

# ISO/IEC 21000-22:2022-09 (E)

## Information technology - Multimedia framework (MPEG-21) - Part 22: User description

---

<b>Contents</b>		<b>Page</b>
<b>Foreword</b> .....		<b>xi</b>
<b>Introduction</b> .....		<b>xii</b>
<b>1 Scope</b> .....		<b>1</b>
<b>2 Normative references</b> .....		<b>1</b>
<b>3 Terms and definitions</b> .....		<b>1</b>
<b>4 General description</b> .....		<b>2</b>
4.1 commonAttributes.....		2
4.1.1 Syntax.....		2
4.1.2 Semantics.....		2
4.1.3 Examples.....		3
4.2 ValueTypes.....		3
4.2.1 Syntax.....		3
4.2.2 Semantics.....		4
4.2.3 Examples.....		5
4.3 TimeType.....		5
4.3.1 Syntax.....		5
4.3.2 Semantics.....		5
4.3.3 Examples.....		5
4.4 ExtendedTimeType.....		5
4.4.1 Syntax.....		5
4.4.2 Semantics.....		6
4.4.3 Examples.....		7
4.5 LocationType.....		7
4.5.1 Syntax.....		7
4.5.2 Semantics.....		7
4.5.3 Examples.....		7
4.6 ClassificationSchemeAliasType.....		8
4.6.1 Syntax.....		8
4.6.2 Semantics.....		8
4.6.3 Examples.....		8
4.7 ObjectType.....		8
4.7.1 Syntax.....		8
4.7.2 Semantics.....		9
4.7.3 Examples.....		9
4.8 InformationAccessUserGroup.....		10
4.8.1 Syntax.....		10
4.8.2 Semantics.....		10
<b>5 User description</b> .....		<b>10</b>
5.1 UserDescriptionType.....		10
5.1.1 Syntax.....		10
5.1.2 Semantics.....		11
5.2 UserProfileType.....		12
5.2.1 Syntax.....		12
5.2.2 Semantics.....		12
5.2.3 Examples.....		12
5.3 PersonProfileType.....		12
5.3.1 Syntax.....		12
5.3.2 Semantics.....		13

5.3.3	Examples	13
5.4	OrganizationProfileType	13
5.4.1	Syntax	14
5.4.2	Semantics	14
5.4.3	Examples	14
5.5	DeviceProfileType	14
5.5.1	Syntax	14
5.5.2	Semantics	14
5.5.3	Examples	15
5.6	GroupedProfileType	15
5.6.1	Syntax	15
5.6.2	Semantics	15
5.6.3	Examples	15
5.7	UsageHistoryType	16
5.7.1	Syntax	16
5.7.2	Semantics	17
5.7.3	Examples	17
5.8	EventType	17
5.8.1	Syntax	17
5.8.2	Semantics	18
5.8.3	Examples	18
5.9	InteractionAtomType	18
5.9.1	Syntax	18
5.9.2	Semantics	19
5.9.3	Examples	19
5.10	ArtefactType	20
5.10.1	Syntax	20
5.10.2	Semantics	20
5.10.3	Examples	20
5.11	ObservableType	21
5.11.1	Syntax	21
5.11.2	Semantics	22
5.11.3	Examples	22
5.12	MultimediaExperienceType	22
5.12.1	Syntax	22
5.12.2	Semantics	23
5.12.3	Examples	23
5.13	StateType	24
5.13.1	Syntax	24
5.13.2	Semantics	25
5.13.3	Examples	25
5.14	PreferenceType	26
5.14.1	Syntax	26
5.14.2	Semantics	26
5.15	TextPresentationPreferencesType	27
5.15.1	Syntax	27
5.15.2	Semantics	28
5.15.3	Example	28
5.16	WebLinkPreferenceType	28
5.16.1	Syntax	28
5.16.2	Semantics	29
5.16.3	Example	29
5.17	WebLinkUsageHistoryType	29
5.17.1	Syntax	29
5.17.2	Semantics	29
5.18	ServicePreferenceType	29
5.18.1	Syntax	30
5.18.2	Semantics	30
5.18.3	Examples	30
5.19	GeneralAudioPreferenceType	30
5.19.1	Syntax	30
5.19.2	Semantics	32

