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**Australian Standard®
New Zealand Standard**

**Quality management and quality
assurance standards**

**Part 3: Guidelines for the
application of ISO 9001 to the
development, supply and
maintenance of software**

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STANDARDS NEW ZEALAND

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee QR/3, Software Quality Assurance. It was approved on behalf of the Council of Standards Australia on 9 February 1993 and on behalf of the Council of Standards New Zealand on 28 February 1992. It was published on 13 April 1993.

The following interests are represented on Committee QR/3:

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Australian Information Industry Association
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AS 3900.3—1993
NZS 9000.3:1993
ISO 9000-3:1991

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PREFACE

This Standard is identical with, and has been reproduced from, ISO 9000-3:1991, *Quality management and quality assurance standards, Part 3: Guidelines for the application of ISO 9001 to the development, supply and maintenance of software*, published by the International Organization for Standardization (ISO). The Joint Standards Australia/Standards New Zealand Committee on Software Quality Assurance provided input to International Committee ISO/TC 176 in the preparation of the draft ISO 9000-3. It is issued as a Joint Australian/New Zealand Standard with the object of reducing technical barriers to trade and assisting software developers operating in the international marketplace.

AS 3900.3/NZS 9000.3/ISO 9000-3 provides guidelines and should be used in conjunction with AS 3901/NZS 9001/ISO 9001, *Quality systems for design/development, production, installation and servicing*, which specifies requirements for quality systems that can be used for external quality assurance purposes.

NOTES:

- 1 These guidelines are not intended and should not be interpreted as requirements for contractual, regulatory, audit, certification or external quality assurance purposes.
- 2 The guidance provided in this Standard does not add to, lessen or otherwise change the requirements of AS 3901/NZS 9001/ISO 9001.
- 3 Throughout this Standard the word 'should' is used to introduce guidance or recommendations that are not mandatory. Where there is no further guidance, the text of the relevant clause of AS 3901/NZS 9001/ISO 9001 is given. These clauses are printed in italics and the word 'shall' is retained, indicating requirements which are part of AS 3901/NZS 9001/ISO 9001.
- 4 Purchasers or regulatory authorities cannot require companies to comply with guidance Standards, nor can companies undergoing audit or certification be required to comply with or make use of guidance Standards. Software developers cannot claim compliance with or certification to guidance Standards.
- 5 Annexes A and B of this Standard are for information only.

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For the purpose of this Joint Standard, the ISO/IEC text should be modified as follows:

- (a) *Terminology* The words 'Australian Standard', 'New Zealand Standard' or 'Joint Australian/New Zealand Standard' should replace the words 'International Standard' wherever they appear.
- (b) *References* The references to International Standards should be replaced by references to the following Australian/New Zealand Standards:

*Reference to International Standard**Australian or New Zealand Standard*ISO
9000Quality management and
quality assurance
Standards—Guidelines
for selection and useAS 3900/
NZS 9000

AS 3900.1/
NZS 9000.1Quality management and
quality assurance
standards
Part 1: Guidelines for
selection and use

ISO/DIS 9000-2	Part 2: Generic guidelines for the application of ISO 9001, ISO 9002 and ISO 9003	AS 3900.2(Int)/ NZS 9000.2(Int)	Part 2: Generic guidelines for the application of AS 3901/NZS 9001/ISO 9001, AS 3902/NZS 9002/ISO 9002, AS 3903/NZS 9003/ISO 9003
9001	Quality systems—Model for quality assurance in design/development, production, installation and servicing	AS 3901/ NZS 9001	Quality systems for design/development, production, installation and servicing
10011	Guidelines for auditing quality systems	AS 3911/ NZS 10011	Guidelines for auditing quality systems
10011.1	Part 1: Auditing	AS 3911.1 NZS 10011.1	Part 1: Auditing
2382	Data processing—Vocabulary	AS 1189	Data processing—Vocabulary
2382.1	Part 1: Fundamental terms	AS 1189.1	Part 1: Fundamental terms
8402:1986	Quality—Vocabulary	NZS 5604:1987	Quality—Vocabulary

As AS 3563, *Software quality management systems*, Part 1: *Requirements*, and Part 2: *Implementation* are already published, it is important that the differences in application between AS 3563 and this Standard are understood. AS 3563.1 is a stand-alone requirements Standard that describes quality system elements applicable to the specification, design, development, testing, installation, operation and maintenance of software. It is presented so as to make obvious its correspondence and coexistence with AS 3901/NZS 9001/ISO 9001 and provides considerations and terminology relevant to the software development process. AS 3563.2 provides supplementary guidance on implementation.

