BS ISO 16300-2:2019

BSI Standards Publication

Automation systems and integration — Interoperability of capability units for manufacturing application solutions

Part 2: Capability templates and software unit cataloguing

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National foreword

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Part 2: Capability templates and software unit cataloguing

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Partie 2: Modèles de capacités et cataloguage des unités logicielles

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Foreword

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This document was prepared by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 5, *Interoperability, integration, and architectures for enterprise systems and automation applications*.

A list of all parts in the ISO 16300 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The ISO 16300 series addresses requirements of users and suppliers of manufacturing software regarding the interoperability of software in the area of industrial automation.

User interoperability requirements include:

— integrating an automation application system by combining capabilities of a set of software components provided by various sources;

— integrating the capability of a software unit from one resource system platform to another platform;

— validating and verifying the capability of a software unit to meet the automation application system requirements.

Supplier requirements include:

— representing the set of capabilities provided by a software component used in a software unit;

— verifying software component capability as a part of a required software unit capability;

— cataloguing a software unit in terms of its capability for interoperability in an automation application system to support wide distribution.

The ISO 16300 series also addresses software interoperability services, which include:

— access to the description of a software capability to enable interoperability assessment;

— enabling the search and location of candidate software units and components, preferably automatically, using search engines;

— representing the dependencies between software components for an automation application hosted on a particular system platform.

Software capability is first defined as a set of functions and services with a set of criteria for evaluating the performance of a capability provider. It is then expressed and represented as facts about the software, how and what it can do. The ISO 16100 series, which deals with manufacturing software capability profiling for interoperability, was developed with the aim of providing a standardized method to describe capabilities of manufacturing software in terms of the Manufacturing Software Unit (MSU) capability profile. In the ISO 16100 series, the software component is included in the MSU. The ISO 16100 series also provides a way to exchange an MSU's capability as information by means of a capability profile. Software capability profiling is the basis for providing the above-mentioned software interoperability services. The ISO 16100 series is used and applied as the foundation for the ISO 16300 series.

To establish the ISO 16300 series, a number of steps were required. The initial step shows what interoperability services are enabled by using software capability profiles. The subsequent steps develop concrete methods and mechanisms to provide these interoperability services. The resulting output from ISO 16300 is divided into the following parts.

— ISO 16300-1 specifies a framework for describing an automation solution in terms of a set of capabilities provided by a set of MSUs. The framework also defines a set of capability elements and composition rules to represent the interoperability criteria in terms of the automation system capability requirements of an enterprise application.

— This document (ISO 16300-2) specifies the template definition to describe the capability of a software unit of an automation solution that can be mapped to the functional requirements of a target manufacturing application. This document also specifies mapping rules for composing the contents of a software unit catalogue item in terms of the properties of the capability.

— ISO 16300-3 specifies the framework for verifying interoperability of capability units associated with application requirements and system solutions.

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— ISO 16300-4 specifies the search methodology for acquiring candidate capability units which satisfy the manufacturing application requirements from the software unit catalogues. It also describes the structure of the report.

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