5.19.3	Examples	32
5.20	AudioPresentationPreferencesType	32
5.20.1	Syntax	32
5.20.2	Semantics	32
5.21	AudioPresentationEnvironmentPreferenceType	33
5.21.1	Syntax	33
5.21.2	Semantics	33
5.21.3	Examples	34
5.22	TranslationPreferencesType	35
5.22.1	Syntax	35
5.22.2	Semantics	36
5.22.3	Examples	36
5.23	SpeechStylePreferenceType	36
5.23.1	Syntax	36
5.23.2	Semantics	36
5.24	GenderType	36
5.24.1	Syntax	37
5.24.2	Semantics	37
5.24.3	Examples	37
5.25	EmotionType	37
5.25.1	Syntax	37
5.25.2	Semantics	38
5.25.3	Examples	39
5.26	ScheduleType	40
5.26.1	Syntax	40
5.26.2	Semantics	40
5.27	ScheduleEventType	40
5.27.1	Syntax	40
5.27.2	Semantics	41
5.27.3	Examples	41
5.28	ActivityType	41
5.28.1	Syntax	41
5.28.2	Semantics	43
5.28.3	Examples	43
5.29	IntentionType	44
5.29.1	Syntax	44
5.29.2	Semantics	44
5.29.3	Examples	44
5.30	LanguageType	44
5.30.1	Syntax	44
5.30.2	Semantics	46
5.30.3	Examples	47
5.31	LanguageCompetenceReferenceType	48
5.31.1	Syntax	48
5.31.2	Semantics	49
5.32	CompetenceLevelType	49
5.32.1	Syntax	49
5.32.2	Semantics	49
5.33	AccessibilityType	49
5.33.1	Syntax	50
5.33.2	Semantics	50
5.33.3	Examples	50
5.34	SocialInformationType	51
5.34.1	Syntax	51
5.34.2	Semantics	51
5.35	KnowledgeType	52
5.35.1	Syntax	52
5.35.2	Semantics	52

5.36	ObjectSharingType.....	54
	5.36.1 Syntax.....	54
	5.36.2 Semantics.....	54
	5.36.3 Examples.....	54
5.37	ObjectAccessibilityType.....	54
	5.37.1 Syntax.....	54
	5.37.2 Semantics.....	55
	5.37.3 Examples.....	55
5.38	UsagePatternType.....	55
	5.38.1 Syntax.....	55
	5.38.2 Semantics.....	55
	5.38.3 Examples.....	55
5.39	LoudnessPreferencesType.....	56
	5.39.1 Syntax.....	56
	5.39.2 Semantics.....	58
5.40	VisualExpressionType.....	58
	5.40.1 Syntax.....	58
	5.40.2 Semantics.....	59
5.41	BaseUserType.....	60
	5.41.1 Syntax.....	60
	5.41.2 Semantics.....	60
5.42	ConsecutiveVibrationPreferenceType.....	60
	5.42.1 Syntax.....	60
	5.42.2 Semantics.....	60
<b>6</b>	<b>Context description.....</b>	<b>61</b>
6.1	ContextDescriptionType.....	61
	6.1.1 Syntax.....	61
	6.1.2 Semantics.....	61
	6.1.3 Examples.....	62
6.2	ContextIdentificationType.....	63
	6.2.1 Syntax.....	63
	6.2.2 Semantics.....	63
	6.2.3 Examples.....	63
6.3	DeviceCharacteristicsType.....	63
	6.3.1 Syntax.....	63
	6.3.2 Semantics.....	64
	6.3.3 Examples.....	64
6.4	NetworkInfoType.....	65
	6.4.1 Syntax.....	65
	6.4.2 Semantics.....	65
	6.4.3 Examples.....	65
6.5	WeatherType.....	66
	6.5.1 Syntax.....	66
	6.5.2 Semantics.....	66
	6.5.3 Examples.....	67
6.6	OtherEnvironmentalInfoType.....	67
	6.6.1 Syntax.....	67
	6.6.2 Semantics.....	68
6.7	AudioEnvironmentType.....	68
	6.7.1 Syntax.....	68
	6.7.2 Semantics.....	68
6.8	RecordingEnvironmentType.....	68
	6.8.1 Syntax.....	68
	6.8.2 Semantics.....	69
	6.8.3 Examples.....	69
6.9	LoudnessEnvironmentType.....	69
	6.9.1 Syntax.....	69
	6.9.2 Semantics.....	72

