Work Files

Work files are files where data can be written to and read from by Natural programs. They are used for intermediate storage of data and for data exchange between programs. Data can be transferred from or to a work file by using the Natural statements READ WORK FILE and WRITE WORK FILE, or UPLOAD and DOWNLOAD.

- Defining Work Files
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Defining Work Files

To define a work file, select the "Work Files" parameter group in the Natural parameter file. A list of existing work file specifications is displayed in the "Work File Name" list box.

Scroll down the list box until the number of the work file you wish to define is visible.
If the specified work file was previously defined, the current work file definition is displayed, which can be overwritten. Enter the complete definition; that is, name and extension of your work file, and choose the desired work file format.
If the work file was never defined, the "File Name" text box is blank. Enter the work file name including its path name.
For any numbered work file, a complete work file specification can be entered. This specification must contain the path and the work file name.
If no work file definition is specified, Natural automatically creates the file name and writes the work file into the "tmp" directory specified in the local configuration file. The work file name generation is based on an algorithm which tries to generate a unique name. Depending on the Natural parameter TMPSORTUNIQ, the naming convention may vary. If work file names are referenced from outside Natural, it is recommended that one specify the names explicitly to avoid problems identifying the files.

Work Files with Environment Variables

Work files can also be defined by using environment variables; that is, work file names can be set without changing the Natural parameter file.

Example:

Specify the following name for a work file:

%Natural%\%myfile%

and assume the following settings:

set Natural=D:\nat
set myfile=sub\test

which will expand into the following file name during Natural startup:

D:\nat\sub\test

Work Files with User Exit

Work files can also be defined by using the user exit USR1050N in library SYSEXT.

Work File Formats

Three different work file formats are available. Natural recognizes the format by checking the work file specification. The work file specification consists of a file name and an extension separated by a period:

file-name.extension

The *file-name* can have a maximum of 8 characters, the *extension* can have a maximum of 3 characters.

The three work file formats are:

- a binary format specific to Software AG (to be preferred),
- ASCII format,
- a format which corresponds to the one used by Entire Connection.

For the work file number to be used, a work file specification is required for the appropriate format as described in the following sections.

Binary Format

The binary format specific to Software AG is defined by using any file name and either a period and the extension "SAG" or no period and extension at all.

Note:
A two (2) byte length precedes each record written.

Examples:

***xxxxxxxx*.SAG (any file name with a period and an "SAG" extension)**

***xxxxxxxx* (any file name without a period or extension)**

The binary format can be used with all data types.

ASCII Format

To define an ASCII work file format, enter a file name, a period and either any extension except "SAG" and "NCD" or no extension at all.

Examples:

***xxxxxxxx.xxx* (any file name with a period and any extension except "SAG" or "NCD")**

***xxxxxxxx*. (any file name and a period)**

Since each record written is terminated with the CR/LF character sequence, this format is recommended for alphanumeric data only.

ENTIRE CONNECTION Format

The product Entire Connection uses two files: a data file, which contains the actual data, and a format file, which contains format information about the data in the data file.

The data file is defined by using any file name, a period and the extension "NCD"; the corresponding format file is automatically generated; it has the same name as the data file, but the extension ".NCF". Both extensions must be in upper case characters.

Examples:

***xxxxxxxx*.NCD (any file name with a period and an "NCD" extension for the data file)**

***xxxxxxxx*.NCF (any file name with a period and an "NCF" extension for the format file)**

You can read/write work files in Entire Connection format directly from/to your local disk.

Note:
With Entire Connection, the RECORD option of the READ WORK FILE statement makes no sense and can therefore not be used.

PORTABLE Format

PORTABLE performs an automatic endian conversion of a work file when it is transferred to a different machine. For example, a work file written on a PC (little endian) can be read correctly on an RS6000 or HP machine (big endian). The endian conversion applies only to field formats I2, I4, F4 and F8. The floating point format is assumed to be IEEE. There are, however, slight differences in IEEE floating point representation by different hardware systems. As far as we know, these differences apply only to infinity and NaN representations, which are normally

not written into work files. Check the hardware descriptions if you are uncertain.

The files are always written in the machine-specific representation, so that a conversion is performed only if the file is read by a machine with different representation.

This keeps performance as fast as possible. There are no other conversions for PORTABLE, but the file format makes it possible to add them in future releases.

When a READ WORK is done for a dynamic variable, it is resized to the length of the current record.

UNFORMATTED Format

UNFORMATTED reads or writes a complete file with just one dynamic variable and just one record, e.g., to store a video which was read from a database, and vice versa. No formatting information is inserted, everything is written/read just as it is.

Special Considerations on Work Files with Extension NCD

Note:
When you create an ".NCD" file using Entire Connection and load this file using the Natural SYSTRANS utility, you may receive a "Source Control Record missing" error. To avoid this, create the ".NCD" file without the suppression of blanks.

If files with the extension .NCD are created by Entire Connection and are then read into Natural via READ WORK, it is required that Entire Connection is setup in the following way:

1. In the menu ’Host’ click ’Session setup’.
2. Click the session and then the ’Modify’ button.
3. Select the tab ’File Transfer 1’. Make sure that the box for ’Keep trailing blanks’ is checked.

The following considerations apply for work files in Entire Connection format:

1. If an ".NCD" file is read with a READ WORK FILE statement and the corresponding ".NCF" format file is not available or contains invalid information, the ".NCD" file is assumed to be an ASCII work file.
2. The maximum work file record size and format file size that can be handled by Entire Connection is 1900 bytes.
3. When an array is written to or read from an ".NCD" work file, a maximum of 255 array elements can be written/read at a time.
4. The VARIABLE option of the WRITE WORK FILE statement cannot be used for ".NCD" work files.
5. If you have "old" work files whose names have ".NCD" extensions, the extensions must be changed.
6. Each of the following profile parameters must be set to the same value for both read and write operations:
   DC (decimal character),
   IA (input assign character),
   ID (input delimiter character).
7. Remember that the range of possible values for floating point variables on a mainframe computer is different from that on other platforms.
   The possible value range for F4 and F8 variables on a mainframe is:
   $\pm 5.4 * 10^{-79}$ to $\pm 7.2 * 10^{75}$
   The possible value range on most other platforms is,
   for F4 variables:
   $\pm 1.17 * 10^{-38}$ to $\pm 3.40 * 10^{38}$
   for F8 variables:
   $\pm 2.22 * 10^{-308}$ to $\pm 1.79 * 10^{308}$

