

# ISO/IEC 15408-2:2022-08 (E)

## Information security, cybersecurity and privacy protection - Evaluation criteria for IT security - Part 2: Security functional components

<b>Contents</b>		<b>Page</b>
Foreword.....		xv
Introduction.....		xvii
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>1</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>1</b>
<b>4</b>	<b>Abbreviated terms</b> .....	<b>3</b>
<b>5</b>	<b>Overview</b> .....	<b>4</b>
5.1	General.....	4
5.2	Organization of this document.....	4
<b>6</b>	<b>Functional requirements paradigm</b> .....	<b>5</b>
<b>7</b>	<b>Security functional components</b> .....	<b>9</b>
7.1	Overview.....	9
7.1.1	General.....	9
7.1.2	Class structure.....	9
7.1.3	Family structure.....	10
7.1.4	Component structure.....	11
7.2	Component catalogue.....	13
<b>8</b>	<b>Class FAU: Security audit</b> .....	<b>14</b>
8.1	Class description.....	14
8.2	Security audit automatic response (FAU_ARP).....	15
8.2.1	Family behaviour.....	15
8.2.2	Components leveling and description.....	15
8.2.3	Management of FAU_ARP.1.....	15
8.2.4	Audit of FAU_ARP.1.....	15
8.2.5	FAU_ARP.1 Security alarms.....	15
8.3	Security audit data generation (FAU_GEN).....	15
8.3.1	Family behaviour.....	15
8.3.2	Components leveling and description.....	15
8.3.3	Management of FAU_GEN.1, FAU_GEN.2.....	16
8.3.4	Audit of FAU_GEN.1, FAU_GEN.2.....	16
8.3.5	FAU_GEN.1 Audit data generation.....	16
8.3.6	FAU_GEN.2 User identity association.....	16
8.4	Security audit analysis (FAU_SAA).....	17
8.4.1	Family behaviour.....	17
8.4.2	Components leveling and description.....	17
8.4.3	Management of FAU_SAA.1.....	17
8.4.4	Management of FAU_SAA.2.....	18
8.4.5	Management of FAU_SAA.3.....	18
8.4.6	Management of FAU_SAA.4.....	18
8.4.7	Audit of FAU_SAA.1, FAU_SAA.2, FAU_SAA.3, FAU_SAA.4.....	18
8.4.8	FAU_SAA.1 Potential violation analysis.....	18
8.4.9	FAU_SAA.2 Profile based anomaly detection.....	18
8.4.10	FAU_SAA.3 Simple attack heuristics.....	19
8.4.11	FAU_SAA.4 Complex attack heuristics.....	19
8.5	Security audit review (FAU_SAR).....	20
8.5.1	Family behaviour.....	20
8.5.2	Components leveling and description.....	20
8.5.3	Management of FAU_SAR.1.....	20
8.5.4	Management of FAU_SAR.2, FAU_SAR.3.....	20
8.5.5	Audit of FAU_SAR.1.....	20
8.5.6	Audit of FAU_SAR.2.....	21

8.5.7	Audit of FAU_SAR.3 .....	21
8.5.8	FAU_SAR.1 Audit review.....	21
8.5.9	FAU_SAR.2 Restricted audit review .....	21
8.5.10	FAU_SAR.3 Selectable audit review .....	21
8.6	Security audit event selection (FAU_SEL).....	22
8.6.1	Family behaviour .....	22
8.6.2	Components leveling and description .....	22
8.6.3	Management of FAU_SEL.1 .....	22
8.6.4	Audit of FAU_SEL.1.....	22
8.6.5	FAU_SEL.1 Selective audit.....	22
8.7	Security audit data storage (FAU_STG).....	22
8.7.1	Family behaviour .....	22
8.7.2	Components leveling and description .....	23
8.7.3	Management of FAU_STG.1.....	23
8.7.4	Management of FAU_STG.2.....	23
8.7.5	Management of FAU_STG.3.....	23
8.7.6	Management of FAU_STG.4.....	23
8.7.7	Management of FAU_STG.5.....	23
8.7.8	Audit of FAU_STG.1.....	24
8.7.9	Audit of FAU_STG.2, FAU_STG.3 .....	24
8.7.10	Audit of FAU_STG.4.....	24
8.7.11	Audit of FAU_STG.5.....	24
8.7.12	FAU_STG.1 Audit data storage location.....	24
8.7.13	FAU_STG.2 Protected audit data storage.....	24
8.7.14	FAU_STG.3 Guarantees of audit data availability .....	25
8.7.15	FAU_STG.4 Action in case of possible audit data loss .....	25
8.7.16	FAU_STG.5 Prevention of audit data loss.....	25
<b>9</b>	<b>Class FCO: Communication.....</b>	<b>25</b>
9.1	Class description.....	25
9.2	Non-repudiation of origin (FCO_NRO).....	26
9.2.1	Family behaviour .....	26
9.2.2	Components leveling and description .....	26
9.2.3	Management of FCO_NRO.1, FCO_NRO.2 .....	26
9.2.4	Audit of FCO_NRO.1.....	26
9.2.5	Audit of FCO_NRO.2.....	27
