
**Condition monitoring and diagnostics
of machine systems — Data
processing, communication and
presentation —**

Part 4:
Presentation

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*Surveillance et diagnostic d'état des machines — Traitement, échange
et présentation des données —*

Partie 4: Présentation

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 108, *Mechanical vibration, shock and condition monitoring*, Subcommittee SC 5, *Condition monitoring and diagnostics of machine systems*.

ISO 13374 consists of the following parts, under the general title *Condition monitoring and diagnostics of machine systems — Data processing, communication and presentation*:

- *Part 1: General guidelines*
- *Part 2: Data processing*
- *Part 3: Communication*
- *Part 4: Presentation*

Introduction

The various computer software systems written for condition monitoring and diagnostics (CM&D) of machines that are currently in use cannot easily exchange data or operate in a plug-and-play fashion without an extensive communication infrastructure. The lack of an all-purpose communication system makes it difficult to integrate various CM&D sub-systems and provide a unified view of the condition of machinery to users. The intent of ISO 13374 is to provide the basic requirements for open CM&D software architecture in order to allow CM&D information to be processed, communicated, and displayed by various software packages independent of platform-specific or hardware-specific protocols.

ISO 13374-1 gives a general overview of data processing, communication, and presentation. ISO 13374-2 provides greater details into data processing methodology and requirements that should be present in today's software-enhanced systems. ISO 13374-3 provides the requirements of the data communication architecture for open CM&D systems. This part of ISO 13374 provides the requirements for the presentation of CM&D information for diagnostic analysis and decision support.

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Condition monitoring and diagnostics of machine systems — Data processing, communication and presentation —

Part 4: Presentation

1 Scope

This part of ISO 13374 details the requirements for presentation of information for technical analysis and decision support in an open architecture for condition monitoring and diagnostics. Software design professionals need to present diagnostic/prognostic data, health information, advisories, and recommendations on computer displays and in written report formats to end-users. This part of ISO 13374 provides standards for the display of this information in CM&D systems.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13372, *Condition monitoring and diagnostics of machines — Vocabulary*

ISO 13374-1, *Condition monitoring and diagnostics of machines — Data processing, communication and presentation — Part 1: General guidelines*

ISO 13374-2, *Condition monitoring and diagnostics of machines — Data processing, communication and presentation — Part 2: Data processing*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13372 apply.

4 Open CM&D information architecture presentation requirements

4.1 Overview

An information architecture describes all the data objects and their properties (or attributes), data types, data object relationships, reference data, and data documents for a given system or application. As specified in ISO 13374-2, an open CM&D information architecture describes the content for each of the five layers shown in [Figure 1](#).

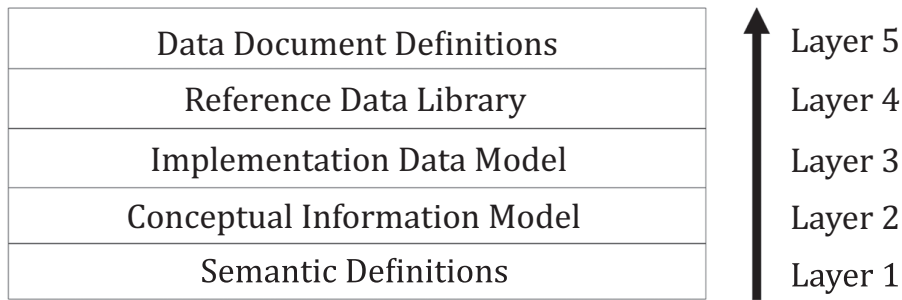


Figure 1 — CM&D information architecture layers (from ISO 13374-2:2007)

4.2 Basic requirements

To support the continuous improvement of end-user interfaces, including graphical user interfaces (GUIs), displays, and reports, an open CM&D information architecture shall separate presentation and display functionality from the information content and logic. Presentation interface functionality is often described using templates which specify the method of formatting end-user displays and reports and allow customization. The presentation interfaces in an open CM&D information architecture shall communicate with a layer 5 data document definition and comply with a defined layer 4 reference data library. Implementations will vary according to application requirements.

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4.3 Authentication and authorization requirements

In computing, authentication is the mechanism by which a software system may securely identify who is using the system. Authorization, by contrast, is the mechanism by which a system determines what level of access and functionality a particular authenticated user should have to secure resources controlled by the system. An open CM&D information architecture shall support user authentication and should support user authorization. The architecture shall also specify the supported methods utilized for authentication and authorization, if authorization is supported.

4.4 Internationalization and localization requirements

In computing, internationalization and localization are the mechanisms by which a software system can readily adapt to different languages, time zones, regional differences, and technical requirements of an end-user population. Internationalization is the process of designing a software application so that it can be adapted to various languages and regions without engineering changes. Localization is the process of adapting internationalized software for a specific region or language by adding locale-specific components and translating text. An open CM&D information architecture shall specify the supported methods for end-user internationalization and localization.

4.5 User tracking requirements

The tracking of user interactions with a software system is often necessary to meet regulatory requirements. An open CM&D information architecture should specify the supported user tracking methodology and the methods of reporting on this information.

