposition  
 85% Majority Overrides Opposition

Exit1 - RC Requirements and Charter  
 Exit2 - RC Proposal  
 Exit3 - 85% Draft, Approved PWG Steering, 2 Prototypes  
 Exit4 - 85% Standard, Interop, PWG Chair approval

Last Call (LC) - Flexible Period not < 1 week

