

General Data Transfer Information

This chapter covers the following topics:

- Natural Data Transfer
 - What can be Transferred?
 - Format Files
 - Supported File Formats
 - Supported Field Formats
 - Aborting Data Transfer
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Natural Data Transfer

You can transfer data between Natural applications on host systems and your PC. Data is compressed before being transferred to or from the host. Fewer buffers are thus transferred and the transfer is faster.

Your Natural administrator has to define the data transfer in the Natural parameter module (in the section where the work files and the printers are defined). If you display the work file definition using the Natural command `SYSFILE WORK`, the work files listed as PC are set for data transfer with Entire Connection.

Before you can use any data transfer function, you must tell Natural that you are an Entire Connection user. This is required only once per session. However, if your system administrator has set the parameter `PC=ON` in the Natural parameter module on the host, no further steps are required.

To tell Natural that you are an Entire Connection user

- Set the parameter `PC=ON` when invoking Natural (this parameter can also be sent to the host using a procedure file).

Or:

Enter the following Natural terminal command in any unprotected input field:

```
%+
```

What can be Transferred?

Download

You can download the following from a host:

- Data into a PC data format
- Data in report form retaining the report format

- Data directly to a printer
- Data into encrypted form
- Natural data definition modules (DDMs)
- Natural source code
- Natural object code

See also: *Supported File Formats*.

Upload

You can upload the following to a host:

- Data from a PC data format
- Binary data (for example, executable programs)
- Text data with printable characters
- Data in encrypted form
- Natural data definition modules (DDMs)
- Natural source code
- Natural object code

See also: *Supported File Formats*.

Field Formats

You can upload and download fields in the following formats:

- Alphanumeric
- Unicode
- Binary
- Decimal
- Floating point
- Integer
- Logical
- Packed

See also: *Supported Field Formats*.

Format Files

When the **Create format file** check box is marked in the user properties, a format file (extension *ncf*) is automatically created when you download data. Format files can also be created using the Format Converter.

The setting of the parameter **Disable data transfer enhancements** decides whether the new field formats as of Natural Version 4.1 for Mainframes and Natural Version 6.1 for UNIX are supported or not. It also influences the content of the format file. This parameter is specified on the **Data Transfer** property page of the **Session Properties** dialog box. See *Session Properties* in the *Overview of Object Properties*.

New Format Files

If the new field formats as of Natural Version 4.1 for Mainframes and Natural Version 6.1 for UNIX are supported, the format file is written in a new form. It contains the following information:

Information	Description
File name	Name of the target file.
Status	Transfer/conversion status.
Start	Transfer/conversion start date and time.
End	Transfer/conversion end date and time.
Protocol	Version of the internal protocol.
Records	Number of records transferred/converted.
User ID	User ID of the host user.
Library	Name of the Natural library from which the download program was started.
Program	Name of the Natural download program.
Code Page	Encoding of the data. This can be UTF-16, UTF-8 (if the NCF file was created by a download with Natural for UNIX) or a Windows code page.
Translate	Information on the translation code pages is written as a support hint into the NCF file. This allows to recognize whether the Natural code page on the mainframe conforms with the code page that is the base for the Entire Connection EBCDIC/ASCII translation table. For example, "1140/1140" is written into the NCF file if the code page are conform. If the code pages are not conform, a warning is issued, for example, "1140/273 Translation code pages mismatch!". If the NCF file was created by a download with Natural for UNIX, the value here is "Not applicable".
Buffers	Number of transfer buffers used.
Globals	Decimal character, delimiter and repeat character. Entire Connection uses these characters internally. The values are defined by the Globals setting in Natural. The value for the decimal character is also used for the decimal character in the format file.

Information	Description								
Format	<p>The format string consists of the elements supported as of Natural Version 4.1 for Mainframes and Natural Version 6.1 for UNIX. See <i>Supported Field Formats</i> below. The elements are separated by a delimiter (see the table below).</p> <p>The following characters are used in the format string:</p> <table border="1"> <thead> <tr> <th>Character</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>.</td> <td>Decimal character.</td> </tr> <tr> <td>,</td> <td>Delimiter.</td> </tr> <tr> <td>/</td> <td>Repeat character. The repeat character is followed by the number of repetitions. Example: N10.7/100.</td> </tr> </tbody> </table>	Character	Description	.	Decimal character.	,	Delimiter.	/	Repeat character. The repeat character is followed by the number of repetitions. Example: N10.7/100.
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.	Decimal character.								
,	Delimiter.								
/	Repeat character. The repeat character is followed by the number of repetitions. Example: N10.7/100.								
Names	Natural field names.								