The Standards against which software quality system audits or assessments are made and developers' quality systems are certified are those that mandate requirements, viz. AS 3901/NZS 9001/ISO 9001 and AS 3563.1. The related guidance Standards AS 3900.3/NZS 9000.3/ISO 9000-3 and AS 3563.2 give guidance to developers and auditors on how the respective requirements Standards could be interpreted and implemented in software development.

Therefore software developers seeking quality system certification have amongst their options certification to AS 3563.1, to ISO 9001 (as applied via AS 3900.3/NZS 9000.3/ISO 9000-3), or joint certification to AS 3563 and AS 3901/NZS 9001/ISO 9001.

Companies operating in the international marketplace should consider seeking the wider recognition of certification to ISO 9001. However, companies developing a quality management system may find it more straightforward to address the software-specific auditable requirements of AS 3563.1. Joint certification will provide the benefits of both Standards.

ISO 9001 and AS 3563.1 contain very similar requirements, and companies certified to one should find it relatively simple to achieve certification to the other. However, it cannot be assumed certification to one is sufficient to obtain certification to the other. Certification to both Standards concurrently is probably simpler than successive certification audits.

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Introduction

With the progress of information technology, the amount of software products has been increasing and the quality management of software products is essential. One of the means of establishing a quality management system is to provide guidance for software quality assurance.

The requirements for a generic quality system for two-party contractual situations have already been published: ISO 9001:1987, *Quality systems — Model for quality assurance in design/development, production, installation and servicing*.

However, the process of development and maintenance of software is different from that of most other types of industrial products. In such a rapidly evolving technology field it is therefore necessary to provide additional guidance for quality systems where software products are involved, taking into account the present status of this technology.

The nature of software development is such that some activities are related to particular phases of the development process, while others may apply throughout the process. These guidelines have therefore been structured to reflect these differences. This document thus does not correspond directly in format with ISO 9001 and cross-reference indexes (annex A and annex B) are provided to give assistance when referring to that standard.

Contracts between two parties for software product development may occur in many variations. In certain cases of two-party contracts, these guidelines might not be applicable even if "tailored". It is therefore important to determine the adequacy of the application of this part of ISO 9000 to the contract.

This part of ISO 9000 deals primarily with situations where specific software is developed as part of a contract according to purchaser's specifications. However, the concepts described may be equally of value in other situations.

NOTES

- 1 In English, use of the masculine gender in this part of ISO 9000 is not meant to exclude the feminine gender where applied to persons. Similarly, use of the singular does not exclude the plural (and vice versa) when the sense allows.
- 2 Throughout this part of ISO 9000 where there is no further guidance, the text of the relevant ISO 9001 clause is given and printed in italics.
- 3 In this part of ISO 9000 there are a number of lists; none of these is presumed to be exhaustive — they are intended as examples.

Quality management and quality assurance standards

Part 3: Guidelines for the application of ISO 9001 to the development, supply and maintenance of software

1 Scope

This part of ISO 9000 sets out guidelines to facilitate the application of ISO 9001 to organizations developing, supplying and maintaining software.

It is intended to provide guidance where a contract between two parties requires the demonstration of a supplier's capability to develop, supply and maintain software products.

The guidelines in this part of ISO 9000 are intended to describe the suggested controls and methods for producing software which meet a purchaser's requirements. This is done primarily by preventing nonconformity at all stages from development through to maintenance.

The guidelines in this part of ISO 9000 are applicable in contractual situations for software products when

- a) the contract specifically requires design effort and the product requirements are stated principally in performance terms, or they need to be established;
- b) confidence in the product can be attained by the adequate demonstration of a certain supplier's capabilities in development, supply and maintenance.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 9000. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9000 are encouraged to investigate the possibility of applying the most recent edi-

tions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2382-1:1984, *Data processing — Vocabulary — Part 01: Fundamental terms.*

ISO 8402:1986, *Quality — Vocabulary.*

ISO 9001:1987, *Quality systems — Model for quality assurance in design/development, production, installation and servicing.*

ISO 10011-1:1990, *Guidelines for auditing quality systems — Part 1: Auditing.*

3 Definitions

For the purposes of this part of ISO 9000, the definitions given in ISO 2382-1 and ISO 8402 apply, together with the following definitions.

3.1 software: Intellectual creation comprising the programs, procedures, rules and any associated documentation pertaining to the operation of a data processing system.

[ISO 2382-1:1984, 01.04.04]

NOTE 4 Software is independent of the medium on which it is recorded.

3.2 software product: Complete set of computer programs, procedures and associated documentation and data designated for delivery to a user.

3.3 software item: Any identifiable part of a software product at an intermediate step or at the final step of development.