9.2.6	FCO_NRO.1 Selective proof of origin.....	27
9.2.7	FCO_NRO.2 Enforced proof of origin.....	27
9.3	Non-repudiation of receipt (FCO_NRR).....	28
9.3.1	Family behaviour .....	28
9.3.2	Components leveling and description .....	28
9.3.3	Management of FCO_NRR.1, FCO_NRR.2 .....	28
9.3.4	Audit of FCO_NRR.1.....	28
9.3.5	Audit of FCO_NRR.2 .....	28
9.3.6	FCO_NRR.1 Selective proof of receipt.....	29
9.3.7	FCO_NRR.2 Enforced proof of receipt .....	29
<b>10</b>	<b>Class FCS: Cryptographic support .....</b>	<b>29</b>
10.1	Class description.....	29
10.2	Cryptographic key management (FCS_CKM).....	30
10.2.1	Family behaviour .....	30
10.2.2	Components leveling and description .....	30
10.2.3	Management of FCS_CKM.1, FCS_CKM.2, FCS_CKM.3, FCS_CKM.5, CKM.6.....	31
10.2.4	Audit of FCS_CKM.1, FCS_CKM.2, FCS_CKM.3, FCS_CKM.5, CKM.6.....	31
10.2.5	FCS_CKM.1 Cryptographic key generation .....	31
10.2.6	FCS_CKM.2 Cryptographic key distribution.....	32
10.2.7	FCS_CKM.3 Cryptographic key access .....	32
10.2.8	FCS_CKM.4 Cryptographic key destruction.....	32
10.2.9	FCS_CKM.5 Cryptographic key derivation.....	33

10.2.10	FCS_CKM.6 Timing and event of cryptographic key destruction .....	33
10.3	Cryptographic operation (FCS_COP) .....	33
10.3.1	Family behaviour .....	33
10.3.2	Components leveling and description .....	33
10.3.3	Management of FCS_COP.1 .....	34
10.3.4	Audit of FCS_COP.1 .....	34
10.3.5	FCS_COP.1 Cryptographic operation .....	34
10.4	Random bit generation (FCS_RBG) .....	34
10.4.1	Family behaviour .....	34
10.4.2	Components leveling and description .....	34
10.4.3	Management of FCS_RBG.1, FCS_RBG.2, FCS_RBG.3, FCS_RBG.4, FCS_RBG.5, FCS_RBG.6 .....	35
10.4.4	Audit of FCS_RBG.1, FCS_RBG.2 .....	35
10.4.5	Audit of FCS_RBG.3, FCS_RBG.4, FCS_RBG.5, FCS_RBG.6 .....	35
10.4.6	FCS_RBG.1 Random bit generation (RBG) .....	35
10.4.7	FCS_RBG.2 Random bit generation (external seeding) .....	36
10.4.8	FCS_RBG.3 Random bit generation (internal seeding – single source) .....	36
10.4.9	FCS_RBG.4 Random bit generation (internal seeding – multiple sources) .....	37
10.4.10	FCS_RBG.5 Random bit generation (combining noise sources) .....	37
10.4.11	FCS_RBG.6 Random bit generation service .....	37
10.5	Generation of random numbers (FCS_RNG) .....	37
10.5.1	Family behaviour .....	37
10.5.2	Components leveling and description .....	38
10.5.3	Management of FCS_RNG.1 .....	38
10.5.4	Audit of FCS_RNG.1 .....	38
10.5.5	FCS_RNG.1 Random number generation .....	38
<b>11</b>	<b>Class FDP: User data protection .....</b>	<b>38</b>
11.1	Class description .....	38
11.2	Access control policy (FDP_ACC) .....	40
11.2.1	Family behaviour .....	40
11.2.2	Components leveling and description .....	41
11.2.3	Management of FDP_ACC.1, FDP_ACC.2 .....	41
11.2.4	Audit of FDP_ACC.1, FDP_ACC.2 .....	41
11.2.5	FDP_ACC.1 Subset access control .....	41
11.2.6	FDP_ACC.2 Complete access control .....	41
11.3	Access control functions (FDP_ACF) .....	42
11.3.1	Family behaviour .....	42
11.3.2	Components leveling and description .....	42
11.3.3	Management of FDP_ACF.1 .....	42
11.3.4	Audit of FDP_ACF.1 .....	42
11.3.5	FDP_ACF.1 Security attribute-based access control .....	42
11.4	Data authentication (FDP_DAU) .....	43
11.4.1	Family behaviour .....	43
11.4.2	Components leveling and description .....	43
11.4.3	Management of FDP_DAU.1, FDP_DAU.2 .....	43
11.4.4	Audit of FDP_DAU.1 .....	43
11.4.5	Audit of FDP_DAU.2 .....	44
11.4.6	FDP_DAU.1 Basic Data Authentication .....	44
11.4.7	FDP_DAU.2 Data Authentication with Identity of Guarantor .....	44
11.5	Export from the TOE (FDP_ETC) .....	44
11.5.1	Family behaviour .....	44
11.5.2	Components leveling and description .....	45
11.5.3	Management of FDP_ETC.1 .....	45
11.5.4	Management of FDP_ETC.2 .....	45
11.5.5	Audit of FDP_ETC.1, FDP_ETC.2 .....	45
11.5.6	FDP_ETC.1 Export of user data without security attributes .....	45
