

Australian Standard™

**Industrial automation systems and
integration—Product data
representation and exchange**

**Part 22: Implementation methods:
Standard data access interface**



Standards Australia

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First published as AS 10303.22—2000.

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Published by Standards Australia International Ltd
PO Box 1055, Strathfield, NSW 2135, Australia

ISBN 0 7337 3442 1

PREFACE

This Standard was prepared by the Standards Australia Committee IT/6, Information Technology for Industrial Automation and Integration. This Standard is identical with and has been reproduced from ISO 10303-22:1998, *International automation systems and integration—Product data representation and exchange*, Part 22: *Implementation methods: Standard data access interface*.

The objective of this Standard is to provide designers of computer-interpretable representation and exchange of product data with a specification for the operations available to an application for the purposes of acquiring an manipulating data whose structure is defined by using Part 11 of this Standard.

This Standard is Part 22 of AS 10303, *Industrial automation systems and integration—Product data representation and exchange*, which is published in parts as follows:

- Part 1: Overview and fundamental principles
- Part 11: Description methods: The EXPRESS language reference manual
- Part 12: Description methods: The EXPRESS-I language reference manual
- Part 21: Implementation methods: Clear text encoding of the exchange structure
- Part 22: Implementation methods: Standard data access interface (this Standard)
- Part 31: Conformance testing methodology and framework: General concepts
- Part 41: Integrated generic resources: Fundamentals of product description and support
- Part 42: Integrated generic resources: Geometric and topological representation
- Part 43: Integrated generic resources: Representation structure
- Part 44: Integrated generic resources: Product structure configuration
- Part 45: Integrated generic resources: Materials
- Part 46: Integrated generic resources: Visual presentation
- Part 47: Integrated generic resource: Shape variation tolerances
- Part 49: Integrated generic resources: Process structure and properties
- Part 101: Integrated application resources: Draughting
- Part 105: Integrated application resource: Mathematics
- Part 201: Application protocol: Explicit draughting
- Part 202: Application protocol: Associative draughting
- Part 203: Application protocol: Configuration controlled design
- Part 203: Application protocol—Configuration controlled design (Amendment No.1)
- Part 207: Application protocol: Sheet metal die planning and design
- Part 224: Application protocol: Mechanical product definition for process planning using machining features

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A normative annex is an integral part of a Standard, whereas an informative annex is only for information and guidance.

As this Standard is reproduced from an International Standard, the following applies:

- (a) The number does not appear on each page of text and its identity is shown only on the cover and title page.
- (b) In the source text 'this part of ISO 10303' should read 'this Australian Standard'.
- (c) A full point should be substituted for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to equivalent Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian or Australian/New Zealand Standard</i>	
ISO		AS/NZS	
8601	Data elements and interchange formats—Information interchange—Representation of dates and times	3802	Data elements and interchange formats—Information interchange—Representation of dates and times
		AS	
10303	Industrial automation systems and integration—Product data representation and exchange	10303	Industrial automation systems and integration—Product data representation and exchange
10303-1	Part 1: Overview and fundamental principles	10303.1	Part 1: Overview and fundamental principles
10303-11	Part 11: Description methods: The EXPRESS language reference manual	10303.11	Part 11: Description methods: The EXPRESS language reference manual
10303-21	Part 21: Implementation methods: Clear text encoding of the exchange structure	10303.21	Part 21: Implementation methods: Clear text encoding of the exchange structure
10303-31	Part 31: Conformance testing methodology and framework: General concepts	10303.31	Part 31: Conformance testing methodology and framework: General concepts
ISO/IEC		AS/NZS	
8824	Information technology—Abstract Syntax Notation One (ASN.1)	8824	Information technology—Abstract Syntax Notation One (ASN.1)
8824-1	Part 1: Specification of basic notation	8824.1	Part 1: Specification of basic notation

