Natural

System Variables

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ADABAS & NATURAL

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Preface

This documentation describes the Natural system variables.

The documentation for the system variables is grouped by functions:

Application-Related System Variables	System variables, which are useful in conjunction with a Natural application: name of the library to which the user is logged on, current library ID, information required in the event of an error, type or name of the Natural object which is currently executed, etc.
Date and Time System Variables	Date and time system variables that may be specified in the statements `COMPUTE`, `DISPLAY`, `MOVE`, `PRINT`, `WRITE` and in logical condition criteria.
Input/Output-Related System Variables	System variables, which contain input or output related information, such as current cursor position, line number of the current line within the current page, physical line or page size.
JSON-Related System Variables	System variables, which are available in conjunction with the `PARSE JSON` statement.
Natural Environment-Related System Variables	System variables which are relevant in conjunction with the Natural environment: device type/mode from which Natural has been invoked, user ID of the user, user ID as taken from the Natural Security logon, language indicator (language code), Natural version, etc.
System Environment-Related System Variables	System variables relating to the operating system or TP monitor environment used: name of the hardware platform, machine or machine class on which Natural is running, name or version number of the operating system, name or version of the TP subsystem under which Natural is running, name or version of the window manager being used, etc.
XML-Related System Variables	System variables, which are available in conjunction with the `PARSE XML` statement.
System Variables in Alphabetical Order	Descriptions of all system variables in alphabetical order.

1 About this Documentation

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Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
`Monospace font`	Identifies service names and locations in the format *`folder.subfolder.service`*, APIs, Java classes, methods, properties.
`Italic`	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
`Monospace font`	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
|	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the | symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

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Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 About Natural System Variables

Natural system variables contain information about the current Natural session, such as: the current library, the user and terminal identification; the current status of a loop processing; the current report processing status; the current date and time. They may be referenced at any point within a Natural program.

See also:

- *System Variables* in the *Programming Guide*
- *Example of System Variables and System Functions* in the *Programming Guide*

3 Application-Related System Variables

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- *LEVEL 17
- *LIBRARY-ID 17
- *LINE 18
- *LINEX 18
- *LOAD-LIBRARY-ID 19
- *NUMBER (r) 19
- *OCCURRENCE 20
- *PAGE-EVENT 22
- *PAGE-LEVEL 22
- *PROGRAM 23
- *REINPUT-TYPE 23
- *ROWCOUNT 23
- *STARTUP 24
- *STEPLIB 26
- *SUBROUTINE 26

- *THIS-OBJECT 26
- *TYPE 27
- *UBOUND 27
- *UUID 29

*APPLIC-ID

Format/length:	A8
Content modifiable:	No

This system variable contains the ID of the library to which the user is currently logged on.

*APPLIC-NAME

Format/length:	A32
Content modifiable:	No

Under Natural Security

If Natural Security is installed, this system variable contains the name of the library to which the user is logged on. If the user is logged on via a special link, it contains the link name instead. If Natural Security is not installed, this system variable contains the name `SYSTEM`.

The general option `Set *APPLIC-NAME always to library name` can be set so that `*APPLIC-NAME` always contains the library name, regardless of whether the user is logged on via a special link or not. See *Set *APPLIC-NAME always to library name* in the *Natural Security* documentation.

*COM

Format/length:	A128
Content modifiable:	Yes

This system variable designates a communication area which can be used to process data from outside a screen window.

Normally when a window is active, no data can be entered on the screen outside the window. However, if a map contains `*COM` as a modifiable field, that field will still be available for the user to enter data when a window is currently on the screen. Further processing can then be made dependent on the content of `*COM`. This allows you to implement user interfaces where a user can always enter data in the command line, even when a window with its own input fields is active.

Note: Although `*COM` can be used as a modifiable field in an `INPUT` statement, it is *not* treated as an input field, but as a system variable; that is, any input entered into the `*COM` field will

be taken as it is, without any input processing (e.g. conversion to upper case) being performed on it. Once `*COM` has been displayed on the screen via an `INPUT` statement, every subsequent `INPUT` or `REINPUT` statement will cause the current content of `*COM` to be displayed.