11.5.7	FDP_ETC.2 Export of user data with security attributes .....	45
11.6	Information flow control policy (FDP_IFC) .....	46

11.6.1	Family behaviour .....	46
11.6.2	Components leveling and description .....	46
11.6.3	Management of FDP_IFC.1, FDP_IFC.2 .....	47
11.6.4	Audit of FDP_IFC.1, FDP_IFC.2 .....	47
11.6.5	FDP_IFC.1 Subset information flow control .....	47
11.6.6	FDP_IFC.2 Complete information flow control .....	47
11.7	Information flow control functions (FDP_IFF) .....	47
11.7.1	Family behaviour .....	47
11.7.2	Components leveling and description .....	48
11.7.3	Management of FDP_IFF.1, FDP_IFF.2 .....	48
11.7.4	Management of FDP_IFF.3, FDP_IFF.4, FDP_IFF.5 .....	48
11.7.5	Management of FDP_IFF.6 .....	49
11.7.6	Audit of FDP_IFF.1, FDP_IFF.2, FDP_IFF.5 .....	49
11.7.7	Audit of FDP_IFF.3, FDP_IFF.4, FDP_IFF.6 .....	49
11.7.8	FDP_IFF.1 Simple security attributes .....	49
11.7.9	FDP_IFF.2 Hierarchical security attributes .....	50
11.7.10	FDP_IFF.3 Limited illicit information flows .....	51
11.7.11	FDP_IFF.4 Partial elimination of illicit information flows .....	51
11.7.12	FDP_IFF.5 No illicit information flows .....	51
11.7.13	FDP_IFF.6 Illicit information flow monitoring .....	51
11.8	Information Retention Control (FDP_IRC) .....	52
11.8.1	Family behaviour .....	52
11.8.2	Components leveling and description .....	52
11.8.3	Management of FDP_IRC.1 .....	53
11.8.4	Audit of FDP_IRC.1 .....	53
11.8.5	FDP_IRC.1 Information retention control .....	53
11.9	Import from outside of the TOE (FDP_ITC) .....	53
11.9.1	Family behaviour .....	53
11.9.2	Components leveling and description .....	53
11.9.3	Management of FDP_ITC.1, FDP_ITC.2 .....	54
11.9.4	Audit of FDP_ITC.1, FDP_ITC.2 .....	54
11.9.5	FDP_ITC.1 Import of user data without security attributes .....	54
11.9.6	FDP_ITC.2 Import of user data with security attributes .....	54
11.10	Internal TOE transfer (FDP_ITT) .....	55
11.10.1	Family behaviour .....	55
11.10.2	Components leveling and description .....	55
11.10.3	Management of FDP_ITT.1, FDP_ITT.2 .....	55
11.10.4	Management of FDP_ITT.3, FDP_ITT.4 .....	56
11.10.5	Audit of FDP_ITT.1, FDP_ITT.2 .....	56
11.10.6	Audit of FDP_ITT.3, FDP_ITT.4 .....	56
11.10.7	FDP_ITT.1 Basic internal transfer protection .....	56
11.10.8	FDP_ITT.2 Transmission separation by attribute .....	56
11.10.9	FDP_ITT.3 Integrity monitoring .....	57
11.10.10	.....	
	FDP_ITT.4 Attribute-based integrity monitoring .....	57
11.11	Residual information protection (FDP_RIP) .....	57
11.11.1	Family behaviour .....	57
11.11.2	Components leveling and description .....	58
11.11.3	Management of FDP_RIP.1, FDP_RIP.2 .....	58
11.11.4	Audit of FDP_RIP.1, FDP_RIP.2 .....	58
11.11.5	FDP_RIP.1 Subset residual information protection .....	58
11.11.6	FDP_RIP.2 Full residual information protection .....	58
11.12	Rollback (FDP_ROL) .....	59
11.12.1	Family behaviour .....	59
11.12.2	Components leveling and description .....	59
11.12.3	Management of FDP_ROL.1, FDP_ROL.2 .....	59
11.12.4	Audit of FDP_ROL.1, FDP_ROL.2 .....	59
11.12.5	FDP_ROL.1 Basic rollback .....	59

11.12.6	FDP_ROL.2 Advanced rollback	60
11.13	Stored data confidentiality (FDP_SDC)	60
11.13.1	Family behaviour	60
11.13.2	Components leveling and description	60
11.13.3	Management of FDP_SDC.1, FDP_SDC.2	60
11.13.4	Audit of FDP_SDC.1, FDP_SDC.2	61
11.13.5	FDP_SDC.1 Stored data confidentiality	61
11.13.6	FDP_SDC.2 Stored data confidentiality with dedicated method	61
11.14	Stored data integrity (FDP_SDI)	61
11.14.1	Family behaviour	61
11.14.2	Components leveling and description	61
11.14.3	Management of FDP_SDI.1	62
11.14.4	Management of FDP_SDI.2	62
11.14.5	Audit of FDP_SDI.1	62
11.14.6	Audit of FDP_SDI.2	62
11.14.7	FDP_SDI.1 Stored data integrity monitoring	62
11.14.8	FDP_SDI.2 Stored data integrity monitoring and action	62