CONTENTS

	<i>Page</i>
1 Scope	1
2 Normative references	2
3 Definitions and abbreviations	3
3.1 Terms defined in ISO 10303-1	3
3.2 Terms defined in ISO 10303-11	3
3.3 Other definitions	4
3.3.1 application schema	4
3.3.2 concurrent access	4
3.3.3 constraint	4
3.3.4 current schema	4
3.3.5 external schema	4
3.3.6 foreign schema	4
3.3.7 identifier	4
3.3.8 implementation class	4
3.3.9 iterator	4
3.3.10 native schema	4
3.3.11 repository	4
3.3.12 schema instance	4
3.3.13 SDAI-model	4
3.3.14 SDAI language binding	4
3.3.15 SDAI schema	5
3.3.16 session	5
3.3.17 validation	5
3.4 Abbreviations	5
4 SDAI overview	5
4.1 Data access interfaces	5
4.2 Operations and the session state	5
4.3 Repositories, schema instances, and SDAI-models	5
4.4 Transactions and access modes	6
4.5 The session, data dictionary and managing a population	7
4.6 SDAI parameters and data schema	8
4.7 Functional specification	8
4.8 SDAI language bindings	9
4.9 Error handling	10
5 Fundamental principles	10

6 SDAI dictionary schema	11
6.1 Introduction	11
6.2 Fundamental concepts and assumptions	12
6.3 SDAI dictionary schema type definitions	12
6.3.1 base_type	12
6.3.2 constructed_type	12
6.3.3 underlying_type	13
6.3.4 type_or_rule	13
6.3.5 explicit_or_derived	13
6.3.6 express_id	13
6.3.7 info_object_id	14
6.4 SDAI dictionary schema entity definitions	14
6.4.1 schema_definition	14
6.4.2 interface_specification	15
6.4.3 interfaced_item	15
6.4.4 explicit_item_id	16
6.4.5 used_item	16
6.4.6 referenced_item	16
6.4.7 implicit_item_id	17
6.4.8 external_schema	17
6.4.9 domain_equivalent_type	18
6.4.10 named_type	18
6.4.11 defined_type	19
6.4.12 entity_definition	19
6.4.13 attribute	20
6.4.14 derived_attribute	21
6.4.15 explicit_attribute	21
6.4.16 inverse_attribute	22
6.4.17 uniqueness_rule	22
6.4.18 where_rule	23
6.4.19 global_rule	23
6.4.20 simple_type	24
6.4.21 number_type	24
6.4.22 integer_type	24
6.4.23 real_type	25
6.4.24 string_type	25
6.4.25 binary_type	26
6.4.26 logical_type	26
6.4.27 boolean_type	26
6.4.28 enumeration_type	27
6.4.29 select_type	27
6.4.30 aggregation_type	27
6.4.31 variable_size_aggregation_type	28
6.4.32 set_type	28
6.4.33 bag_type	28
6.4.34 list_type	29
6.4.35 array_type	29
6.4.36 bound	30
6.4.37 population_dependent_bound	30

6.4.38 integer_bound	30
7 SDAI session schema	31
7.1 Introduction	31
7.2 Fundamental concepts and assumptions	31
7.3 SDAI session schema type definitions	32
7.3.1 access_type	32
7.3.2 error_base	32
7.3.3 time_stamp	32
7.4 SDAI session schema entity definitions	33
7.4.1 sdai_session	33
7.4.2 implementation	34
7.4.3 sdai_repository	35
7.4.4 sdai_repository_contents	36
7.4.5 sdai_transaction	36
7.4.6 event	36
7.4.7 error_event	37
8 SDAI population schema	38
8.1 Introduction	38
8.2 Fundamental concepts and assumptions	39
8.3 SDAI population schema type definitions	39
8.3.1 schema_definition	39
8.3.2 entity_definition	39
8.4 SDAI population schema entity definitions	39
8.4.1 schema_instance	39
8.4.2 sdai_model	41
8.4.3 sdai_model_contents	42
8.4.4 entity_extent	42
8.4.5 scope	43
9 SDAI parameter data schema	44
9.1 Introduction	44
9.2 Fundamental concepts and assumptions	45
9.3 SDAI parameter data schema type definitions	45
9.3.1 primitive	45
9.3.2 assignable_primitive	46
9.3.3 aggregate_primitive	46
9.3.4 string_value	46
9.3.5 binary_value	47
9.3.6 integer_value	47
9.3.7 real_value	47
9.3.8 number_value	47
9.3.9 boolean_value	47
9.3.10 logical_value	48
9.3.11 bound_instance_value	48
9.3.12 query_source	48
9.4 SDAI parameter data schema entity definitions	49
9.4.1 iterator	49