4.6 User configuration requirements

Software systems often permit users to configure a system to meet their specific needs. This configuration information should then be captured and utilized during each subsequent user session. An open CM&D information architecture should specify the supported user configuration options.

5 Open CM&D processing architecture presentation requirements

5.1 Overview

A processing architecture describes the interactions or transactions between modules internal to the software system itself, external from end-user interactions, or external from other software system interactions. As specified in ISO 13374-1, an open CM&D processing architecture specification shall utilize the processing architecture shown in [Figure 2](#).

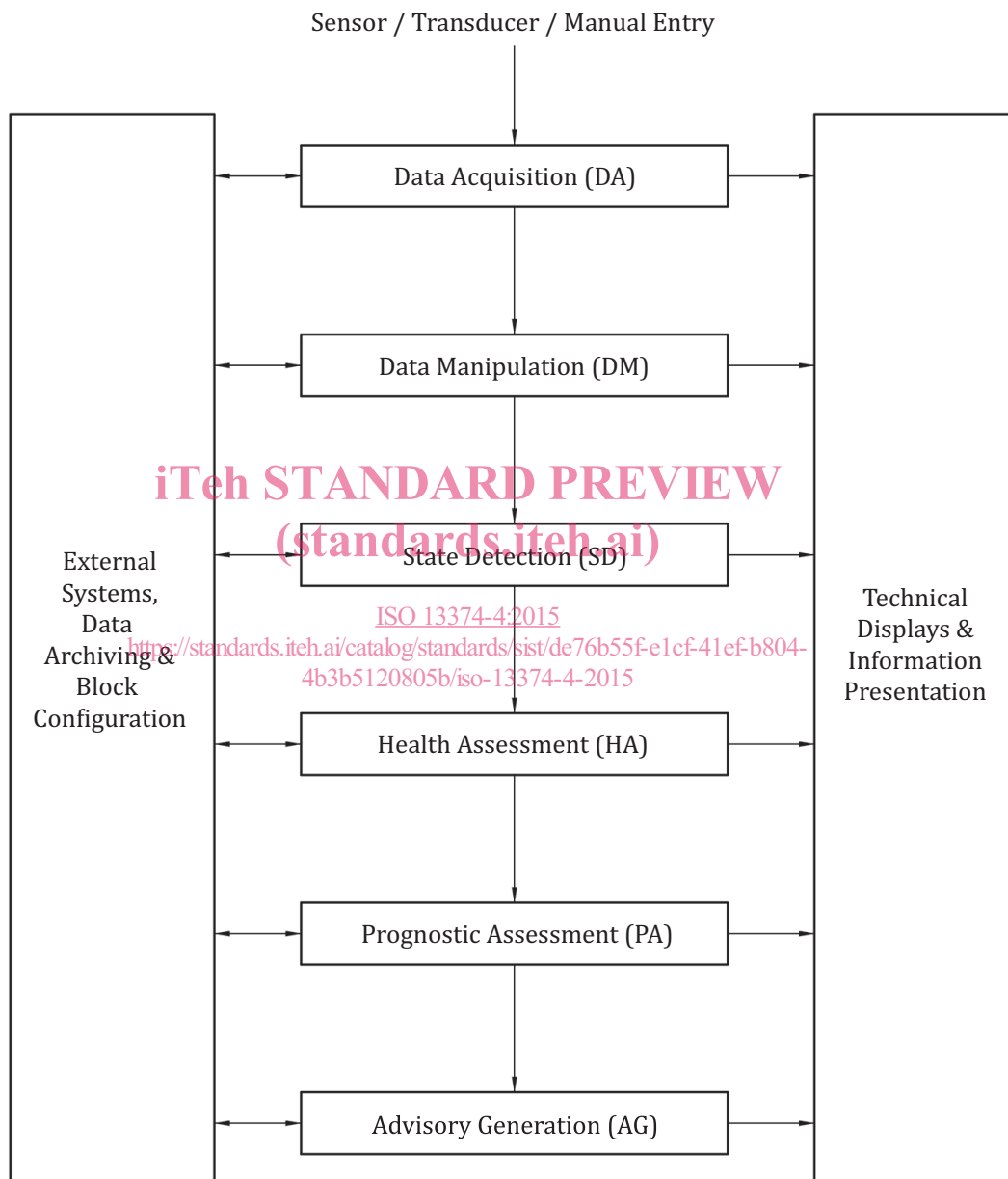


Figure 2 — Data processing block diagram (from ISO 13374-1:2003)

This architecture is defined as blocks of data processing functionality. After each block in the system has been properly configured, the basic data are converted into digital form in data acquisition (DA) and are processed in various ways as they are transformed into actionable information, resulting in advisory generation (AG). As the processing progresses from DA to AG, data from preceding blocks need to be transferred to subsequent blocks and additional information acquired from or sent to external systems. Similarly, as the data evolve into information, both standard technical displays and graphical presentation formats are required. This part of ISO 13374 defines the technical displays (TD)