11.15	Inter-TSF user data confidentiality transfer protection (FDP_UCT)	63
11.15.1	Family behaviour	63
11.15.2	Components leveling and description	63
11.15.3	Management of FDP_UCT.1	63
11.15.4	Audit of FDP_UCT.1	63
11.15.5	FDP_UCT.1 Basic data exchange confidentiality	63
11.16	Inter-TSF user data integrity transfer protection (FDP_UIT)	64
11.16.1	Family behaviour	64
11.16.2	Components leveling and description	64
11.16.3	Management of FDP_UIT.1, FDP_UIT.2, FDP_UIT.3	64
11.16.4	Audit of FDP_UIT.1	64
11.16.5	Audit of FDP_UIT.2, FDP_UIT.3	65
11.16.6	FDP_UIT.1 Data exchange integrity	65
11.16.7	FDP_UIT.2 Source data exchange recovery	65
11.16.8	FDP_UIT.3 Destination data exchange recovery	66
<b>12</b>	<b>Class FIA: Identification and authentication</b>	<b>66</b>
12.1	Class description	66
12.2	Authentication failures (FIA_AFL)	67
12.2.1	Family behaviour	67
12.2.2	Components leveling and description	67
12.2.3	Management of FIA_AFL.1	68
12.2.4	Audit of FIA_AFL.1	68
12.2.5	FIA_AFL.1 Authentication failure handling	68
12.3	Authentication proof of identity (FIA_API)	68
12.3.1	Family behaviour	68
12.3.2	Components leveling and description	68
12.3.3	Management of FIA_API.1	68
12.3.4	Audit of FIA_API.1	69
12.3.5	FIA_API.1 Authentication proof of identity	69
12.4	User attribute definition (FIA_ATD)	69
12.4.1	Family behaviour	69
12.4.2	Components leveling and description	69
12.4.3	Management of FIA_ATD.1	69
12.4.4	Audit of FIA_ATD.1	69
12.4.5	FIA_ATD.1 User attribute definition	69
12.5	Specification of secrets (FIA_SOS)	70
12.5.1	Family behaviour	70
12.5.2	Components leveling and description	70
12.5.3	Management of FIA_SOS.1	70
12.5.4	Management of FIA_SOS.2	70
12.5.5	Audit of FIA_SOS.1, FIA_SOS.2	70

12.5.6	FIA_SOS.1 Verification of secrets .....	70
12.5.7	FIA_SOS.2 TSF Generation of secrets .....	71
12.6	User authentication (FIA_UAU) .....	71
12.6.1	Family behaviour .....	71
12.6.2	Components leveling and description .....	71
12.6.3	Management of FIA_UAU.1 .....	72
12.6.4	Management of FIA_UAU.2 .....	72
12.6.5	Management of FIA_UAU.3, FIA_UAU.4, FIA_UAU.7 .....	72
12.6.6	Management of FIA_UAU.5 .....	72
12.6.7	Management of FIA_UAU.6 .....	72
12.6.8	Management of FIA_UAU.7 .....	72
12.6.9	Audit of FIA_UAU.1 .....	72
12.6.10	Audit of FIA_UAU.2 .....	73
12.6.11	Audit of FIA_UAU.3 .....	73
12.6.12	Audit of FIA_UAU.4 .....	73
12.6.13	Audit of FIA_UAU.5 .....	73
12.6.14	Audit of FIA_UAU.6 .....	73
12.6.15	Audit of FIA_UAU.7 .....	73
12.6.16	FIA_UAU.1 Timing of authentication .....	73
12.6.17	FIA_UAU.2 User authentication before any action .....	74
12.6.18	FIA_UAU.3 Unforgeable authentication .....	74
12.6.19	FIA_UAU.4 Single-use authentication mechanisms .....	74
12.6.20	FIA_UAU.5 Multiple authentication mechanisms .....	74
12.6.21	FIA_UAU.6 Re-authenticating .....	75
12.6.22	FIA_UAU.7 Protected authentication feedback .....	75
12.7	User identification (FIA_UID) .....	75
12.7.1	Family behaviour .....	75
12.7.2	Components leveling and description .....	75
12.7.3	Management of FIA_UID.1 .....	76
12.7.4	Management of FIA_UID.2 .....	76
12.7.5	Audit of FIA_UID.1, FIA_UID.2 .....	76
12.7.6	FIA_UID.1 Timing of identification .....	76
12.7.7	FIA_UID.2 User identification before any action .....	76
12.8	User-subject binding (FIA_USB) .....	77
12.8.1	Family behaviour .....	77
12.8.2	Components leveling and description .....	77
12.8.3	Management of FIA_USB.1 .....	77
12.8.4	Audit of FIA_USB.1 .....	77
12.8.5	FIA_USB.1 User-subject binding .....	77
<b>13</b>	<b>Class FMT: Security management .....</b>	<b>78</b>
13.1	Class description .....	78
13.2	Limited capabilities and availability (FMT_LIM) .....	79
13.2.1	Family behaviour .....	79
13.2.2	Components leveling and description .....	79
13.2.3	Management of FMT_LIM.1, FMT_LIM.2 .....	80
13.2.4	Audit of FMT_LIM.1 .....	80
13.2.5	FMT_LIM.1 Limited capabilities .....	80