9.4.2	entity_instance	49
9.4.3	application_instance	50
9.4.4	sdai_instance	50
9.4.5	dictionary_instance	51
9.4.6	session_instance	51
9.4.7	attribute_value	51
9.4.8	select_value	52
9.4.9	select_aggregate_instance	53
9.4.10	enumeration_value	53
9.4.11	aggregate_instance	54
9.4.12	unordered_collection	54
9.4.13	set_instance	54
9.4.14	bag_instance	55
9.4.15	ordered_collection	55
9.4.16	list_instance	56
9.4.17	schema_defined_list_instance	56
9.4.18	non_persistent_list_instance	56
9.4.19	array_instance	57
9.4.20	application_indexed_array_instance	57
10	SDAI operations	58
10.1	Introduction	58
10.2	Fundamental concepts and assumptions	59
10.3	Environment operations	60
10.3.1	Open session	60
10.4	Session operations	61
10.4.1	Record error	61
10.4.2	Start event recording	61
10.4.3	Stop event recording	62
10.4.4	Close session	63
10.4.5	Open repository	63
10.4.6	Start transaction read-write access	64
10.4.7	Start transaction read-only access	64
10.4.8	Commit	65
10.4.9	Abort	66
10.4.10	End transaction access and commit	68
10.4.11	End transaction access and abort	68
10.4.12	Create non-persistent list	69
10.4.13	Delete non-persistent list	69
10.4.14	SDAI query	70
10.5	Repository operations	72
10.5.1	Create SDAI-model	72
10.5.2	Create schema instance	73
10.5.3	Close repository	75
10.6	Schema instance operations	75
10.6.1	Delete schema instance	75
10.6.2	Rename schema instance	76
10.6.3	Add SDAI-model	77
10.6.4	Remove SDAI-model	77

10.6.5 Validate global rule	78
10.6.6 Validate uniqueness rule	79
10.6.7 Validate instance reference domain	80
10.6.8 Validate schema instance	81
10.6.9 Is validation current	82
10.7 SDAI-model operations	82
10.7.1 Delete SDAI-model	82
10.7.2 Rename SDAI-model	83
10.7.3 Start read-only access	84
10.7.4 Promote SDAI-model to read-write	34
10.7.5 End read-only access	85
10.7.6 Start read-write access	85
10.7.7 End read-write access	86
10.7.8 Get entity definition	87
10.7.9 Create entity instance	87
10.7.10 Undo changes	88
10.7.11 Save changes	89
10.8 Scope operations	90
10.8.1 Add to scope	90
10.8.2 Is scope owner	91
10.8.3 Get scope	91
10.8.4 Remove from scope	92
10.8.5 Add to export list	93
10.8.6 Remove from export list	93
10.8.7 Scoped delete	94
10.8.8 Scoped copy	95
10.8.9 Validate scope reference restrictions	96
10.9 Type operations	96
10.9.1 Get complex entity definition	96
10.9.2 Is subtype of	97
10.9.3 Is SDAI subtype of	98
10.9.4 Is domain equivalent with	98
10.10 Entity instance operations	99
10.10.1 Get attribute	99
10.10.2 Test attribute	100
10.10.3 Find entity instance SDAI-model	100
10.10.4 Get instance type	101
10.10.5 Is instance of	101
10.10.6 Is kind of	102
10.10.7 Is SDAI kind of	103
10.10.8 Find entity instance users	103
10.10.9 Find entity instance used in	104
10.10.10 Get attribute value bound	105
10.10.11 Find instance roles	106
10.10.12 Find instance data types	106
10.11 Application instance operations	107
10.11.1 Copy application instance	107
10.11.2 Delete application instance	108
10.11.3 Put attribute	109

