

# ISO/IEC 14165-521:2009-01 (E)

## Information technology\_ - Fibre channel\_ - Part\_521: Fabric application interface standard (FAIS)

---

Contents	Page
FOREWORD .....	8
INTRODUCTION .....	10
1 Scope .....	11
2 Normative references .....	11
3 Definitions and conventions .....	12
3.1 Overview .....	12
3.2 Definitions .....	12
3.3 Editorial Conventions .....	16
3.4 Abbreviations and acronyms .....	16
3.5 Notation for Procedures and Functions .....	17
3.6 Enumeration Lists .....	17
3.7 Class-related definitions .....	18
3.8 Class diagram conventions .....	18
3.9 Keywords .....	23
3.10 T10 Vendor ID fields .....	24
4 Operational model .....	25
4.1 Overview .....	25
4.2 Operational layering .....	26
4.3 Client/Provider model .....	27
4.4 Service groups .....	27
4.4.1 Overview .....	27
4.4.2 General services .....	27
4.4.3 Port services .....	27
4.4.4 Front-end services .....	27
4.4.5 Back-end services .....	27
4.4.6 Volume management services .....	27
4.5 Framework .....	28
4.5.1 Function call type .....	28
4.5.2 Requests and completions .....	28
4.5.3 Function parameter block .....	28
4.6 Event notification .....	29
5 Object model .....	30
5.1 Overview .....	30
5.2 Model .....	31
5.3 Meta-Attributes .....	32
5.3.1 Description .....	32
5.3.2 Attributes .....	32
5.3.3 Relationships .....	32
5.3.4 Handles .....	32
5.3.5 Identifiers .....	34
5.4 Objects .....	35
5.4.1 BI .....	35
5.4.2 BIT .....	35
5.4.3 BITL .....	35
5.4.4 BITLSetEntry .....	36
5.4.5 BITLSetVDEV .....	36
5.4.6 BlockRange .....	37
5.4.7 Column .....	37
5.4.8 ConcatenatedVDEV .....	37
5.4.9 FAIS_Portal .....	38
5.4.10 FIT .....	38
5.4.11 FITL .....	39

5.4.12	FLUVDEV	39
5.4.13	FT	39
5.4.14	Mirror	40
5.4.15	MirroredVDEV	40
5.4.16	StripedVDEV	41
5.4.17	VDEV	41
5.4.18	XMapEntry	41
5.4.19	XMapVDEV	42
6	General services	43
6.1	Overview	43
6.2	Constants	43
6.3	Data structures	44
6.3.1	FAIS_ObjectType	44
6.3.2	FAIS_ClientRequest_Header	44
6.3.3	FAIS_ObjectCHandle	45
6.3.4	FAIS_ObjectPHandle	45
6.3.5	FAIS_ClientCHandle	46
6.3.6	FAIS_ClientPHandle	46
6.3.7	FAIS_HandleSet	46
6.3.8	FAIS_LUN	47
6.3.9	FAIS_Status	47
6.3.10	FAIS_ProviderInfo	48
6.3.11	FAIS_EnumerationFilter	49
6.3.12	FAIS_IO_Stats_T	49
6.4	Function Calls	50
6.4.1	fais_Init	50
6.4.2	fais_DeInit	51
6.4.3	fais_Object_Enumerate	52
6.4.4	fais_ObjectHandle_Update	52
6.4.5	fais_Get_IO_Stats	53
7	Port services	54
7.1	Overview	54
7.2	Constants	54
7.3	Data structures	54
7.3.1	FAIS_Protocol	54
7.3.2	FAIS_IPVERSION	54
7.3.3	FAIS_PortName_FCP	55
7.3.4	FAIS_PortName_ISCSI	55
7.3.5	FAIS_PortName	55
7.3.6	FAIS_RegionId	56
7.3.7	FAIS_Portal	56
7.3.8	FAIS_Portal_id_FCP	56
7.3.9	FAIS_Portal_id_ISCSI	57
7.3.10	FAIS_Portal_id	57
7.4	Function Calls	58
7.4.1	fais_Region_Enumerate	58
7.4.2	fais_Region_GetStatus	58
7.4.3	fais_Region_GetDetail	59
7.4.4	fais_Region_SetDetail	60
7.4.5	fais_Portal_Create	60
7.4.6	fais_Portal_Destroy	61
7.4.7	fais_Portal_GetStatus	62
8	Front-end services	64
8.1	Overview	64
8.2	Data structures	64
8.2.1	FAIS_FT	64