6.10	VisualExpressionType.....	72
	6.10.1 Syntax.....	72
	6.10.2 Semantics.....	73
6.11	BaseContextType.....	73
	6.11.1 Syntax.....	73
	6.11.2 Semantics.....	74
6.12	ContextDescriptionType.....	74
	6.12.1 Syntax.....	74
	6.12.2 Semantics.....	74
<b>7</b>	<b>Service description.....</b>	<b>75</b>
7.1	BaseServiceType.....	75
	7.1.1 Syntax.....	75
	7.1.2 Semantics.....	75
7.2	ServiceDescriptionType.....	75
	7.2.1 Syntax.....	76
	7.2.2 Semantics.....	76
7.3	ServiceGeneralInformationType.....	77
	7.3.1 Syntax.....	77
	7.3.2 Semantics.....	77
7.4	ServiceTargetInformationType.....	77
	7.4.1 Syntax.....	77
	7.4.2 Semantics.....	78
7.5	ServiceTargetModelType.....	78
	7.5.1 Syntax.....	78
	7.5.2 Semantics.....	79
7.6	VocabularySetType.....	79
	7.6.1 Syntax.....	79
	7.6.2 Semantics.....	79
7.7	ServiceInterfacesType.....	80
	7.7.1 Syntax.....	80
	7.7.2 Semantics.....	80
7.8	ServiceInterfaceType.....	80
	7.8.1 Syntax.....	80
	7.8.2 Semantics.....	80
7.9	RequiredInputDataType.....	80
	7.9.1 Syntax.....	80
	7.9.2 Semantics.....	81
7.10	InternalServicesType.....	81
	7.10.1 Syntax.....	81
	7.10.2 Semantics.....	81
7.11	InternalServicesType.....	81
	7.11.1 Syntax.....	81
	7.11.2 Semantics.....	82
7.12	AudioDBType.....	82
	7.12.1 Syntax.....	82
	7.12.2 Semantics.....	83
7.13	AudioDBDescriptorType.....	83
	7.13.1 Syntax.....	83
	7.13.2 Semantics.....	83
7.14	VideoDBType.....	83
	7.14.1 Syntax.....	83
	7.14.2 Semantics.....	84
7.15	VideoDBDescriptorType.....	84
	7.15.1 Syntax.....	84
	7.15.2 Semantics.....	84
7.16	ServiceObjectType.....	85
	7.16.1 Syntax.....	85
	7.16.2 Semantics.....	86

7.17	LoudnessInfoType	86
7.17.1	Syntax	86
7.17.2	Semantics	87
7.18	VisualExpressionInfoType	87
7.18.1	Syntax	87
7.18.2	Semantics	90
7.19	ConsecutiveVibrationServiceType	90
7.19.1	General	90
7.19.2	Syntax	91
7.19.3	Semantics	91
<b>8</b>	<b>Recommendation description</b>	<b>92</b>
8.1	RecommendationDescriptionType	92
8.1.1	Syntax	92
8.1.2	Semantics	93
8.2	compactUsageDescriptionType	93
8.2.1	Syntax	93
8.2.2	Semantics	94
8.2.3	Example	94
8.3	QueryDescriptionType	95
8.3.1	Syntax	95
8.3.2	Semantics	95
8.4	ProcessChainType	95
8.4.1	Syntax	95
8.4.2	Semantics	96
8.5	RecommendationInformationType	96
8.5.1	Syntax	96
8.5.2	Semantics	96
8.6	RecommendableResourceType	97
8.6.1	Syntax	97
8.6.2	Semantics	98
8.7	Resource	98
8.7.1	Syntax	98
8.7.2	Semantics	98
8.8	resourceUsageType	98
8.8.1	Syntax	98
8.8.2	Semantics	99
8.9	clusteringType	99
8.9.1	Syntax	99
8.9.2	Semantics	100
8.10	genericClusteringType	100
8.10.1	Syntax	100
8.10.2	Semantics	101
8.11	hierarchicalClusteringType	101
8.11.1	Syntax	101
8.11.2	Semantics	101
8.12	SequentialClusteringType	102
8.12.1	Syntax	102
8.12.2	Semantics	102
8.13	costFunctionMinimisationClusteringType	102
8.13.1	Syntax	102
8.13.2	Semantics	102
8.14	clusterStructureType	103
8.14.1	Syntax	103
8.14.2	Semantics	103
8.15	genericAggregateType	104
8.15.1	Syntax	104
8.15.2	Semantics	104
8.16	setMemberType	104