10.11.4 Unset attribute value	110
10.11.5 Create aggregate instance	110
10.11.6 Get persistent label	111
10.11.7 Get session identifier	112
10.11.8 Get description	113
10.11.9 Validate where rule	113
10.11.10 Validate required explicit attributes assigned	114
10.11.11 Validate inverse attributes	114
10.11.12 Validate explicit attributes references	115
10.11.13 Validate aggregates size	116
10.11.14 Validate aggregates uniqueness	117
10.11.15 Validate array not optional	117
10.11.16 Validate string width	118
10.11.17 Validate binary width	119
10.11.18 Validate real precision	120
10.12 Entity instance aggregate operations	121
10.12.1 Get member count	121
10.12.2 Is member	121
10.12.3 Create iterator	122
10.12.4 Delete iterator	122
10.12.5 Beginning	123
10.12.6 Next	123
10.12.7 Get current member	124
10.12.8 Get value bound by iterator	125
10.12.9 Get lower bound	125
10.12.10 Get upper bound	126
10.13 Application instance aggregate operations	127
10.13.1 Create aggregate instance as current member	127
10.13.2 Put current member	128
10.13.3 Remove current member	128
10.14 Application instance unordered collection operations	129
10.14.1 Add unordered	129
10.14.2 Create aggregate instance unordered	130
10.14.3 Remove unordered	131
10.15 Entity instance ordered collection operations	131
10.15.1 Get by index	131
10.15.2 End	132
10.15.3 Previous	132
10.15.4 Get value bound by index	133
10.16 Application instance ordered collection operations	134
10.16.1 Put by index	134
10.16.2 Create aggregate instance by index	135
10.17 Entity instance array operations	136
10.17.1 Test by index	136
10.17.2 Test current member	136
10.17.3 Get lower index	137
10.17.4 Get upper index	137
10.18 Application instance array operations	138
10.18.1 Unset value by index	138

10.18.2 Unset value current member	139
10.18.3 Reindex array	139
10.18.4 Reset array index	140
10.19 Application instance list operations	141
10.19.1 Add before current member	141
10.19.2 Add after current member	141
10.19.3 Add by index	142
10.19.4 Create aggregate instance before current member	143
10.19.5 Create aggregate instance after current member	144
10.19.6 Add aggregate instance by index	145
10.19.7 Remove by index	146
11 SDAI errors	146
12 SDAI state model	150
12.1 State model for transaction level 1	154
12.1.1 No Session 1 State	155
12.1.2 Session 1 State	155
12.1.3 Repository Open 1 State	155
12.1.4 SDAI-Model Started RO 1 State	155
12.1.5 SDAI-Model Started RW 1 State	155
12.1.6 State transitions	155
12.2 State model for transaction level 2	156
12.2.1 No Session 2 State	156
12.2.2 Session 2 State	156
12.2.3 Repository Open 2 State	156
12.2.4 SDAI-Model Started RO 2 State	157
12.2.5 SDAI-Model Started RW 2 State	157
12.2.6 State transitions	157
12.3 State model for transaction level 3	158
12.3.1 No Session 3 State	158
12.3.2 Session 3 State	158
12.3.3 Transaction Started RO 3 State	158
12.3.4 Transaction Started RW 3 State	158
12.3.5 Repository Open 3 State	158
12.3.6 RO Repository Open 3 State	158
12.3.7 RW Repository Open 3 State	159
12.3.8 RO Model Started RO 3 State	159
12.3.9 RW Model Started RO 3 State	159
12.3.10 RW Model Started RW 3 State	159
12.3.11 State transitions	159
13 Implementation classes	160
13.1 Implementations of SDAI	160
13.1.1 Levels of transaction	160
13.1.2 Levels of expression evaluation for validation and derived attributes	161
13.1.3 Levels of session event recording support	161
13.1.4 Levels of scope support	162
13.1.5 Levels of domain equivalence support	162

