

Electronic transfer of geographic information (NTF) —

Part 3: Specification for implementing NTF using BS 6690

Committees responsible for this British Standard

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- Association for Geographic Information
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- Berkshire County Council
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- CAM Ltd.
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Foreword

This Part of BS 7567 has been prepared under the direction of the Information Systems Technology Standards Policy Committee.

BS 7567-3:1992 specifies how NTF, a data transfer standard for a wide range of geographic data, is encoded in a media-independent form using BS 6690 *A data descriptive file for information interchange* (equivalent to ISO 8211).

BS 7567-2:1992 may be used as an alternative to this Part by agreement between the donor and recipient.

It is essential for users of this Part to refer to Part 1 of BS 7567.

In section 4, various subclauses are introduced but not used: this device is for the convenience of cross-referral between the implementation specifications for NTF levels 3 and 4. For example, a record for level 3 implemented in 4.4.6 is implemented for level 4 at 4.5.6.

Section 4 in this Part corresponds exactly to section 4 of BS 7567-1:1992. For example, the record implementation specified at 4.4.6 of this Part has its syntax specified in 4.4.6 of Part 1.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 22, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. General

1.1 Scope

This Part of BS 7567 specifies the procedures for the formatting of NTF Data Models, the interchange file structures and the detailed record interpretations specified in Part 1 of BS 7567:1992 in accordance with BS 6690:1986.

NOTE Syntax is also specified for a minority of records which are implemented differently when BS 6690 is used instead of plain NTF.

1.2 Normative references

This Part of BS 7567 incorporates, by reference, provisions from specific editions of other publications. These normative references are cited at the appropriate points in the text and the publications are listed on the inside of the back cover. Subsequent amendments to, or revisions of, any of these publications apply to this Part of BS 7567 only when incorporated in it by updating or revision.

1.3 Definitions

For the purposes of this Part of BS 7567, the definitions given in 1.3 of BS 7567-1:1992 apply together with the following additions and exceptions.

1.3.1

field

an ordered sequential set of **subfields**

NOTE An NTF record as defined in BS 7567-1:1992 is represented by either a single **field** or a set of sequential **fields**.

1.3.2

NTF level

to distinguish “level” from its meaning within BS 6690, the term **NTF level** is used to represent its meaning in the context of BS 7567-1:1992

1.3.3

record

a collection of related fields, independent of their physical representation on the medium of transfer

1.3.4

subfield

a **field** as defined in BS 7567-1:1992 is redesignated as a **subfield** in this Part of BS 7567:1992

1.3.5

table

a **field** which contains a two dimensional Cartesian label, where the first vector is null (see 6.2.3.2 of BS 6690:1986). That is, the “columns” of the array are named and enumerated but the “rows” are not

1.4 Summary comparison of terms

Two of the definitions in 1.3 differ from those used in Parts 1 and 2 of BS 7567:1992 to conform to those specified in BS 6690:1986. The terms affected are:

Part of Standard	1	3
Definition	plain NTF	BS 6690
Terms	record field	one or more fields subfield

Section 2. BS 6690 implementation

2.1 BS 6690 levels

At all levels of NTF, BS 6690 level 3 shall be used (see 5.2.1.2 of BS 6690:1986).

NOTE Use of level 3 enables those NTF records which are divided into several fields to be associated.

2.2 Files

2.2.1 General

A transfer set shall consist of a volume header file, which is associated with a database description file for each database, each of which is associated with one or more section files.

On sequential media, these shall be ordered so that the volume header file is first, followed by the database description file for the first database, followed by the section files for that database, followed by the database description file for the next (if any) database, etc. BS 6690 specifies the method for writing files to standard media.

Where an NTF record is defined as a series of BS 6690 fields, these fields shall be transferred in the order specified in section 4.

NOTE On non-sequential media, either file naming conventions should be used to make it clear how the files are interrelated, or extra documentation should be supplied giving this information.

2.2.2 The volume header file

The volume header file shall comprise a single record containing a BS 6690 record identifier (0001) field, followed by a volume header (VOLH) field, followed by zero or more comment (COMM) fields.

2.2.3 The database description file

The database description file shall start with a record containing a BS 6690 record identifier (0001) field, followed by a database header (DBHR) field. This may be followed by one or more database description records, each containing a BS 6690 record identifier (0001) field, followed by the relevant database fields.

2.2.4 The section file

The section file shall start with a record containing a BS 6690 record identifier (0001) field, followed by a section header (SECH) field. This shall be followed by one or more section data records, each containing a BS 6690 record identifier (0001) field, followed by the relevant data fields.

Section 3. Description of BS 6690 field encodings

3.1 General

The encoding of each BS 6690 field is specified in this Part using a simple textual notation that may be automatically translated into a BS 6690 data description for the field. The notation used within this Part is specified in 4.1.

3.2 Control details

The following control details shall be implemented for the data descriptive record leader (see 5.2.1 of BS 6690:1986):

- a) the BS 6690 interchange level shall be 3 (indicating that the fields within the transfer set are arranged in a hierarchical or tree structured manner);
- b) The inline code extension indicator shall be a space;
- c) The application indicator shall be a space;
- d) The field control length shall be **06**;
- e) The coded character set indicator shall be three spaces;
- f) The size of the **field tag** field shall be defined as 4 characters in the entry map.

3.3 Formats

NTF field formats translate to BS 6690 subfield format statements as follows:

NTF	BS 6690
I_n	I (n)
A_n	A (n)
A*	A
R_{a,b}	R (a + 1)
D_n	A (n)

- a) Real numbers include a decimal point. The information about where the decimal goes is not indicated by the BS 6690 format, and shall be interpreted in accordance with section 4 of BS 7567-1:1992.
- b) Dates are treated as character fields since they do not directly match any specific BS 6690 format and shall be interpreted in accordance with section 4 of BS 7567-1:1992.

3.4 Tags and labels

Field tags and subfield labels shall be four characters long and constrained to alphabetical and numerical characters.

A correspondence table for NTF record descriptors and tag names is provided at Annex A.

3.5 Splitting n-tuple/repetition records

Where the NTF record includes repeating fields, it shall be represented as two or more BS 6690 fields.

NOTE Several commonly used NTF records are composed of a simple series of items followed by a table of items:

stem	table: row-1
	table: row-2
	table: row-3
	...

For example, in [GEOMETRYx] the “stem” is formed of the geometry identifier and the geometry type, and the rows of the table are the X, Y and possibly Z values. BS 6690 cannot represent this structure. Therefore the NTF record is split into two BS 6690 fields: the initial “stem” followed by an array field to store the row data.

Section 4. Implementation of NTF records

4.1 Data description definitions

4.1.1 General

The following data description definitions and fields specific to the method of encoding shall be used in the field specifications in this section. See 6.2 of BS 6690:1986 for the specification of the elements of data fields.

4.1.2 Tag

A field definition shall start with the definition of its tag:

TAG tag ptag pg fieldname

where

TAG	indicates that this is a tag definition line.
tag	is the field's tag.
ptag	is the tag of the parent of this field.
pg	are the printable graphics, used for UT and FT, normally ';' and '&'.
fieldname	is the field's name.

4.1.3 Subfield

Each subfield within a field shall be defined as:

nnn *label pdwww q comment

where

nnn	A sequence number is used for each subfield in the field, starting at 1.
*	Shall precede the subfield label only when the whole group of following subfields may be repeated as a table.
label	The subfield's label. (An unlabelled subfield, is indicated by spaces.)
d	The subfield data type (one of A I R S C B).
www	The subfield width (for example, 4 in I4). For a variable width subfield this is all spaces.
p and q	Optional parentheses for use in "bracketing" repeating format sections.
comment	A subfield comment string, providing a description of the purpose of the subfield.

4.1.4 Field termination

A field definition shall be terminated by **END** within the notation.

NOTE This should not be confused with the field terminator character **FT** which is required to mark the end of BS 6690 data fields.

4.1.5 Conventions of the encoding

Where several fields are required to represent an NTF record the first field shall be the "parent" of the others and the later fields shall follow immediately after it.

In section 4 each NTF logical record is specified by two subclauses:

- the BS 6690 encoding of the field or fields used to represent the NTF logical record;
- implementation details where needed.

4.1.6 Additional fields

Two basic fields are always defined. The first shall be the **0000** field (see 5.2.3.1 of BS 6690:1986) (with the field description being replaced by the file's name in the actual BS 6690 data) and the second is the **0001** field (see 5.2.3.2 and 5.5.3.1 of BS 6690:1986). For example:

```
TAG 0000                ; & File title
  1                      — BS 6690 external file title
END
TAG 0001                ; & Record identifier
  1      A   5          — BS 6690 field identifier
END
```

4.2 NTF Records common to all levels

4.2.1 General

This clause specifies the implementation of records which are common to all levels of transfer.

The common records are:

Type	Record
Comment record	Comment
Volume records	Volume header
Database records	Database header Feature classification Code list Database quality
Data dictionary records	Attribute description Attribute combination
Section records	Section header Section quality Data quality

4.2.2 Comment record

[COMMENT]

4.2.2.1 Field and subfield encoding

```

TAG  COMM      0001      ;& Comment field
  1  *TEXT  A          — {FREE_TEXT} — Comment field — free text
END

```

4.2.2.2 Implementation details

- Comments may occur in any file, and at any position except between constituent fields of an NTF record. That is, a comment may not occur within a logical NTF record.
- TEXT shall be implemented as a table. That is, only one occurrence of the field shall be used to transfer a complete text string.
- Line-break information may be transferred within free text.

4.2.3 Volume header record

[VOLHREC]

4.2.3.1 Field and subfield encoding

```

TAG  VOLH      0001      ;& Volume header
  1  DONR  A   20  — {DONOR}      — Donor
  2  RECP  A   20  — {RECIPIENT}  — Recipient
  3  TDAT  A    8  — {TRANDATE}    — Transfer date
  4  SERL  I    4  — {SERIAL}      — Serial reference number
  5  VNUM  I    2  — {VOLNUM}      — Volume number within transfer set
  6  NLVL  I    1  — {NTFLEVEL}    — NTF transfer level; 1 to 5
  7  NVER  R    5  — {NTFVER}     — NTF version number; 2.0
END

```

4.2.3.2 Implementation details

None.