13.2.6	FMT_LIM.2 Limited availability .....	80
13.3	Management of functions in TSF (FMT_MOF) .....	80
13.3.1	Family behaviour .....	80
13.3.2	Components leveling and description .....	80
13.3.3	Management of FMT_MOF.1 .....	81
13.3.4	Audit of FMT_MOF.1 .....	81
13.3.5	FMT_MOF.1 Management of security functions behaviour .....	81
13.4	Management of security attributes (FMT_MSA) .....	81
13.4.1	Family behaviour .....	81
13.4.2	Components leveling and description .....	81
13.4.3	Management of FMT_MSA.1 .....	82

13.4.4	Management of FMT_MSA.2	82
13.4.5	Management of FMT_MSA.3	82
13.4.6	Management of FMT_MSA.4	82
13.4.7	Audit of FMT_MSA.1	82
13.4.8	Audit of FMT_MSA.2	82
13.4.9	Audit of FMT_MSA.3	82
13.4.10	Audit of FMT_MSA.4	83
13.4.11	FMT_MSA.1 Management of security attributes	83
13.4.12	FMT_MSA.2 Secure security attributes	83
13.4.13	FMT_MSA.3 Static attribute initialization	83
13.4.14	FMT_MSA.4 Security attribute value inheritance	84
13.5	Management of TSF data (FMT_MTD)	84
13.5.1	Family behaviour	84
13.5.2	Components leveling and description	84
13.5.3	Management of FMT_MTD.1	84
13.5.4	Management of FMT_MTD.2	84
13.5.5	Management of FMT_MTD.3	85
13.5.6	Audit of FMT_MTD.1	85
13.5.7	Audit of FMT_MTD.2	85
13.5.8	Audit of FMT_MTD.3	85
13.5.9	FMT_MTD.1 Management of TSF data	85
13.5.10	FMT_MTD.2 Management of limits on TSF data	85
13.5.11	FMT_MTD.3 Secure TSF data	86
13.6	Revocation (FMT_REV)	86
13.6.1	Family behaviour	86
13.6.2	Components leveling and description	86
13.6.3	Management of FMT_REV.1	86
13.6.4	Audit of FMT_REV.1	86
13.6.5	FMT_REV.1 Revocation	86
13.7	Security attribute expiration (FMT_SAE)	87
13.7.1	Family behaviour	87
13.7.2	Components leveling and description	87
13.7.3	Management of FMT_SAE.1	87
13.7.4	Audit of FMT_SAE.1	87
13.7.5	FMT_SAE.1 Time-limited authorization	87
13.8	Specification of Management Functions (FMT_SMF)	88
13.8.1	Family behaviour	88
13.8.2	Components leveling and description	88
13.8.3	Management of FMT_SMF.1	88
13.8.4	Audit of FMT_SMF.1	88
13.8.5	FMT_SMF.1 Specification of Management Functions	88
13.9	Security management roles (FMT_SMR)	89
13.9.1	Family behaviour	89
13.9.2	Components leveling and description	89
13.9.3	Management of FMT_SMR.1	89
13.9.4	Management of FMT_SMR.2	89
13.9.5	Management of FMT_SMR.3	89
13.9.6	Audit of FMT_SMR.1	89
13.9.7	Audit of FMT_SMR.2	89
13.9.8	Audit of FMT_SMR.3	90
13.9.9	FMT_SMR.1 Security roles	90
13.9.10	FMT_SMR.2 Restrictions on security roles	90
13.9.11	FMT_SMR.3 Assuming roles	90
<b>14</b>	<b>Class FPR: Privacy</b>	<b>91</b>
14.1	Class description	91
14.2	Anonymity (FPR_ANO)	91
14.2.1	Family behaviour	91
14.2.2	Components leveling and description	91

14.2.3	Management of FPR_ANO.1, FPR_ANO.2 .....	92
14.2.4	Audit of FPR_ANO.1, FPR_ANO.2 .....	92
14.2.5	FPR_ANO.1 Anonymity.....	92
14.2.6	FPR_ANO.2 Anonymity without soliciting information.....	92
14.3	Pseudonymity (FPR_PSE).....	92
14.3.1	Family behaviour .....	92
14.3.2	Components leveling and description .....	92
14.3.3	Management of FPR_PSE.1, FPR_PSE.2, FPR_PSE.3.....	93
14.3.4	Audit of FPR_PSE.1, FPR_PSE.2, FPR_PSE.3.....	93
14.3.5	FPR_PSE.1 Pseudonymity.....	93
14.3.6	FPR_PSE.2 Reversible pseudonymity.....	93
14.3.7	FPR_PSE.3 Alias pseudonymity .....	94
14.4	Unlinkability (FPR_UNL).....	94
14.4.1	Family behaviour .....	94
14.4.2	Components leveling and description .....	94
14.4.3	Management of FPR_UNL.1.....	95
14.4.4	Audit of FPR_UNL.1.....	95
14.4.5	FPR_UNL.1 Unlinkability of operations.....	95
14.5	Unobservability (FPR_UNO).....	95
14.5.1	Family behaviour .....	95
14.5.2	Components leveling and description .....	95
14.5.3	Management of FPR_UNO.1, FPR_UNO.2.....	96
14.5.4	Management of FPR_UNO.3 .....	96
14.5.5	Management of FPR_UNO.4 .....	96
14.5.6	Audit of FPR_UNO.1, FPR_UNO.2.....	96
14.5.7	Audit of FPR_UNO.3 .....	96