Sample Format File

```

File name: C:\temp\my_file.ncd
Status   : Terminated Successfully
Start    : 12/05/2007 11:58:07
End      : 12/05/2007 11:58:07
Protocol : 2
Records  : 3
UserID   : XYZ
Library  : XYZ
Program  : PCWRITE
Code Page: UTF-16
Translate: 1140/273 Translation code pages mismatch!
Buffers  : 2
Globals  : .,=
Format   : N7.3/4,A100,I2,F4,L,N7.3,
Names    :
          N
          N
          N
          N
          A
          I
          F
          L
          N

```

Old Format Files

If the data transfer enhancements have been disabled, the format file is written in the same way as with Entire Connection Version 4.3.1 or earlier. It contains the following information:

Information	Description
File name	Name of the target file.
Status	Transfer/conversion status.
Start	Transfer/conversion start date and time.
End	Transfer/conversion end date and time.
Records	Number of records transferred/converted.
User ID	User ID of the host user.
Library	Name of the Natural library from which the download program was started.
Program	Name of the Natural download program.
Buffers	Number of transfer buffers used.
Globals	Decimal character, delimiter and repeat character. Entire Connection uses these characters internally. The values are defined by the Globals setting in Natural. The value for the decimal character is also used for the decimal character in the format file.
Format	Hexadecimal format. See the table below.
Names	Natural field names.

The format string may consist of the following elements:

Format	Description
Ax	Alphanumeric data where x is a two-digit hexadecimal number between 01 and FD.
Bx	Binary data where x is a two-digit hexadecimal number between 01 and 7F.
F4	Floating point data with 8 characters.
F8	Floating point data with 16 characters.
Ix	Integer data where x is 1, 2 or 4.
L	Logical data (no length specified in format string).
Nx.y	Numeric data where x is a two-digit hexadecimal number between 01 and 1B. y is a one-digit hexadecimal number between 0 and 7. The sum of x and y must not be greater than 29.
Px.y	Packed data where x is a two-digit hexadecimal number between 01 and 1B. y is a one-digit hexadecimal number between 0 and 7. The sum of x and y must not be greater than 29.
Rx	Repeat the next format x times where x is a two-digit hexadecimal number between 02 and FF. Example: R03A04 stands for A04A04A04.

Format String Example

```
A01A04A0AA14I2I4N07.0N10.4N00.2B04F4LP06.2P07.0R03A01A14R03I2I4
```

The above string contains the following:

A1, A4, A10, A20, I2, I4, N7, N16.4, N0.2, B4, F4, L, P6.2, P7, A1, A1, A1, I2, I2, I2, I4

Supported File Formats

You can download data directly to and upload directly from files in any of the data formats supported by Entire Connection. The format is identified by the extension of the file to be downloaded or uploaded.

The following formats are supported:

Format	Extension
ASCII	*.ncd or any other extension not included in this table (for example, *.txt). When records are downloaded to ASCII format, trailing blanks at the end of downloaded records are removed. If you want to keep trailing blanks, you must specify this in the session properties.
Basic	*.prn
Binary	Any binary file with any extension. The transfer format for Natural is a record with a single binary field.
dBase III	*.dbf You can download field names as column labels to dBase and Lotus files. However, you cannot upload column labels.
Data Interchange Format	*.dif
Encryption	*.enc
Excel	*.xls or *.xlsx (depending on the Excel version)
HTML	*.htm or *.html. This is a specific HTML format that can also be opened with Excel.
IBM-compatible COBOL	*.ncc
Lotus without labels	*.wks or *.wkl
Lotus with labels	*.wkl
Multiplan	*.mpn
XML	*.xml

Supported Field Formats

The following formats are supported:

Format	Description
Ax	Alphanumeric format where x is a digit between 1 and 253.
Ay	Alphanumeric format where y is a digit greater than 253. Can only be used with file formats HTML, XML, ASCII and COBOL. The maximum value which can be specified depends on your Natural version. See the Natural documentation for further information.
Bx	Binary format where x is a digit between 1 and the maximum value. The maximum value which can be specified depends on your Natural version. See the Natural documentation for further information.
F4	Floating point format with 4 bytes.
F8	Floating point format with 8 bytes.
Ix	Integer format where x is 1, 2 or 4.
L	Logical format (true or false).
Nx.0	Numeric format where x is a digit between 1 and 29.
Nx.y	Decimal format where x is a digit between 1 and 29. y must be less than or equal to 7. The sum of x and y must not be greater than 29.
Px.0	Packed format where x is a digit between 1 and 29.
Px.y	Packed decimal format where x is a digit between 1 and 29. y must be less than or equal to 7. The sum of x and y must not be greater than 29.
Ux	Unicode format where x is a digit between 1 and 253.
Uy	Unicode format where y is a digit greater than 253. Can only be used with file formats HTML, XML, ASCII and COBOL. The maximum value which can be specified depends on your Natural version. See the Natural documentation for further information.

For further information on field formats, see the Natural documentation.

Aborting Data Transfer

You can abort the current upload or download of data. This is useful, for example, if you notice that you are downloading the wrong file.

To abort data transfer

- From the **Utilities** menu, choose **Cancel Transfer**.

Or:

Choose the following toolbar button:

