ISO 8348/DAM4

Date: 1991-05-23

Information processing systems — Data communications — Network service definition

AMENDMENT 4 : Removal of the preferred decimal encoding of the NSAP address

0. Introduction

This Amendment to ISO 8348 removes the definition of a "preferred decimal encoding" of the Network Service Access Point address. The definition of this encoding is contained in clause 8.3.2 of ISO 8348/Addendum 2.

ISO 8348/Addendum 2 restricts the length of the DSP part of the NSAP address so that (1) the length of an address in the "preferred binary encoding" (clause 8.3.1) will be no greater than 20 octets, and (2) the length of the same address in the "preferred decimal encoding" (clause 8.3.2) will be no greater than 40 digits (Table 3, and its Note 2). The Addendum requires that *both* of these constraints be satisfied simultaneously for any given NSAP address. The result is that the preferred binary encoding of an NSAP address with a binary–syntax DSP must be considerably shorter than 20 octets (Table 5) to ensure that the corresponding preferred decimal encoding of the same address is no longer than 40 digits.

For example, the ISO DCC IDI format (clause 8.2.1.2.2) uses 5 digits for the IDP, which are encoded using the preferred binary encoding as 3 octets. This leaves 17 octets for the DSP, which is encoded directly as binary octets when the DSP abstract syntax is binary. However, not all 17 octets are available; as Table 3 shows, only 14 octets may be used, because a DSP longer than 14 octets would not permit the address to be encoded as 40 or fewer digits in the preferred decimal encoding.

The near–universal adoption of binary octet encodings for NSAP addresses permits the removal of this restriction by amending ISO 8348 to delete the definition of the "preferred decimal encoding".

1. Scope and field of application

This Amendment makes no changes to clause 1 of ISO 8348/Addendum 2.

2. References

This Amendment makes no changes to clause 2 of ISO 8348/Addendum 2.

3. Definitions

This Amendment makes no changes to clause 3 of ISO 8348/Addendum 2.

4. Abbreviations

Replace items (o) and (p) with the following:

o) RPF reference publication format

5. Conventions

This Amendment makes no changes to clause 5 of ISO 8348/Addendum 2.

6. Concepts and terminology

This Amendment makes no changes to clause 6 of ISO 8348/Addendum 2.

7. Principles for creating the OSI Network addressing scheme

This Amendment makes no changes to clause 7 of ISO 8348/Addendum 2.

8. Network address definition

Replace the first sentence of the second paragraph with the following:

This addendum does not specify the way in which the semantics of the NSAP address are encoded in Network layer protocols, although a preferred encoding is defined in clause 8.3.

8.2. Network address abstract syntax

Replace the third (last) sentence of the first paragraph with the following:

It also enables this addendum to identify a preferred encoding of the Network address, to which reference may be made by Network layer protocol specification standards so as to unambiguously define the way in which the Network address is encoded as NPAI.

8.2.1. Abstract syntax and allocation of the IDP

Replace the last sentence of the second paragraph with the following:

When the NSAP address is represented as binary octets, the representation of the IDP is as defined in clause 8.3.

Table 3 — Maximum DSP length

Replace the table and the Notes that follow the table with the following:

IDI format \ DSP syntax	Decimal digits	Binary octets	ISO 646 characters	National characters
X.121	24	12		
ISO DCC	35	17		
F.69	30	15		
E.163	26	13		
E.164	23	11		
ISO 6523-ICD	34	17		
Local	38	19	19	9

NOTES

1 The values for the "Local" IDI format assume a National Character representation of one character as two binary octets (see clause 8.3).

2 These maximum values are dictated by the requirement that the maximum length of an NSAP address in the preferred encoding defined in clause 8.3 be less than or equal to 20 binary octets.

8.3 Network address encodings

Beginning with the third paragraph (which begins "Nevertheless..."), replace the remainder of the clause (up to and including the heading "8.3.1 Preferred binary encoding") with the following:

Nevertheless, this addendum identifies a "preferred" encoding of the Network address as a string of binary octets. Reference to this "preferred" binary encoding may be made by Network layer protocol specification standards. It is possible that the encoding used to convey the Network address semantics as Network protocol address

information (NPAI) in a Network layer protocol may be chosen to be identical to this preferred encoding. However, it is not required that this be the case.

The entire NSAP address, taken as a whole, may be represented explicitly as a string of binary octets as defined below. Network layer protocol standards that specify the encoding of the Network address semantics by making reference to this addendum must specify the way in which this binary encoding is used to convey the Network address semantics as NPAI (see clause 6.1.3).

The preferred binary encoding defined in this clause requires that the IDI be padded with non-significant leading pad digits whenever (a) the AFI specifies a variable-length IDI format, and (b) the value of the IDI is a string of decimal digits that is shorter than the maximum length of the IDI for that format (see clause 8.2.1.2). This ensures that the end of the IDI (and thus of the IDP) can be determined; the preferred binary encoding does not reserve an explicit syntactic marker for this purpose. It is necessary, in these cases, to distinguish between significant and non-significant leading zero digits in the IDI, in order to ensure that non-significant pad digits are not confused with significant IDI digits. This distinction is provided, for each of the variable-length IDI formats, by the allocation of two AFI values for each combination of IDI format and DSP abstract syntax (see clause 8.2.1.1). In step (b) below, the term "leading digits" therefore refers to leading zero (0) digits if the AFI value specifies that leading zero digits in the IDI are not significant; it refers to leading one (1) digits if the AFI value specifies that leading zero digits in the IDI **are** significant.

NOTE — The encoding defined in this clause requires that the IDI be padded to its maximum length, as described above, even when the value of the AFI specifies a decimal DSP syntax and the DSP is null.

Delete clause 8.3.2 in its entirety, including Table 4.

8.4 Maximum Network address length

Replace the entire clause, including Table 5, with the following:

The maximum length of an NSAP address in the preferred binary encoding (clause 8.3) is 20 octets. A Network layer protocol which is capable of conveying a string of variable length with a maximum length of 20 binary octets is therefore capable of encoding the full semantic content of any Network address.

9 Character based DSP allocation

Replace the second sentence of the first paragraph with the following:

In such cases, the allocating authority must define and publish the mapping of the National Character syntax to a binary octet representation. The mapping must result in the representation of each national character as either one or two binary octets. The resulting DSP is considered to be based on a binary abstract syntax for the purposes of

selecting AFI values from Table 2 and performing the preferred binary encoding defined in clause 8.3.

Delete the second and third paragraphs, and collect the two existing notes as Note 1 and Note 2 at the end of the clause.

10 Reference publication format

Replace the entire clause, including its two subclauses 10.1 and 10.2, with the following:

The reference publication format (RPF) is defined to facilitate unambiguous representation of NSAP addresses in both written and oral communication. It consists of a string of decimal digits which is the direct representation of the IDP, followed by the symbol "+", followed by a string of hexadecimal digits in which a pair of hexadecimal digits is used to represent the numeric value of each binary octet in the preferred binary encoding of the DSP (clause 8.3). In the case in which the DSP part of the NSAP address is null, the RPF consists only of the string of decimal digits representing the IDP; the symbol "+" is not present.

As an example, the written inscription of the RPF for an NSAP address with an AFI value of 39, an IDI value of 840, and a binary-syntax DSP value of 01001100 11100101 would be 39840+4CE5.

B.3 Derivation of the preferred binary encoding (clause 8.3)

Replace the first line of the first paragraph with the following:

In describing the preferred binary encoding of the NSAP address, clause 8.3 introduces two types of padding: ...