14.5.8	Audit of FPR_UNO.4.....	96
14.5.9	FPR_UNO.1 Unobservability.....	97
14.5.10	FPR_UNO.2 Allocation of information impacting unobservability.....	97
14.5.11	FPR_UNO.3 Unobservability without soliciting information.....	97
14.5.12	FPR_UNO.4 Authorized user observability.....	97
<b>15</b>	<b>Class FPT: Protection of the TSF.....</b>	<b>98</b>
15.1	Class description.....	98
15.2	TOE emanation (FPT_EMS).....	100
15.2.1	Family behaviour .....	100
15.2.2	Components leveling and description .....	101
15.2.3	Management of FPT_EMS.1 .....	101
15.2.4	Audit of FPT_EMS.1 .....	101
15.2.5	FPT_EMS.1 Emanation of TSF and User data.....	101
15.3	Fail secure (FPT_FLS).....	101
15.3.1	Family behaviour .....	101
15.3.2	Components leveling and description .....	102
15.3.3	Management of FPT_FLS.1.....	102
15.3.4	Audit of FPT_FLS.1 .....	102
15.3.5	FPT_FLS.1 Failure with preservation of secure state.....	102
15.4	TSF initialization (FPT_INI).....	102
15.4.1	Family behaviour .....	102
15.4.2	Components leveling and description .....	102
15.4.3	Management of FPT_INI.1.....	103
15.4.4	Audit of FPT_INI.1.....	103
15.4.5	FPT_INI.1 TSF initialization.....	103
15.5	Availability of exported TSF data (FPT_ITA).....	103
15.5.1	Family behaviour .....	103
15.5.2	Components leveling and description .....	103
15.5.3	Management of FPT_ITA.1 .....	104
15.5.4	Audit of FPT_ITA.1 .....	104
15.5.5	FPT_ITA.1 Inter-TSF availability within a defined availability metric.....	104
15.6	Confidentiality of exported TSF data (FPT_ITC).....	104

15.6.1	Family behaviour .....	104
15.6.2	Components leveling and description .....	104
15.6.3	Management of FPT_ITC.1 .....	105
15.6.4	Audit of FPT_ITC.1 .....	105
15.6.5	FPT_ITC.1 Inter-TSF confidentiality during transmission .....	105
15.7	Integrity of exported TSF data (FPT_ITI) .....	105
15.7.1	Family behaviour .....	105
15.7.2	Components leveling and description .....	105
15.7.3	Management of FPT_ITI.1 .....	105
15.7.4	Management of FPT_ITI.2 .....	106
15.7.5	Audit of FPT_ITI.1 .....	106
15.7.6	Audit of FPT_ITI.2 .....	106
15.7.7	FPT_ITI.1 Inter-TSF detection of modification .....	106
15.7.8	FPT_ITI.2 Inter-TSF detection and correction of modification .....	106
15.8	Internal TOE TSF data transfer (FPT_ITT) .....	107
15.8.1	Family behaviour .....	107
15.8.2	Components leveling and description .....	107
15.8.3	Management of FPT_ITT.1 .....	107
15.8.4	Management of FPT_ITT.2 .....	107
15.8.5	Management of FPT_ITT.3 .....	108
15.8.6	Audit of FPT_ITT.1, FPT_ITT.2 .....	108
15.8.7	Audit of FPT_ITT.3 .....	108
15.8.8	FPT_ITT.1 Basic internal TSF data transfer protection .....	108
15.8.9	FPT_ITT.2 TSF data transfer separation .....	108
15.8.10	FPT_ITT.3 TSF data integrity monitoring .....	109
15.9	TSF physical protection (FPT_PHP) .....	109
15.9.1	Family behaviour .....	109
15.9.2	Components leveling and description .....	109
15.9.3	Management of FPT_PHP.1 .....	110
15.9.4	Management of FPT_PHP.2 .....	110
15.9.5	Management of FPT_PHP.3 .....	110
15.9.6	Audit of FPT_PHP.1 .....	110
15.9.7	Audit of FPT_PHP.2 .....	110
15.9.8	Audit of FPT_PHP.3 .....	110
15.9.9	FPT_PHP.1 Passive detection of physical attack .....	110
15.9.10	FPT_PHP.2 Notification of physical attack .....	111
15.9.11	FPT_PHP.3 Resistance to physical attack .....	111
15.10	Trusted recovery (FPT_RCV) .....	111
15.10.1	Family behaviour .....	111
15.10.2	Components leveling and description .....	111
15.10.3	Management of FPT_RCV.1 .....	112
15.10.4	Management of FPT_RCV.2, FPT_RCV.3 .....	112
15.10.5	Management of FPT_RCV.4 .....	112
15.10.6	Audit of FPT_RCV.1, FPT_RCV.2, FPT_RCV.3 .....	112
15.10.7	Audit of FPT_RCV.4 .....	112
15.10.8	FPT_RCV.1 Manual recovery .....	112
15.10.9	FPT_RCV.2 Automated recovery .....	113
15.10.10	.....	
	FPT_RCV.3 Automated recovery without undue loss .....	113
15.10.11	.....	
