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

Figure **Page**

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

Table **Page**

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_DeInit 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