Telecommunication Standardization Sector
Study Group 15
Experts Group for Video Coding and Systems in
ATM and Other Network Environments

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SOURCE : JAPAN
TITLE : Amendment to Capability Description in H.24X
PURPOSE : Proposal

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1. Introduction

In the draft Rec. H.24x (AVC-710[1]), the capabilities and other control messages are described by ASN.1, according to the agreement in Singapore[2][3]. This document proposes amendments to some part of the current ASN.1 description.

2. Amended items

The following is an outline of the amendments within our proposal. The proposed amendment is shown in the Annex to this document.

2.1 Top level definition

The top level definition is proposed to be included for the distinction among messages specified in H.24X. Application class tags, which are unique identifiers, are introduced to identify the kind of message.

2.2 Tagging

In the current definition, some elements are optional. When they have the same type, decoder can not identify which element is omitted and which is present at encoding side. To avoid this problem, we proposed to use tagging for such elements. The same considerations are also applicable to CHOICE type elements.

2.3 Use of BIT STRING type

Some capability elements use BOOLEAN type to indicate whether the terminal has that capability. However, 1 bit is thought to be enough for the indication. The use of BIT STRING type is proposed for those elements. This proposal can reduce the number of used bits, because each capability indication is mapped to the particular position in the bit string.

3. Conclusions

This document has proposed to include top level definition, use tagging and use BIT STRING type for ASN.1 description of the capability and control messages in draft Rec. H.24x. Proposed amendments have been shown.

Reference

[1]AVC-710 "Draft Recommendation H.24x", December 1994.
[2]AVC-707R "Report of the seventeenth experts group meeting in Singapore", Rapporteur, November 1994.
[3]AVC-699 "Protocol model for H.32X terminal", JAPAN, November 1994.

END

Proposed Amendments to the ASN.1 Description of H.24X Capabilities

2.0 H.24X messages

```
H.24XMessages      ::=CHOICE
{
      declaredTermCapSet        [APPLICATION  0]IMPLICIT  DeclaredTermCapSet,
      requestCapability         [APPLICATION  1]IMPLICIT  RequestCapability,
      requestMode               [APPLICATION  2]IMPLICIT  RequestMode,
      downloadableSoftware      [APPLICATION  3]IMPLICIT  DownloadableSoftware,
      encryption                [APPLICATION  4]IMPLICIT  Encryption,
      changeOrEndSession        [APPLICATION  5]IMPLICIT  ChangeOrEndSession,
      c&ls                      [APPLICATION  6]IMPLICIT  C&ls,   --ls it necessary?--
            ...
}
```

2.1 Transmit and Receive capabilities

```
DeclaredTermCapSet        ::=SEQUENCE
{
      independentTermCapSet     [0]IMPLICIT SEQUENCE OF TermCapSet OPTIONAL,
      dependentTermCapSet       [1]IMPLICIT SEQUENCE OF TermCapSet OPTIONAL,
      symmetricalCapSets        BOOLEAN OPTIONAL,
      ...
}

TermCapSet  ::=SET
{
      receiveCapSet       [0]IMPLICIT  CapSet  OPTIONAL,
      transmitCapSet      [1]IMPLICIT  CapSet  OPTIONAL,
      ...
}

CapSet              ::=SET
{
      videoCap            [0]IMPLICIT SET OF VideoCap,
      audioCap            [1]IMPLICIT SET OF AudioCap,
      networkAdaptCap     [2]IMPLICIT SET OF NetworkAdaptCap,
      dataCap             [3]IMPLICIT SET OF DataCap OPTIONAL,
      ...
}

VideoCap     ::=CHOICE
{
      h261VideoCap        [0]IMPLICIT  H261VideoCap,
      h262VideoCap        [1]IMPLICIT  H262VideoCap,
      h26pVideoCap        [2]IMPLICIT  H26pVideoCap,
      ...
}

H26pVideoCap        ::=SEQUENCE
{
      ...
}

H261VideoCap        ::=SEQUENCE
{
      qcifMPI       INTEGER  (1..4),
      cifMPI        INTEGER  (1..4)  OPTIONAL,
      ...
}

H262VideoCap        ::=SEQUENCE
{
      profileAndLevel       ProfileAndLevel,
      videoBitRate          [0]IMPLICIT  INTEGER  OPTIONAL,
      vbvBufferSize         [1]IMPLICIT  INTEGER  OPTIONAL,
      ...
}
```

```
ProfileAndLevel      ::=BIT  STRING
{
        SP@ML        (0),
        MP@LL        (1),
        MP@ML        (2),
        MP@H-14      (3),
        MP@HL        (4),
        SNR@LL       (5),
        SNR@ML       (6),
        Spat@H-14    (7),
        HP@ML        (8),
        HP@H-14      (9),
        HP@HL        (10),
        ...
}

AudioCap     ::=SEQUENCE
{
        iTU-TAudio    BIT  STRING  {g711Alaw(0),
                                    g711Ulaw(1),
                                    g722(2),
                                    g728(3) },
        av25y         [0]IMPLICIT  Av25y  OPTIONAL,
        mpegAudio     [1]IMPLICIT  MpegAudio  OPTIONAL
          ...
}

MpegAudio    ::=SEQUENCE
{
        audioLayer              AudioLayer,
        audioSampling           AudioSampling,
        asynchronousCap         BOOLEAN,
        AudioCorrectionModes        AudioCorrectionModes,
        bitRate                 INTEGER,
        ...
}

AudioLayer   ::=ENUMERATED
{
        layer1          (0),
        layers1&2       (1),
        layers1&2&3     (2),
        ...
}

AudioSampling        ::=BIT  STRING
{
        32k             (0),
        44k             (1),
        48k             (2),
        ...
}

AudioCorrectionModes        ::=ENUMERATED
{
        mode1           (0),
        mode2           (1),
        mode3           (2),
        allThreeModes       (3),
        ...
}

Av25y        ::=SEQUENCE
{
        ...
}

NetworkAdaptCap     ::=SEQUENCE
{
        aal                     Aal,
        h222Multiplex           H222Multiplex,
        bitRate                 INTEGER,
        numberOfVCs             INTEGER,
```

```
        ...
}

Aal                 ::=ENUMERATED
{
                    Aal1    (1),
                    Aal5    (5),
        ...
}

H222Multiplex       ::=ENUMERATED
{
        transportStream     (1),
        programStream       (2),
        ...
}

DataCap     ::=SEQUENCE
{
        t120    BOOLEAN,
        lapm    BOOLEAN,
        ...
}
```

2.2 Request Transmit and Receive capabilities, 2.3 Request Mode (Remote control), 2.4 Downloadable software unchanged

2.5 Encryption

```
Encryption    ::=CHOICE
{
        encryptionSE [0]IMPLICIT  EncryptionSE,
        encryptionIV [1]IMPLICIT  EncryptionIV,
        ...
}

EncryptionSE        ::=SEQUENCE
{
        messageIdentifier   INTEGER (0..255),
        content             OCTET STRING,     -- sequence of INTEGER (0..255) --
        ...
}

EncryptionIV ::=SEQUENCE
{
        initializationVector  OCTET STRING,     -- sequence of INTEGER (0..255) --
        ...
}
```

2.6 Change or end session

```
ChangeOrEndSession        ::=SEQUENCE
{
        command     ENUMERATED
        {
                changeSession       (0),
                endSession          (1),
                ...
        },
        ...
}
```