	FPT_RCV.4 Function recovery .....	113
15.11	Replay detection (FPT_RPL) .....	114
15.11.1	Family behaviour .....	114
15.11.2	Components leveling and description .....	114
15.11.3	Management of FPT_RPL.1 .....	114
15.11.4	Audit of FPT_RPL.1 .....	114
15.11.5	FPT_RPL.1 Replay detection .....	114
15.12	State synchrony protocol (FPT_SSP) .....	115

15.12.1	Family behaviour .....	115
15.12.2	Components leveling and description .....	115
15.12.3	Management of FPT_SSP.1, FPT_SSP.2 .....	115
15.12.4	Audit of FPT_SSP.1, FPT_SSP.2 .....	115
15.12.5	FPT_SSP.1 Simple trusted acknowledgement .....	115
15.12.6	FPT_SSP.2 Mutual trusted acknowledgement .....	115
15.13	Time stamps (FPT_STM) .....	116
15.13.1	Family behaviour .....	116
15.13.2	Components leveling and description .....	116
15.13.3	Management of FPT_STM.1 .....	116
15.13.4	Management of FPT_STM.2 .....	116
15.13.5	Audit of FPT_STM.1 .....	116
15.13.6	Audit of FPT_STM.2 .....	116
15.13.7	FPT_STM.1 Reliable time stamps .....	117
15.13.8	FPT_STM.2 Time source .....	117
15.14	Inter-TSF TSF data consistency (FPT_TDC) .....	117
15.14.1	Family behaviour .....	117
15.14.2	Components leveling and description .....	117
15.14.3	Management of FPT_TDC.1 .....	117
15.14.4	Audit of FPT_TDC.1 .....	118
15.14.5	FPT_TDC.1 Inter-TSF basic TSF data consistency .....	118
15.15	Testing of external entities (FPT_TEE) .....	118
15.15.1	Family behaviour .....	118
15.15.2	Components leveling and description .....	118
15.15.3	Management of FPT_TEE.1 .....	118
15.15.4	Audit of FPT_TEE.1 .....	119
15.15.5	FPT_TEE.1 Testing of external entities .....	119
15.16	Internal TOE TSF data replication consistency (FPT_TRC) .....	119
15.16.1	Family behaviour .....	119
15.16.2	Components leveling and description .....	119
15.16.3	Management of FPT_TRC.1 .....	119
15.16.4	Audit of FPT_TRC.1 .....	120
15.16.5	FPT_TRC.1 Internal TSF consistency .....	120
15.17	TSF self-test (FPT_TST) .....	120
15.17.1	Family behaviour .....	120
15.17.2	Components leveling and description .....	120
15.17.3	Management of FPT_TST.1 .....	121
15.17.4	Audit of FPT_TST.1 .....	121
15.17.5	FPT_TST.1 TSF self-testing .....	121
<b>16</b>	<b>Class FRU: Resource utilization .....</b>	<b>121</b>
16.1	Class description .....	121
16.2	Fault tolerance (FRU_FLT) .....	122
16.2.1	Family behaviour .....	122
16.2.2	Components leveling and description .....	122
16.2.3	Management of FRU_FLT.1, FRU_FLT.2 .....	122
16.2.4	Audit of FRU_FLT.1 .....	122
16.2.5	Audit of FRU_FLT.2 .....	122
16.2.6	FRU_FLT.1 Degraded fault tolerance .....	123
16.2.7	FRU_FLT.2 Limited fault tolerance .....	123
16.3	Priority of service (FRU_PRS) .....	123
16.3.1	Family behaviour .....	123
16.3.2	Components leveling and description .....	123
16.3.3	Management of FRU_PRS.1, FRU_PRS.2 .....	123
16.3.4	Audit of FRU_PRS.1, FRU_PRS.2 .....	124
16.3.5	FRU_PRS.1 Limited priority of service .....	124
16.3.6	FRU_PRS.2 Full priority of service .....	124
16.4	Resource allocation (FRU_RSA) .....	124
16.4.1	Family behaviour .....	124

	16.4.2	Components leveling and description.....	124
	16.4.3	Management of FRU_RSA.1.....	125
	16.4.4	Management of FRU_RSA.2.....	125
	16.4.5	Audit of FRU_RSA.1, FRU_RSA.2.....	125
	16.4.6	FRU_RSA.1 Maximum quotas.....	125
	16.4.7	FRU_RSA.2 Minimum and maximum quotas.....	125
<b>17</b>		<b>Class FTA: TOE access.....</b>	<b>126</b>
	17.1	Class description.....	126
	17.2	Limitation on scope of selectable attributes (FTA_LSA).....	126
	17.2.1	Family behaviour.....	126
	17.2.2	Components leveling and description.....	126
	17.2.3	Management of FTA_LSA.1.....	127
	17.2.4	Audit of FTA_LSA.1.....	127
	17.2.5	FTA_LSA.1 Limitation on scope of selectable attributes.....	127
	17.3	Limitation on multiple concurrent sessions (FTA_MCS).....	127
	17.3.1	Family behaviour.....	127
	17.3.2	Components leveling and description.....	127
	17.3.3	Management of FTA_MCS.1.....	128
	17.3.4	Management of FTA_MCS.2.....	128
	17.3.5	Audit of FTA_MCS.1, FTA_MCS.2.....	128