See also:

Dialog Design in the *Programming Guide*

- *Processing Data Outside an Active Window*
- *Positioning the Cursor to *COM - the %T* Terminal Command*
- *Copying Data from a Screen*

*CONVID

Format/length:	I4
Content modifiable:	Yes

This system variable contains the conversation ID of the current conversational remote procedure call (RPC). This ID is set by an `OPEN CONVERSATION` statement.

Via an `OPEN CONVERSATION` statement, a client can get a server for exclusive use to execute a number of services (subprograms) within one server process. This exclusive use is called conversation. The `OPEN CONVERSATION` statement is used to open a conversation and specify the subprograms to be involved in this conversation. When an `OPEN CONVERSATION` statement is executed, it assigns a unique ID which identifies the conversation to the system variable `*CONVID`.

Several conversations can be open at the same time. To switch from one open conversation to another, you assign the corresponding conversation ID to `*CONVID`.

For further information on Natural RPC, see the *Natural RPC (Remote Procedure Call)* documentation.

*COUNTER (r)

Format/length:	P10
Content modifiable:	Yes

This system variable contains the number of times a processing loop initiated by a `FIND`, `READ`, `HISTOGRAM` or `PARSE` statement has been entered.

`(r)` notation after `*COUNTER` is used to indicate the statement label or source-code line number of the `FIND`, `READ`, `HISTOGRAM` or `PARSE` statement. If `(r)` is not specified, `*COUNTER` represents the number of times the currently active processing loop has been entered.

`*COUNTER` is not incremented if a record is rejected as a result of the criteria specified in a `WHERE` clause. `*COUNTER` is incremented if a record is rejected as a result of an `ACCEPT`/`REJECT` statement.

*CPU-TIME

Format/length:	I4
Content modifiable:	No

`*CPU-TIME` contains the CPU time currently used by the Natural process in units of 10 milliseconds.

This system variable always contains the value zero for the following operating or TP monitor systems on z/OS computers:

- CICS
- IMS TM

*CPU-TIMEX

Format/length:	P13
Content modifiable:	No

`*CPU-TIMEX` contains the CPU time currently used by the Natural process in the units of microseconds.

- Under TSO and in batch mode, values are returned with a precision of 1 microsecond.
- Under Com-plete, values are returned with a precision of 10 milliseconds (10,000 microseconds). As a result, the returned value will always be a multiple of 10,000.

This system variable always contains the value zero for the following operating or TP monitor systems on z/OS computers:

- CICS
- IMS TM

*CURRENT-UNIT

Format/length:	A32
Content modifiable:	No

This system variable contains the name of the currently executed unit. This is

- the function name in case of the object type “function”,
- the inline subroutine name if an inline subroutine is performed,
- the external subroutine name in case of the object type “subroutine”, see also `*SUBROUTINE`,
- the object name in case of all other object types (program, subprogram, map, dialog, etc.); see also `*PROGRAM`.

The contents of `*CURRENT-UNIT` will always be in upper case.

*DATA

Format/length:	N3
Content modifiable:	No

This system variable contains the number of data elements in the Natural stack which are available to the next `INPUT` statement as input data. `*DATA` will contain `0` when the stack is empty. A value of `-1` indicates the next element in the stack is a command or the name of a Natural transaction.

The settings of the Natural profile/session parameters `IA` (Input Assign Character) and `ID` (Input Delimiter Character) at the time of execution of the `STACK` statement are used to determine the `*DATA` value.

*EDITOR

Format/length:	L
Content modifiable:	No

This system variable indicates whether the Natural program, data area, and map editors are enabled and can be used.

It can contain one of the following values:

Value	Description
TRUE	The editors are enabled.
FALSE	The editors are not enabled and cannot be used.

For information on NaturalONE as the Default Development Environment, see the relevant section in the *Editors* documentation.

Note: The editors are also enabled if Natural ISPF is installed.

*ERROR-LINE

Format/length:	N4
Content modifiable:	No

This system variable contains the source-code line number of the statement that caused an error.

`*ERROR-LINE` is reset to `0` when a Level 1 program starts executing.

*ERROR-NR

Alternatively, you may specify `*ERROR`.

Format/length:	N7
Content modifiable:	Yes

This system variable contains the error number of the error which caused an `ON ERROR` condition to be entered.

Only error numbers in the range from 0 to 9999 are supported.

Normally, `*ERROR-NR` contains the Natural *system* error number which caused an error condition to be entered; however, when a `REINPUT WITH TEXT *`*`nnnn`* statement is executed, the *application-specific* message number *`nnnn`* is placed into `*ERROR-NR`.