8.16.1	Syntax	104
8.16.2	Semantics	105
8.17	orderedSetMemberType	105
8.17.1	Syntax	105
8.17.2	Semantics	106
8.18	genericSetType	106
8.18.1	Syntax	106
8.18.2	Semantics	106
8.19	labelledSetType	106
8.19.1	Syntax	107
8.19.2	Semantics	108
8.20	orderedSetType	108
8.20.1	Syntax	108
8.20.2	Semantics	108
8.21	equivalenceSetType	108
8.21.1	Syntax	108
8.21.2	Semantics	109
8.22	linkageSetType	109
8.22.1	Syntax	109
8.22.2	Semantics	110
8.23	Member	110
8.23.1	Syntax	110
8.23.2	Semantics	110
8.24	OrderedMember	110
8.24.1	Syntax	110
8.24.2	Semantics	110
8.25	queryClauseType	110
8.25.1	Syntax	110
8.25.2	Semantics	112
8.25.3	Example	112
8.26	ORqueryClauseType	112
8.26.1	Syntax	112
8.26.2	Semantics	112
8.27	ANDqueryClauseType	113
8.27.1	Syntax	113
8.27.2	Semantics	113
8.28	LoudnessControlType	113
8.28.1	Syntax	113
8.28.2	Semantics	114
8.29	VisualExpressionType	114
8.29.1	Syntax	114
8.29.2	Semantics	114
<b>9</b>	<b>Reference software</b>	<b>115</b>
9.1	General	115
9.2	Development environment	115
9.3	Structure of reference software	115
9.4	Reference software classes and method	115
9.4.1	General	115
9.4.2	Encoder	115
9.4.3	Decoder	116
9.4.4	Validator	117
9.5	Example using the encoder	118
9.6	Example using the decoder	118
9.7	Example of the validator for reference software	119
<b>10</b>	<b>Implementation guidelines</b>	<b>119</b>
10.1	Application 1: Remote Responsive User Interface	119
10.1.1	General	119

10.1.2	Workflow.....	120
10.1.3	Validation.....	121
10.2	Application 2: Lossless audio service.....	123
10.2.1	General.....	123
10.2.2	Workflow.....	123
10.2.3	Validation.....	124
10.3	Application 3: Visual communication system.....	125
10.3.1	General.....	125
10.3.2	Workflow.....	126
10.3.3	Validation.....	127
10.4	Application 4: Translation preferences.....	128
10.4.1	General.....	128
10.4.2	Workflow.....	128
10.4.3	Validation.....	129
10.5	Application 5: Recommending multimedia services.....	130
10.5.1	General.....	130
10.5.2	Workflow.....	130
10.5.3	Validation.....	131
10.6	Application 6: User-centric application personalization in a Cloud.....	132
10.6.1	General.....	132
10.6.2	Workflow.....	132
10.6.3	Validation.....	132
<b>Annex A (Normative) .....</b>		<b>135</b>
<b>Annex B (Normative) Classification Schemes.....</b>		<b>136</b>
<b>Bibliography.....</b>		<b>179</b>