13.2 Implementations class specification	162
13.2.1 Implementation class 1	162
13.2.2 Implementation class 2	163
13.2.3 Implementation class 3	163
13.2.4 Implementation class 4	163
13.2.5 Implementation class 5	163
13.2.6 Implementation class 6	164
13.2.7 Implementation class 7	164
13.3 Operations required by implementations class	164
 Annexes	
A Mapping EXPRESS into SDAI dictionary schema constructs	168
A.1 EXPRESS Language Constructs	168
A.1.1 Interface specification	168
A.1.2 EXPRESS ABSTRACT	168
A.1.3 Interpretation of the EXPRESS SUPERTYPE expression - AND and ANDOR ...	169
A.1.4 Bounds and bound expressions	170
A.1.5 Attribute redeclaration	171
A.2 Domain equivalence information	171
A.2.1 Dictionary constructs	171
A.2.2 Algorithms and methods for declaring domain equivalence	171
B Protocol Implementation Conformance Statement (PICS) proforma	174
C Information object registration	176
C.1 Document identification	176
C.2 Schema identification	176
D EXPRESS-G diagrams	178
E SDAI schema EXPRESS listing	188
Index	189

Figures	page
Figure 1 - An example SDAI storage structure	6
Figure 2 - The SDAI data architecture element relationships	7
Figure D.1 - SDAI dictionary schema EXPRESS-G diagram 1 of 5	178
Figure D.2 - SDAI dictionary schema EXPRESS-G diagram 2 of 5	179
Figure D.3 - SDAI dictionary schema EXPRESS-G diagram 3 of 5	180
Figure D.4 - SDAI dictionary schema EXPRESS-G diagram 4 of 5	181
Figure D.5 - SDAI dictionary schema EXPRESS-G diagram 5 of 5	182
Figure D.6 - SDAI session schema EXPRESS-G diagram 1 of 2	183
Figure D.7 - SDAI session schema EXPRESS-G diagram 2 of 2	184
Figure D.8 - SDAI population schema EXPRESS-G diagram	185

	<i>Page</i>
Figure D.9 - SDAI parameter data schema EXPRESS-G diagram 1 of 2	186
Figure D.10 - SDAI parameter data schema EXPRESS-G diagram 2 of 2	187

Tables

	page
Table - 1 Attribute representations supported in query	71
Table - 2 SDAI error indicators	148
Table - 3 SDAI operations groupings	151
Table - 4 State transitions for transaction level 1	156
Table - 5 State transitions for transaction level 2	157
Table - 6 State transitions for transaction level 3	160
Table - 7 Operations required by implementation class	165

International automation systems and integration – Product data representation and exchange – Part 22: Implementation methods: Standard data access interface

1 Scope

This part of ISO 10303 specifies the functional characteristics of a data access interface. This interface is referred to as the standard data access interface (SDAI). The SDAI specifies the operations available to an application for the purposes of acquiring and manipulating data whose structure is defined using ISO 10303-11 (EXPRESS).

The SDAI is specified in terms independent of any computing language or system. The specification of the functionality defined by the SDAI in a particular computing language is referred to as an SDAI language binding. SDAI language bindings are specified as companion documents within the implementation methods series of ISO 10303.

The following are within the scope of this part of ISO 10303:

- access to and manipulation of instances of entities described using the EXPRESS data specification language;
- access to multiple data repositories by a single application at the same time;
- capabilities for an application to organize operations into groups whose effect can be saved or cancelled at the discretion of the application;
- access to a dictionary describing the data elements that can be manipulated by an application;
- ability to invoke the validation of the constraints specified using EXPRESS at the discretion of the application;
- support for managing the dependency relationships between entity instances;
- capabilities to describe logical collections of entity instances that define the population over which entity instance to entity instance references are allowed;
- capabilities to describe logical collections of entity instances that define the population over which global rules are validated;
- support for the use of data created within the context of one schema in the context of another schema.