You may modify the content of this system variable via a Natural program; however, not within an `ON ERROR` statement block.

`*ERROR-NR` is reset to `0` when a Level 1 program starts executing.

*ERROR-TA

Format/length:	A8
Content modifiable:	Yes

This system variable contains the name of the error transaction program which is to receive control in the event of an error condition.

For further information, see *Using an Error Transaction Program* in the *Programming Guide*.

*ETID

Format/length:	A8
Content modifiable:	No

This system variable contains the current identifier of transaction data for Adabas. The default value is one of the following:

- the value of the Natural profile parameter `ETID`,
- the user ID as passed from the TP monitor,
- the value provided in the user exit during Natural initialization,
- the value from the security profile of the currently active user (applies only under Natural Security).

*ISN (r)

Format/length:	P10
Content modifiable:	Yes

This system variable contains the Adabas internal sequence number (ISN) of the record currently being processed within a processing loop initiated by a `FIND` or `READ` statement.

`(r)` notation after `*ISN` is used to indicate the label or statement number of the statement in which the `FIND` or `READ` was issued. If `(r)` is not specified, `*ISN` represents the ISN of the record currently being processed in the currently active processing loop.

For the `HISTOGRAM` statement, `*ISN` contains the number of the occurrence in which the descriptor value last read is contained (`*ISN` = 0 if the descriptor is not contained within a periodic group).

Database-Specific Information:

VSAM	For VSAM databases, `*ISN` can only be applied to ESDS and RRDS. For ESDS, `*ISN` contains the relative byte address (RBA) and for RRDS the relative record number (RRN) of the record currently being processed within a processing loop initiated by a `FIND` or `READ` statement. When you access an extended ESDS VSAM file, the `*ISN` format/length is generated as P19 to support the 8 bytes RBA.
SQL Databases	`*ISN` cannot be used.

*LBOUND

Format/length:	I4
Content modifiable:	No

`*LBOUND` contains the current lower boundary (index value) of an array for the specified dimension(s) (1, 2 or 3) or for all dimensions (asterisk (*) notation).

Syntax:

```
*LBOUND (operand1 [,dim])
```

Operand Definition Table:

Operand	Possible Structure					Possible Formats													Referencing Permitted	Dynamic Definition
operand1			A			A	U	N	P	I	F	B	D	T	L	C	G	O	yes	no

operand1 is the array for which the lower boundary is specified. The index notation of the array is optional. As index notation only the complete range notation * is allowed for each dimension.

dim is the dimension number for which the current lower boundary is returned:

$$dim = \left\{ \begin{array}{c} 1 \\ 2 \\ 3 \\ * \end{array} \right\}$$

If no dimension is specified, the lower bound of the first dimension is returned.

If 1, 2 or 3 is specified, the lower bound of the first, second or third dimension is returned.

If * is specified, the lower bound of all the defined dimensions are returned, that is,

- 1 in case of an one dimensional array,
- 2 in case of a two dimensional array,
- 3 in case of three dimensional array.

If an X-array is not allocated and the lower bound of the specified dimension of this X-array is the variable index bound, that is, it is represented by an asterisk (*) character in the index definition, the lower bound of the specified dimension is undefined, and access to `*LBOUND` leads to a runtime error. In order to avoid the runtime error, `*OCCURRENCE` may be used to check against zero occurrences:

```
DEFINE DATA LOCAL
  1 #XA(A5/1:*)
END-DEFINE
IF *OCCURRENCE (#XA) NE 0 AND *LBOUND(#XA) > 10
  THEN ...
```

Examples:

```
DEFINE DATA LOCAL
  1 #I  (I4)
  1 #J  (I4/1:3)
  1 #XA (A5/10:*,20:*)
END-DEFINE
#I  := *LBOUND(#XA)       /* lower bound of 1st dimension is 10
#I  := *LBOUND(#XA,1)     /* lower bound of 1st dimension is 10
#I  := *LBOUND(#XA,2)     /* lower bound of 2nd dimension is 20
#J(1:2):= *LBOUND(#XA,*)  /* lower bound of all dimensions
                          /* #J(1) is 10 and #J(2) is 20
END
```

See also `*UBOUND` and `*OCCURRENCE`.

