

ICS 25.040.01

CCS J 07



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 40283.4-2023

**Automation systems and integration - Interoperability of capability
units for manufacturing application solutions - Part 4: Capability unit
assessment for the manufacturing application requirements**

自动化系统与集成 制造应用解决方案的能力单元互操作 第4部分：制造应用需求
的能力单元评估

(English Translation)

Issued on: November 27, 2023

Implemented on: June 1, 2024

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Introduction	
1 Scope	
2 Normative references	
3 Terms and Definitions	
4 Overview of unit of competency assessment	
4.1 Brief description of software unit directory	
4.2 Overall process of competency unit assessment	
5 Software unit directory retrieval process	
6 Functional Assessment Process	
7 Interface Evaluation Process	
8 Assessment Reporting Process	11
Appendix A (Informative) Competency Template Example	
Appendix B (Informative) Example 23 of Specific Specifications on Required Competencies	
Appendix C (Informative) Evaluation Report Example	
Reference	

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document is Part 4 of GB/T 40283 "Interoperability Units of Automation Systems and Integrated Manufacturing Application Solutions":

GB/T 40283 has released the following parts:

---Part 3: Verification and confirmation of interoperability of capability units;

---Part 4: Assessment of units of competency for manufacturing application requirements:

This document is equivalent to ISO 16300-4:2019 "Interoperability Units of Automation Systems and Integrated Manufacturing Application Solutions" Part 4: Assessment of units of competency for manufacturing application requirements:

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

Introduction

GB/T 40283 addresses the needs of manufacturing software users and suppliers for software interoperability in the field of industrial automation:

User interoperability requirements include:

- Integrate automation application systems through the ability to combine a set of software components provided by various sources;
- Integrate the capabilities of software units from one resource system platform to another;
- Verify and confirm the ability of the software unit to meet the requirements of the automation application system:

Supplier requirements include:

- Represents the set of capabilities provided by the software components used in the software unit;
- Verify whether the software component capabilities are part of the required software unit capabilities;
- Catalog software units based on their interoperability in automation application systems to support broad distribution:

GB/T 40283 also involves software interoperability services, including:

- Access descriptions of software capabilities to enable interoperability assessment;
- It is best to use a search engine to automatically search and locate candidate software units and components;
- Represents dependencies between software components of an automation application running on a specific system platform:

First, software capabilities are defined as standards with a set of capabilities and services that are used to evaluate the performance of capability providers: and then express it and are expressed as facts about software, capabilities, and capabilities: ISO 16100 (all parts) deals with interoperability capability building for manufacturing software the specification aims to provide a standardized method to describe the capabilities of manufacturing software based on the Manufacturing Software Unit (MSU) capability specification: exist in ISO 16100, software components are included in the MSU: ISO 16100 also provides a way to incorporate MSU capabilities as information through capability specifications:

way of exchange: Software capability building planning is the basis for providing the above software interoperability services: ISO 16100 is used as the basis for GB/T 40283 Base:

To establish GB/T 40283, many steps need to be performed: Initial steps show which

interops are enabled using software capability specifications Sexual services: Subsequent steps develop specific methods and mechanisms for providing these interoperability services: The output results of GB/T 40283 are planned to be divided into four composed of parts:

---Part 1: Application requirements capability unit interoperability criteria: The purpose is to describe automation in terms of capabilities provided by a set of MSUs solution:

---Part 2: Capability templates and software unit classification: The purpose is to describe the capabilities of a software unit of an automation solution that Capability requirements that can be mapped to target manufacturing applications:

---Part 3: Verification and validation of competency unit interoperability: The purpose is to use a verification and validation framework to interoperate with the Describe the steps for using and implementing operational criteria:

---Part 4: Assessment of units of competency for manufacturing application requirements: The purpose is to indicate that candidates in the software unit catalog have manufacturing applications the degree of correspondence with needs:

Automation systems and integration Unit of competency interoperability for manufacturing application solutions Part 4: Assessment of units of competency for manufacturing application requirements

1 Scope

This document specifies a search method for obtaining candidate capability units that meet the requirements of manufacturing applications from the software unit catalog:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations for undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

ISO 16100-1 Capability-building regulations for interoperability of industrial automation systems and integrated manufacturing software Part 1: Framework (Industrial Framework)

Note: GB/T 19902.1-2005 Regulations on Capability Building for Interoperability of Industrial Automation Systems and Integrated Manufacturing Software Part 1: Framework (ISO 16100-1:

2002)

ISO 16100-3 Interoperability Capability Establishment of Industrial Automation Systems

and Integrated Manufacturing Software Part 3: Interface Services, Protocols Note: GB/T 19902.3-2006 Industrial automation system and integrated manufacturing software interoperability capability building regulations Part 3: Interface services, protocols and capabilities Force template (ISO 16100-3:2005, IDT) ISO 16100-5 Capability building regulations for interoperability of industrial automation systems and integrated manufacturing software Part 5: Based on multi-capability classification Note: GB/T 19902.5-2011 Industrial automation system and integrated manufacturing software interoperability capability construction regulations Part 5: Based on multi-capability class structure Methodology for specific regulation matching (ISO 16100-5:2009, IDT) ISO 16100-6 Capability building regulations for interoperability of industrial automation systems and integrated manufacturing software Part 6: Based on multi-capability classification Note: GB/T 19902.6-2012 Industrial automation system and integrated manufacturing software interoperability capability construction regulations Part 6: Based on multi-capability class structure Interface services and protocols for specialized matching (ISO 16100-6:2011, IDT) ISO 16300-1 Interoperability units of automation systems and integrated manufacturing application solutions Part 1: Application requirement capabilities requirements) ISO 16300-2 Competency unit interoperability between automation systems and integrated manufacturing application solutions Part 2: Competency templates and