8.2.2	FAIS_FIT	64
8.2.3	FAIS_FITL	64
8.2.4	FAIS_FITLPermission	65
8.3	Function Calls	66
8.3.1	fais_FT_Create	66
8.3.2	fais_FT_Destroy	66
8.3.3	fais_FT_Activate	67
8.3.4	fais_FT_Deactivate	68
8.3.5	fais_FT_GetStatus	68
8.3.6	fais_FIT_Create	69
8.3.7	fais_FIT_Destroy	70
8.3.8	fais_FIT_GetStatus	70
8.3.9	fais_FITL_Create	71
8.3.10	fais_FITL_Destroy	72
8.3.11	fais_FITL_UpdatePermission	72
8.3.12	fais_FITL_AbortIOs	73
8.3.13	fais_FITL_GetStatus	73
9	Back-end services	75
9.1	Overview	75
9.2	Data structures	75
9.2.1	FAIS_BI	75
9.2.2	FAIS_BIT	75
9.2.3	FAIS_SCSI_CDB	75
9.2.4	FAIS_SCSIFlag	76
9.2.5	FAIS_SCSIStatus	76
9.2.6	FAIS_ResidualFlag	76
9.2.7	FAIS_TaskMgmtCmd	77
9.2.8	FAIS_TaskAttribute	77
9.2.9	FAIS_TaskMgmtResponse	78
9.2.10	FAIS_BITL	78
9.2.11	FAIS_SCSI_SCB	79
9.3	Function Calls	80
9.3.1	fais_BI_Create	80
9.3.2	fais_BI_Destroy	81
9.3.3	fais_BI_Activate	81
9.3.4	fais_BI_Deactivate	82
9.3.5	fais_BI_SendSCSICommand	82
9.3.6	fais_BI_GetStatus	83
9.3.7	fais_BIT_Create	84
9.3.8	fais_BIT_Destroy	85
9.3.9	fais_BIT_SendSCSICommand	85
9.3.10	fais_BIT_GetStatus	86
9.3.11	fais_BITL_Create	87
9.3.12	fais_BITL_Destroy	87
9.3.13	fais_BITL_SendSCSICommand	88
9.3.14	fais_BITL_GetStatus	88
10	Volume management services	90
10.1	Overview	90
10.2	Data structures	90
10.2.1	FAIS_BITLSetPathPolicy	90
10.2.2	FAIS_VDEV_ATTRIB_MASK	90
10.2.3	FAIS_VDEV	91
10.2.4	FAIS_FLU	92
10.2.5	FAIS_ConcatenatedVDEV	92
10.2.6	FAIS_VDEVType	92
10.2.7	FAIS_MirroredVDEV_ReadPolicy	93
10.2.8	FAIS_MirroredVDEV_WritePolicy	93

10.2.9 FAIS_XMapPermission	94
10.2.10 FAIS_XMAP_HINT	94
10.2.11 FAIS_StripedVDEV	95
10.2.12 FAIS_MirroredVDEV	95
10.2.13 FAIS_XMapVDEV	96
10.2.14 FAIS_BITLSetVDEV	96
10.2.15 FAIS_VDEVParam	97
10.2.16 FAIS_Column	97
10.2.17 FAIS_Mirror	97
10.2.18 FAIS_BlockRange	98
10.2.19 FAIS_XMapEntry	98
10.2.20 FAIS_BITLSetEntry	99
10.2.21 FAIS_ChildVDEVParam	100
10.3 Function calls	100
10.3.1 fais_VDEV_Create	100
10.3.2 fais_VDEV_Destroy	101
10.3.3 fais_VDEV_Update	101
10.3.4 fais_VDEV_AddChildren	102
10.3.5 fais_VDEV_RemoveChildren	103
10.3.6 fais_VDEV_Quiesce	103
10.3.7 fais_VDEV_Resume	104
10.3.8 fais_VDEV_Copy	104
10.3.9 fais_VDEV_GetStatus	105
Annex A (informative)	
Naming conventions	107
Annex B (informative)	
Implementation recommendations	108
<b>Figure</b>	<b>Page</b>
Figure 1 – Class diagram conventions	19
Figure 2 – Notation for association relationships for class diagrams	21
Figure 3 – Notation for aggregation relationships for class diagrams	22
Figure 4 – Notation for generalization relationships for class diagrams	23
Figure 5 – Operational layering	26
Figure 6 – Object model	31
<b>Table</b>	<b>Page</b>
Table 1 – ISO and American Conventions	16
Table 2 – Multiplicity notation	20
Table 3 – General services constants	43
Table 4 – Valid Timeout values	45
Table 5 – APIVersion Values	49
Table 6 – FAISEnumerationFilter_T values	49
Table 7 – fais_Init Flag bits	50
Table 8 – fais_Delnit flag bits	51
Table 9 – Port services constants	54
Table 10 – fais_Portal_Create flags	61
Table 11 – fais_FT_Create flags	66
Table 12 – fais_BI_Create flags	80
Table 13 – FAIS_BITLSetPathPolicy_T Policy values	90
Table 14 – FAIS_VDEV_ATTRIB_MASK_T values	91
Table 15 – FAIS_MirroredVDEV_ReadPolicy_T values	93
Table 16 – FAIS_MirroredVDEV_WritePolicy_T values	93
Table 17 – FAIS_XMAPHINT_T values	95
Table A.1 – FAIS naming conventions	107