*LENGTH (field)

Format/length:	I4
Content modifiable:	No

This system variable returns the currently used length of a field defined as dynamic variable in terms of code units; for A and B format the size of one code unit is 1 byte and for U format the size of one code unit is 2 bytes (UTF-16). `*LENGTH(field)` applies to dynamic variables only.

See also *Value Space Currently Used for a Dynamic Variable* in the *Programming Guide*.

*LEVEL

Format/length:	N2
Content modifiable:	No

This system variable contains the level number of the program, subprogram, external subroutine, map, helproutine or dialog which is currently active. Level 1 is a main program. If higher levels occur during runtime (maximum = `1024`), then the content of `*LEVEL` will be `99`.

`*LEVEL` does not apply to inline subroutines.

See also *Using an Error Transaction Program* in the *Programming Guide*.

*LIBRARY-ID

Format/length:	A8
Content modifiable:	No

This system variable contains the current library ID (as specified by the user in the `LOGON` command).

This variable is the equivalent of the variable `*APPLIC-ID`.

*LINE

Format/length:	I4
Content modifiable:	No

It contains the number of the line currently executed in a Natural object.

If a Natural object has been compiled with the Natural Optimizer Compiler, the value of `*LINE` may not reflect the correct line number if the source line where the system variable is used is part of a sequence of statements that have been optimized by the Natural Optimizer Compiler.

*LINEX

Format/length:	A100
Content modifiable:	No

Returns the line number of the statement currently executing, with all line numbers of used `INCLUDE` levels.

When used in the main source of a program (not inside a copycode), it returns only the number of the line in which it is referenced. In this case, the data is the same as what is returned by `*LINE`, except the format is (A100).

If `*LINEX` is used in a (nested) `INCLUDE` structure, all the line numbers starting from the first `INCLUDE` up to the last `INCLUDE` and the line number of the statement are returned in this field, separated from each other by a slash.

Example:

```
....
3200
3210 INCLUDE COPY01
     0010 ...
     0020 ...
     ....
     0200 INCLUDE COPY02
          0010 ...
          0020 ...
          ....
          0050 PRINT *LINEX
```

The output produced by the `PRINT` statement is `3210/0200/0050` and represents the complete line number path needed to exactly locate the position where `*LINEX` was referenced initially.

*LOAD-LIBRARY-ID

Format/length:	A8
Content modifiable:	No

This system variable contains the library ID from where the current executed object was loaded.

*NUMBER (r)

Format/length:	P10
Content modifiable:	Yes

This system variable contains either of the following:

- the number of records which were selected as a result of a `FIND` statement (as a result of the `WITH` clause);
- the number of values selected as a result of a `HISTOGRAM` statement;
- the end offset of the fetched segment as a result of a `READLOB` statement;
- the end offset of the inserted segment as a result of an `UPDATELOB` statement.

`(r)` notation after `*NUMBER` is used to indicate the statement label or source-code line number of the associated statement. If `(r)` is not specified, `*NUMBER` automatically refers to the innermost active `FIND`, `HISTOGRAM` or `READLOB` processing loop by default. The (r) notation is always required, if `*NUMBER` refers to an `UPDATELOB` statement.

Note: When `*NUMBER` is used in conjunction with a `FIND` statement and the Adabas file accessed is protected by the Adabas facility Security By Value, `*NUMBER` will contain `9999999999`, if more than 1 record was found. If 1 record was found, `*NUMBER` will contain 1. If no record was found, `*NUMBER` will contain 0.

Database-Specific Information:

VSAM	For VSAM databases, `*NUMBER` only contains the number of records found when used with a `HISTOGRAM` statement, or with a `FIND` statement which uses the operator `EQUAL TO` in the search criterion. With any other operator, `*NUMBER` will not contain the number of records found: `*NUMBER` will be `0` if no records have been found; any other value indicates that records have been found, but the value will have no relation to the number of records actually found.
SQL Databases	For SQL databases, `*NUMBER` only contains the number of rows found, when used with a `FIND NUMBER` or with a `HISTOGRAM` statement without a `WHERE` clause. In all other cases, `*NUMBER` will not contain the number of rows found: `*NUMBER` will be `0` if no rows have been found;

	any value other than `0` indicates that rows have been found, but the value will have no relation to the number of rows actually found.

