Writing and Reviewing
Requirements

To write simply is as difficult as to be good. (William Somerset Maugham, author, 1874–1965)

4.1 Introduction

Requirements engineering is a technical process. Writing requirements is therefore not like other kinds of writing. It is certainly not like writing a novel, or a book like this; it is not even like the kind of “technical writing” seen in instruction manuals and user guides.

The purpose of this chapter is to present those aspects of writing requirements that are common to every development layer. Wherever the generic process is instantiated, certain principles and techniques are constant in their application to the expression and structuring of requirements.

In writing a requirements document, two aspects have to be carefully balanced:

1. The need to make the requirements document readable.
2. The need to make the set of requirements processable.

The first of these concerns the structure of the document, how it is organized and how the flow of it helps the reviewer to place individual requirement statements into context. The second focuses on the qualities of individual statements of requirement, the language used to promote clarity and preciseness, and how they are divided into single traceable items.

The experienced requirements engineer comes to realize that a word processor alone is not sufficient to manage a set of requirements, for the individual statements need to be identified, classified and traced. A classic problem, for instance, is the use of paragraph numbers to identify requirements: insert a
new one in the middle, and suddenly all the subsequent requirement identifiers have changed.

Equally, those who have tried simply to manage their requirements in a database quickly realize that tables full of individual statements are unmanageable. Despite having the ability to identify, classify and sort requirements, vital contextual information provided by the document has been lost; single statements lose meaning when separated from their place in the whole.

So both aspects – document and individuality – need to be maintained.

The writing and the reviewing of requirements (or any other kind of document, for that matter) should go hand-in-hand, in that the criteria for writing a good requirement are exactly those criteria against which the requirement should be reviewed. Hence the subjects are treated together in this chapter.

### 4.2 Requirements for Requirements

Before discussing how requirements documents and statements should be written, it is best to review some of the objectives and the purpose for writing requirements in the first place. This will help in understanding why certain principles are suggested.

The starting place is the identification of stakeholders, which is shown in Table 4.1.

Table 4.2 lists capabilities required by the various stakeholders that relate to how requirements documents and statements are written. The basic things that one needs to be able to do with requirements include: identification, classification, elaboration, tracking status, tracing, placing in context and retrieving. How requirements are expressed and organized has a great influence on how “useable” the sets of requirements becomes.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author</td>
<td>Creates the requirements and incorporates changes</td>
</tr>
<tr>
<td>Publisher</td>
<td>Issues and archives the requirements document</td>
</tr>
<tr>
<td>Reviewer</td>
<td>Reviews the requirements and suggests changes</td>
</tr>
<tr>
<td>Implementer</td>
<td>Analyzes the requirements and negotiates changes</td>
</tr>
</tbody>
</table>

Table 4.1 Stakeholders for requirements