

# ISO/IEC 21000-7:2007-12 (E)

## Information technology - Multimedia framework (MPEG-21) - Part 7: Digital Item Adaptation

---

<b>Contents</b>		<b>Page</b>
Foreword .....		vi
Introduction .....		viii
<b>1</b>	<b>Scope .....</b>	<b>1</b>
1.1	General .....	1
1.2	Organization of the document .....	1
1.3	Overview of Digital Item Adaptation .....	1
1.4	Overview of Digital Item Adaptation tools .....	2
<b>2</b>	<b>Normative references .....</b>	<b>4</b>
<b>3</b>	<b>Terms, definitions, symbols, and abbreviated terms .....</b>	<b>5</b>
3.1	Terms and definitions .....	5
3.2	Symbols and abbreviated terms .....	8
3.3	Schema documents .....	9
3.4	Use of prefixes in this specification .....	9
3.5	URI fragment identifiers for XML documents .....	10
<b>4</b>	<b>Schema tools .....</b>	<b>11</b>
4.1	Introduction .....	11
4.2	Schema wrapper .....	12
4.3	Base types .....	12
4.4	Description metadata .....	13
4.5	Root elements .....	14
4.6	Reference .....	17
<b>5</b>	<b>Low-level datatypes .....</b>	<b>18</b>
5.1	Introduction .....	18
5.2	Common datatypes .....	18
5.3	Base stack function .....	26
5.4	Argument types and extensions .....	28
5.5	Conversion descriptions .....	34
<b>6</b>	<b>Usage environment description tools .....</b>	<b>37</b>
6.1	Introduction .....	37
6.2	Schema wrapper .....	37
6.3	Usage environment .....	37
6.4	User characteristics .....	38
6.5	Terminal capabilities .....	85
6.6	Network characteristics .....	124
6.7	Natural environment characteristics .....	129
<b>7</b>	<b>Conversion tools .....</b>	<b>137</b>
7.1	Introduction .....	137
7.2	Bitstream syntax description link .....	137
7.3	Conversion link .....	141
<b>8</b>	<b>Bitstream Syntax Description .....</b>	<b>144</b>
8.1	Introduction .....	144
8.2	Bitstream Syntax Description Language .....	147

8.3	Bitstream generation: BSDL-1 and gBS Schema .....	149
8.4	BS Description generation: BSDL-2 .....	161
8.5	Media resource streaming instructions .....	161
8.6	XML streaming instructions .....	168
8.7	Properties stylesheet .....	178
9	Terminal and network quality of service .....	185
9.1	Introduction .....	185
9.2	Schema wrapper .....	185
9.3	AdaptationQoS .....	185
9.4	AdaptationQoS modules .....	187
9.5	IOPin .....	187
9.6	UtilityFunction .....	189
9.7	Look-up table .....	193
9.8	Stack function .....	197
9.9	Switch mechanism .....	199
9.10	CrossConversionQoS .....	203
10	Universal constraints description tools .....	207
10.1	Introduction .....	207
10.2	Universal constraints description syntax .....	209
10.3	Universal constraints description semantics .....	210
10.4	Universal constraints description examples .....	212
11	Metadata adaptability .....	217
11.1	Introduction .....	217
11.2	MetadataAdaptation syntax .....	217
11.3	MetadataAdaptation semantics .....	219
11.4	MetadataAdaptation examples .....	221
12	Session mobility tools .....	227
12.1	Introduction .....	227
12.2	Format of a DI for session mobility .....	228
12.3	SessionMobility syntax .....	229
12.4	SessionMobility semantics .....	230
12.5	Reconstructing a session .....	231
12.6	Session transfer example .....	232
13	DIA configuration tools .....	233
13.1	Introduction .....	233
13.2	DIAConfiguration syntax .....	233
13.3	DIAConfiguration semantics .....	235
14	Change Conditions .....	236
14.1	Introduction .....	236
14.2	Additional terms, definitions, symbols, abbreviated terms, namespaces, and conventions for this clause .....	236
14.3	Syntax .....	236
14.4	Authorization Context Properties .....	238
14.5	Semantics .....	238
14.6	Example .....	239
Annex A (normative) Classification Schemes .....		241
A.1	Introduction .....	241
A.2	Classification Schemes .....	241
Annex B (informative) Usage of the BSDLink tool .....		299
B.1	Introduction .....	299
B.2	Overview of the adaptation architecture .....	299
B.3	Example instances .....	302

<b>Annex C (informative) Usage of DIA Configuration .....</b>	<b>339</b>
<b>C.1 Introduction .....</b>	<b>339</b>
<b>C.2 Example 1 .....</b>	<b>339</b>
<b>C.3 Example 2 .....</b>	<b>342</b>
<b>C.4 Example 3 .....</b>	<b>343</b>
<b>Annex D (informative) Address corrections in (g)BS Descriptions for multi-step adaptations .....</b>	<b>345</b>
<b>Annex E (informative) UCD-based adaptation decision making engine .....</b>	<b>347</b>
<b>E.1 Introduction .....</b>	<b>347</b>
<b>E.2 ADTE architectures .....</b>	<b>347</b>
<b>E.3 UCD based ADTE processing model .....</b>	<b>348</b>
<b>Annex F (informative) Patent Statements .....</b>	<b>351</b>
<b>Annex G (informative) Schema .....</b>	<b>352</b>
<b>G.1 Introduction .....</b>	<b>352</b>
<b>G.2 Schema definition for schema tools (clause 4) .....</b>	<b>352</b>
<b>G.3 Schema definition for usage environment descriptions tools (clause 6) .....</b>	<b>354</b>
<b>G.4 Schema definition for Terminal and network quality of service tools (clause 8) .....</b>	<b>381</b>
<b>Annex H (informative) Conversion Description Examples .....</b>	<b>386</b>
<b>H.1 Introduction .....</b>	<b>386</b>
<b>H.2 Elaborate the semantics of cropping a rectangular bitmap image .....</b>	<b>386</b>
<b>H.3 Identify existing RDD terms related to those semantics .....</b>	<b>387</b>
<b>H.4 Specialize existing RDD terms to arrive at a CropRectangularBitmapImage term .....</b>	<b>389</b>
<b>H.5 Write the conversion description .....</b>	<b>395</b>
<b>H.6 Use the conversion description in the conversion description framework .....</b>	<b>395</b>
<b>Annex I (informative) OWL-S Conversion Description Example .....</b>	<b>396</b>
<b>I.1 Introduction .....</b>	<b>396</b>
<b>I.2 Service profile .....</b>	<b>396</b>
<b>I.3 Service model .....</b>	<b>397</b>
<b>I.4 Service grounding .....</b>	<b>397</b>
<b>I.5 Example .....</b>	<b>398</b>
<b>Annex J (informative) Usage of ConversionLink and CrossConversionQoS tools .....</b>	<b>406</b>
<b>J.1 Introduction .....</b>	<b>406</b>
<b>J.2 Single conversion adaptation architecture .....</b>	<b>406</b>
<b>J.3 Multiple conversion adaptation architecture .....</b>	<b>407</b>
<b>J.4 Multiple conversions processing walkthrough .....</b>	<b>407</b>
<b>Annex K (informative) XML streaming instructions' relation to encoding .....</b>	<b>409</b>
<b>Annex L (informative) Examples of media resource streaming instructions .....</b>	<b>412</b>
<b>Annex M (informative) Combined usage of media resource streaming instructions and XML streaming instructions .....</b>	<b>418</b>
<b>M.1 Introduction .....</b>	<b>418</b>
<b>M.2 System View .....</b>	<b>418</b>
<b>Bibliography .....</b>	<b>420</b>