*OCCURRENCE

Format/length:	I4
Content modifiable:	No

This system variable provides the current number of occurrences of an array. It can be applied to all kinds of array fields, with a fixed or variable number of occurrences.

This covers:

- static arrays with a constant number of occurrences

  Example: `(1:5)`
- X-Arrays with an alterable number of occurrences

  Example: `(1:*)`
- parameter arrays, defined as `(1:V)`

Syntax:

```
*OCCURRENCE(operand1 [,dim])
```

Operand Definition Table:

Operand	Possible Structure					Possible Formats													Referencing Permitted	Dynamic Definition
operand1			A			A	U	N	P	I	F	B	D	T	L	C	G	O	yes	no

operand1 is the array for which the number of occurrences is returned. The index notation of the array is optional. If supplied, only the complete range notation * is allowed for each dimension, such as `*OCC(#X(*))` or `*OCC(#Y(*,*))`.

dim is the dimension number for which the current number of occurrences is returned:

$$dim = \left\{ \begin{array}{c} 1 \\ 2 \\ 3 \\ * \end{array} \right\}$$

Explanation:

1	One-dimensional array. This is the default, if *dim* is not specified.
2	Two-dimensional array.
3	Three-dimensional array.
*	All dimensions defined for the corresponding array apply.

In a parameter data area, you can use the index notation `(1:V)` to define an array with a variable number of occurrences (see the `DEFINE DATA` statement). The current number of occurrences of such an array is determined at runtime. With `*OCCURRENCE`, you can ascertain the current number of array occurrences.

Examples:

```
DEFINE DATA
PARAMETER
  1 #PARR  (I2/1:V)
LOCAL
  1 #FARR  (I2/1:5)
  1 #XARR1 (I2/1:*)
  1 #XARR2 (I2/1:*,1:*)
  1 #I     (I2)
  1 #J     (I2)
END-DEFINE
FOR #I = 1 TO *OCC(#PARR)       /* Parameter array
  WRITE 2X #I
END-FOR
FOR #I = 1 TO *OCC(#FARR)       /* Fixed array
  WRITE 4X #I
END-FOR
EXPAND ARRAY #XARR1 TO (1:4)
FOR #I = 1 TO *OCC(#XARR1)      /* X-Array
  WRITE 6X #I
END-FOR
EXPAND ARRAY #XARR2 TO (1:3,1:4)
FOR #I = 1 TO *OCC(#XARR2,1)    /* X-Array
  FOR #J = 1 TO *OCC(#XARR2,2)
    WRITE 8X #I #J
  END-FOR
END-FOR
END
```

See also the example programs OCC1P and OCC2P.

Concerning X-arrays, *OCCURRENCE contains the current number of occurrences:

```
DEFINE DATA LOCAL
  1 #I   (I4)
  1 #J   (I4/1:3)
  1 #XA  (A5/1:*,1:*)
END-DEFINE
EXPAND ARRAY #XA TO (1:10,1:20)
#I      := *OCC(#XA)    /* #I=10
#I      := *OCC(#XA,1)  /* #I=10
#I      := *OCC(#XA,2)  /* #I=20
#J(1:2) := *OCC(#XA,*)  /* #J(1)=10  #J(2)=20
END
```

*PAGE-EVENT

Format/length:	U(dynamic)
Content modifiable:	No

This system variable contains the name of the current event delivered from Natural for Ajax.

It is used for rich GUI programming with the PROCESS PAGE statement. For further information, see the *Natural for Ajax* documentation.

*PAGE-LEVEL

Format/length:	I4
Content modifiable:	No

This system variable contains the level of the active PROCESS PAGE MODAL statement blocks.

If no PROCESS PAGE MODAL is active, the value of *PAGE-LEVEL is 0.

Note: If the value of *PAGE-LEVEL is greater than 0, no output to Report 0 via an INPUT, PRINT, WRITE or DISPLAY statement is possible.

*PROGRAM

Format/length:	A8
Content modifiable:	No

This system variable contains the name of the Natural object that is currently being executed.

*REINPUT-TYPE

Format/length:	A16
Content modifiable:	No

This system variable indicates whether the application is in a state that allows execution of a `REINPUT` or `PROCESS PAGE UPDATE` statement.

