

WITHDRAWN:
19980701

Australian Standard®

**Software quality management
system**

Part 2: Implementation guide



This Australian Standard was prepared by Committee QR/3, Software Quality Assurance. It was approved on behalf of the Council of Standards Australia on 20 September 1991 and published on 4 November 1991.

The following interests are represented on Committee QR/3:

Australian Computer Society
Australian Electrical and Electronic Manufacturers Association
Australian Information Industry Association
Australian Organization for Quality
Bureau of Steel Manufacturers of Australia
Civil Aviation Authority (Commonwealth)
Confederation of Australian Industry
Department of Defence (Commonwealth)
Institute of Quality Assurance
Institution of Engineers, Australia
Institution of Radio and Electronics Engineers, Australia
New South Wales Society of Technical Communication
Royal Melbourne Institute of Technology
Software Quality Institute, QI¹
Telecom Australia

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

Australian Standard®

**Software quality management
system**

Part 2: Implementation guide

First published as AS 3563.2—1991.

PREFACE

This Standard was prepared by the Standards Australia Committee on Software Quality Assurance. It has been prepared as guidance for implementing a software quality management system in accordance with the requirements of AS 3563.1, *Software quality management system, Part 1: Requirements*, and has been aligned with the clauses of that Standard.

This Part of the Standard should be read in conjunction with Part 1, which describes the requirements for a software quality management system for software development. Included in this Part of the Standard are a number of suggestions for developers to implement parts of the quality management system; it is not a template for such a system as the levels and types of controls should be selected to conform to the size and practices of the developer's organization.

This implementation guide complements that prepared by ISO: ISO 9000-3, Part 3: *Guidelines for the application of ISO 9001 to the development, supply and maintenance of software*.

It should also be made clear that this is not an auditor's guide. Guidance for auditing and assessment of quality management systems is given in the parts of AS 3911(Int)—1990, *Guidance for auditing quality systems*.

CONTENTS

	<i>Page</i>
FOREWORD	3
1 SCOPE AND FIELD OF APPLICATION	4
2 REFERENCED AND RELATED DOCUMENTS	4
3 DEFINITIONS	4
4 QUALITY SYSTEM REQUIREMENTS	4
APPENDICES	
A LIST OF REFERENCED AND RELATED DOCUMENTS	19
B EXAMPLES OF A SUPPLIER'S POLICY STATEMENT ON QUALITY	21
C EXAMPLE OF A JOB DESCRIPTION	22
D EXAMPLE OF AN ORGANIZATIONAL CHART	23
E EXAMPLE OF A QUALITY ASSURANCE PLANNING PROCEDURE	24
F EXAMPLE OF A PROJECT SUMMARY FORM	26
G EXAMPLE OF QUALITY PLANNING GUIDELINES	28
H EXAMPLES OF PROBLEM REPORTS	30
I EXAMPLE OF A CHANGE CONTROL FLOW DIAGRAM	34
J EXAMPLE OF A SOFTWARE CHANGE PROPOSAL	35
K EXAMPLE OF A SOFTWARE CHANGE AUTHORITY	36
L EXAMPLE OF QUALITY AUDIT AND REVIEW PROCEDURE	37
M EXAMPLE OF AN AUDIT REPORT	38
N EXAMPLE OF A TRAINING SCHEME COURSE ASSESSMENT	39
O EXAMPLE OF A LIBRARY CONTROL REGISTER	40

© Copyright — STANDARDS AUSTRALIA.

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

FOREWORD

The development and acquisition of computerized systems may be characterized by a recognized combination of two major components: hardware and software. The successful integration of these two major components is essential for compliance with overall user requirements. Essential to this successful integration is the application of a disciplined approach to management provided by a quality system.

Part 1 of this Standard presents a statement of requirements which may be nominated by individual customers, as a condition of contract or agreement, when seeking to obtain software for which they have need for assurance of quality prior to acceptance. This Part of the Standard gives practical guidance to software developers who are implementing these requirements either in response to a customer's demand or as a proactive step in improvement of quality.

As stated in Part 1, the requirements of the Standard only define the essential elements or features of the quality management system and Part 1 does not seek to prescribe how this system should be implemented. This Part of the Standard is a distillation of practical experience for this task of implementation. It is neither prescriptive nor exclusive and so nothing contained herein should be construed as being the best or only way to effectively implement a quality management system. It is for developers to establish the procedures appropriate to their scale, methodologies and organization to achieve the system outlined by the requirements of Part 1.

The examples given in the appendices which have been drawn from a number of sources are illustrative only and should not be assumed to be applicable to all situations.

STANDARDS AUSTRALIA

Australian Standard

Software quality management system

Part 2: Implementation guide

1 SCOPE AND FIELD OF APPLICATION

1.1 Scope This Standard provides guidance for implementing a software quality management system in accordance with the requirements of AS 3563.1. It may also be used for reviewing existing software quality assurance functions.

By necessity, the coverage is general as the needs of a particular organization must be tailored to suit the nature of the developer/client/customer relationship, and their understanding of their freedom to change requirements. Specific requirements, procedures and practices may thus vary from the implementation guidelines. Alignment has been made with each of the clauses of AS 3563.1, coverage being provided where required in the following format:

- (a) Explanation of the intention of the clause and any special terminology.
- (b) Details on how to implement the clause including, where necessary, relationships and interfaces.
- (c) Any forms or charts which may assist.

1.2 Application The clauses in this Standard apply equally to all computer software used throughout an organization, whether that software be—

- (a) developed for an external customer;
- (b) developed for internal users;
- (c) developed by a subcontractor (whether for internal use or as part of development of a larger system for an external customer); or
- (d) procured as already-developed software (whether for internal use or for use as part of a larger system for an external customer).

The term 'customer' may be equated to 'user' in an 'in-house' situation and the term 'contract' may be taken to include all those arrangements taken to initiate development action where the development is for an 'in-house' situation.

This Part of the Standard should be read in conjunction with Part 1 as the clauses of Part 1 are not repeated in this Part and therefore it does not stand alone.

2 REFERENCED AND RELATED DOCUMENTS A list of referenced and related documents is given in Appendix A.

NOTE: Throughout this Standard reference to AS 3901 is to be taken as reference to AS 3901/NZS 9001/ISO 9001 and reference to AS 3904.1 is to be taken as reference to AS 3904.1/NZS 9004.1/ISO 9004.

3 DEFINITIONS For the purpose of this Standard, the definitions given in AS 1057 and AS 3563.1 apply.

4 QUALITY SYSTEM REQUIREMENTS**4.1 Management responsibility**

4.1.1 Quality policy Authority and direction for the implementation of a software quality assurance system are provided by documented company policy. Additional information may be obtained from the related documents in Appendix A.

NOTE: Examples of policy statements on quality are provided in Appendix B of this Standard.

4.1.2 Organization The clause and its guidance require a developer to appoint a management representative. In a large organization, this person may be called the quality manager (or equivalent). It is recommended that an appointment to this position be made in writing, with a duty statement. It is a sound practice to include the duty statement and an organization chart in the manual of procedures.

NOTE: An example of a duty statement for the quality manager is provided in Appendix C.

Determining the person that this quality manager reports to can be difficult. However, the responsibility to provide assurance of the production processes and of the products themselves represents a delegation of authority from the general manager of the organization or business. Ideally the quality manager should be independent of the functions for developing the product and be equivalent in authority to the managers of those functions that also report to the general manager. The quality manager is responsible for the establishment and maintenance of a documented quality management system, for the compliance of supplies and internal functions to quality system requirements, and for the