	17.3.6	FTA_MCS.1 Basic limitation on multiple concurrent sessions.....	128
	17.3.7	FTA_MCS.2 Per user attribute limitation on multiple concurrent sessions.....	128
	17.4	Session locking and termination (FTA_SSL).....	129
	17.4.1	Family behaviour.....	129
	17.4.2	Components leveling and description.....	129
	17.4.3	Management of FTA_SSL.1.....	129
	17.4.4	Management of FTA_SSL.2.....	129
	17.4.5	Management of FTA_SSL.3.....	129
	17.4.6	Management of FTA_SSL.4.....	130
	17.4.7	Audit of FTA_SSL.1, FTA_SSL.2.....	130
	17.4.8	Audit of FTA_SSL.3.....	130
	17.4.9	Audit of FTA_SSL.4.....	130
	17.4.10	FTA_SSL.1 TSF-initiated session locking.....	130
	17.4.11	FTA_SSL.2 User-initiated locking.....	130
	17.4.12	FTA_SSL.3 TSF-initiated termination.....	131
	17.4.13	FTA_SSL.4 User-initiated termination.....	131
	17.5	TOE access banners (FTA_TAB).....	131
	17.5.1	Family behaviour.....	131
	17.5.2	Components leveling and description.....	131
	17.5.3	Management of FTA_TAB.1.....	131
	17.5.4	Audit of FTA_TAB.1.....	132
	17.5.5	FTA_TAB.1 Default TOE access banners.....	132
	17.6	TOE access history (FTA_TAH).....	132
	17.6.1	Family behaviour.....	132
	17.6.2	Components leveling and description.....	132
	17.6.3	Management of FTA_TAH.1.....	132
	17.6.4	Audit of FTA_TAH.1.....	132
	17.6.5	FTA_TAH.1 TOE access history.....	132
	17.7	TOE session establishment (FTA_TSE).....	133
	17.7.1	Family behaviour.....	133
	17.7.2	Components leveling and description.....	133
	17.7.3	Management of FTA_TSE.1.....	133
	17.7.4	Audit of FTA_TSE.1.....	133
	17.7.5	FTA_TSE.1 TOE session establishment.....	133
<b>18</b>		<b>Class FTP: Trusted path/channels.....</b>	<b>134</b>
	18.1	Class description.....	134
	18.2	Inter-TSF trusted channel (FTP_ITC).....	135

18.2.1	Family behaviour .....	135
18.2.2	Components leveling and description .....	135
18.2.3	Management of FTP_ITC.1 .....	135
18.2.4	Audit of FTP_ITC.1 .....	135
18.2.5	FTP_ITC.1 Inter-TSF trusted channel .....	135
18.3	Trusted channel protocol (FTP_PRO) .....	136
18.3.1	Family behavior .....	136
18.3.2	Components leveling and description .....	136
18.3.3	Management of FTP_PRO.1 .....	136
18.3.4	Management of FTP_PRO.2 .....	136
18.3.5	Management of FTP_PRO.3 .....	136
18.3.6	Audit of FTP_PRO.1 .....	137
18.3.7	Audit of FTP_PRO.2 .....	137
18.3.8	Audit of FTP_PRO.3 .....	137
18.3.9	FTP_PRO.1 Trusted channel protocol .....	137
18.3.10	FTP_PRO.2 Trusted channel establishment .....	138
18.3.11	FTP_PRO.3 Trusted channel data protection .....	138
18.4	Trusted path (FTP_TRP) .....	139
18.4.1	Family behaviour .....	139
18.4.2	Components leveling and description .....	139
18.4.3	Management of FTP_TRP.1 .....	139
18.4.4	Audit of FTP_TRP.1 .....	139
18.4.5	FTP_TRP.1 Trusted path .....	139
<b>Annex A (informative) Security functional requirements (SFRs) structure of the application notes .....</b>		<b>141</b>
<b>Annex B (informative) Dependency tables for security functional components .....</b>		<b>144</b>
<b>Annex C (normative) Class FAU: Security audit — Application notes .....</b>		<b>153</b>
<b>Annex D (normative) Class FCO: Communication — Application notes .....</b>		<b>166</b>
<b>Annex E (normative) Class FCS: Cryptographic support — Application notes .....</b>		<b>171</b>
<b>Annex F (normative) Class FDP: User data protection — Application notes .....</b>		<b>181</b>
<b>Annex G (normative) Class FIA: Identification and authentication — Application notes .....</b>		<b>208</b>
<b>Annex H (normative) Class FMT: Security management — Application notes .....</b>		<b>218</b>
<b>Annex I (normative) Class FPR: Privacy — Application notes .....</b>		<b>228</b>
<b>Annex J (normative) Class FPT: Protection of the TSF — Application notes .....</b>		<b>240</b>
<b>Annex K (normative) Class FRU: Resource utilization — Application notes .....</b>		<b>258</b>
<b>Annex L (normative) Class FTA: TOE access — Application notes .....</b>		<b>263</b>
<b>Annex M (normative) Class FTP: Trusted path/channels- application notes .....</b>		<b>269</b>
<b>Bibliography .....</b>		<b>273</b>