An application can use an `INPUT` and (if running with Natural for Ajax) a `PROCESS PAGE USING` statement to perform an input/output processing. Under certain conditions, an application may return and re-execute these I/O statements with a `REINPUT` or `PROCESS PAGE UPDATE` statement.

The value returned by this system variable indicates whether or not such a re-executing statement is possible at this position. It returns one of the following values:

Value	Description
(blanks)	The application can neither perform a `REINPUT` nor a `PROCESS PAGE UPDATE` statement.
`REINPUT`	The application can perform a `REINPUT`, but no `PROCESS PAGE UPDATE` statement.
`UPDATE`	The application can perform a `PROCESS PAGE UPDATE`, but no `REINPUT` statement.

*ROWCOUNT

Format/length:	I4
Content modifiable:	No

This system variable contains the number of rows that were deleted, updated or inserted by one of the Natural SQL statements “searched” `DELETE`, “searched” `UPDATE` or `INSERT` (with *`select-expression`*), respectively. `*ROWCOUNT` always refers to the last executed one of these statements.

*STARTUP

Format/length:	A8
Content modifiable:	Yes

The program whose name is contained in this system variable will be executed whenever Natural would otherwise display the command input prompt (NEXT prompt or direct command line/window).

- Activation of *STARTUP
- Deactivation of *STARTUP
- Avoiding Undesirable Results when Using *STARTUP

Activation of *STARTUP

Initial Setting without Natural Security

If Natural Security is not used, the value of *STARTUP depends on the setting of the profile parameter MENU:

- If MENU=OFF is set, *STARTUP is blank.
- If MENU=ON is set, *STARTUP contains MAINMENU; that is, the Natural main menu will be displayed.

Initial Setting with Natural Security

If Natural Security is used and a logon to a library is executed, *STARTUP contains the name of the program which has been entered in Natural Security as the startup transaction in the security profile of the respective library (except in batch mode; see also the *Natural Security* documentation).

Setting at Runtime

You can assign a program name to *STARTUP which always overwrites the content of *STARTUP.

Deactivation of *STARTUP

Perform the following steps to deactivate the program contained in *STARTUP:

- Depending on the context in which *STARTUP is used, there are several ways to properly terminate a startup program without causing a program loop or Natural error NAT9969, respectively. Choose one of the following options:
  1. Set the *STARTUP system variable to a blank value (for example, by using the RESET *STARTUP statement) and finish the startup afterwards.
  2. Terminate the session.
  3. Force a logoff or a logon to another library.

- If the `*STARTUP` program issues a `MORE` prompt, enter a command or another input to interrupt the program.
- If the `*STARTUP` program issues any output, request a command prompt by issuing a Natural `%%` terminal command.

  A `%%` command deactivates the startup program in either a non-security or Natural Security environment in which command mode is allowed for the current library.

Avoiding Undesirable Results when Using *STARTUP

When you define a startup program, consider that values returned for the system variables `*DEVICE`, `*SERVER-TYPE` or `*SCREEN-IO` can affect the program result. For example, perform the following steps to avoid undesirable results:

- In batch mode (`*DEVICE` or `*SCREEN-IO`), include a `FETCH` or `STACK COMMAND` statement in the startup program; otherwise, a program loop or Natural error NAT9969 can occur.
- If you map a Natural Development Server environment (`*SERVER-TYPE`) from NaturalONE and select a library with an active `*STARTUP`, make sure that the startup program does not perform screen I/O and terminates properly in the respective library (a logon to another library is not allowed). You can use the application programming interface USR4218N to find out whether NaturalONE is your current system environment. See also the description of startup transactions in the section *Using an Existing Natural Development Server Environment*, the section *Frequently Asked Questions* and the *Glossary* in the *NaturalONE* documentation.

***STARTUP under Natural Security**

In a Natural Security environment in which command mode is prohibited for the current library, `%%` will cause the program whose name is contained in `*STARTUP` to be invoked.

The startup program must contain a `FETCH` or `STACK COMMAND` statement if the NEXT/MORE line is not allowed in the security profile of the library where the program resides. See also the corresponding option setting described in *Security Options* in the section *Library Maintenance* in the *Natural Security* documentation.

When a Natural runtime error occurs which is caused by a startup transaction (`*STARTUP`), Natural's error processing might lead to the startup transaction being executed again. This would cause an error-loop situation. To prevent such a loop, the general option **Logoff in error case if *STARTUP is active** is available. See *Logoff in Error Case if *STARTUP is Active* in the *Natural Security* documentation.

*STEPLIB

Format/length:	A8
Content modifiable:	No

This system variable contains the name of the steplib library which has been concatenated to the Natural library to which the user is currently logged on.

If Natural Security is not active, `*STEPLIB` contains the name specified with the profile parameter `STEPLIB`.

If Natural Security is active, the value may be defined in the security profile of a given library.

Note: The database ID and file number of the `*STEPLIB` library are derived from its name. Apart from the library `SYSTEM`, libraries with the name `SYS`*xxx* are assumed to be in `FNAT` and other libraries are assumed to be in `FUSER`.

*SUBROUTINE

Format/length:	A32
Content modifiable:	No

This system variable contains the name of the external subroutine that is currently being executed. The contents of `*SUBROUTINE` will always be in upper case.

*THIS-OBJECT

Format/length:	HANDLE OF OBJECT
Content modifiable:	No

This system variable contains a handle to the currently active object. The currently active object uses `*THIS-OBJECT` to either execute its own methods or pass a reference to itself to another object.

`*THIS-OBJECT` only contains an actual value when a method is being executed. Otherwise it contains `NULL-HANDLE`.

*TYPE

Format/length:	A32
Content modifiable:	No

This system variable contains the type of the Natural object which is currently executed.

Valid values of `*TYPE`:

Value	Object Type
`PROGRAM`	Program
`FUNCTION`	Function
`SUBPROGRAM`	Subprogram
`SUBROUTINE`	Subroutine
`HELPROUTINE`	Helproutine
`MAP`	Map
`ADAPTER`	Adapter

*UBOUND

Format/length:	I4
Content modifiable:	No

`*UBOUND` contains the current upper boundary (index value) of an array for the specified dimension(s) (1, 2 or 3) or for all dimensions (* notation).

Syntax:

```
*UBOUND (operand1 [,dim])
```

Operand Definition Table:

Operand	Possible Structure					Possible Formats													Referencing Permitted	Dynamic Definition
operand1			A			A	U	N	P	I	F	B	D	T	L	C	G	O	yes	no

operand1 is the array for which the upper boundary is specified. The index notation of the array is optional. As index notation only the complete range notation * is allowed for each dimension.

dim is the dimension number for which the current upper boundary is returned:

$$dim = \left\{ \begin{array}{c} 1 \\ 2 \\ 3 \\ * \end{array} \right\}$$

If no dimension is specified, the upper bound of the first dimension is returned.

If 1, 2 or 3 is specified, the upper bound of the first, second or third dimension is returned.

If * is specified, the upper bound of all the defined dimensions are returned, that is

- 1 in case of an one dimensional array,
- 2 in case of a two dimensional array,
- 3 in case of three dimensional array.

If an X-array is not allocated and the upper bound of the specified dimension of this X-array is the variable index bound, that is, it is represented by an asterisk (*) character in the index definition, the upper bound of the specified dimension is undefined, and access to `*UBOUND` leads to a runtime error. In order to avoid the runtime error, `*OCCURRENCE` may be used to check against zero occurrences:

```
DEFINE DATA LOCAL
  1 #XA(A5/1:*)
END-DEFINE
IF *OCCURRENCE (#XA) NE 0 AND *UBOUND(#XA) > 10
  THEN ...
```

Examples:

```
DEFINE DATA LOCAL
  1 #I  (I4)
  1 #J  (I4/1:3)
  1 #XA (A5/*:10,*:20)
END-DEFINE
#i   := *UBOUND(#XA)        /* upper bound of 1st dimension is 10
#i   := *UBOUND(#XA,1)      /* upper bound of 1st dimension is 10
#i   := *UBOUND(#XA,2)      /* upper bound of 2nd dimension is 20
#j(1:2):= *UBOUND(#XA,*)    /* upper bound of all dimensions
                            /* (1st and 2nd)
                            /* #J(1) is 10 and #J(2) is 20
```

See also `*LBOUND` and `*OCCURRENCE`.

*UUID

Format/length:	B16
Content modifiable:	No

The system variable `*UUID` contains a Binary (16-byte) string that represents a Universally Unique Identifier (UUID).

Natural generates `*UUID` as a version 8 UUID, following the specifications of RFC 9562.

`*UUID` Structure:

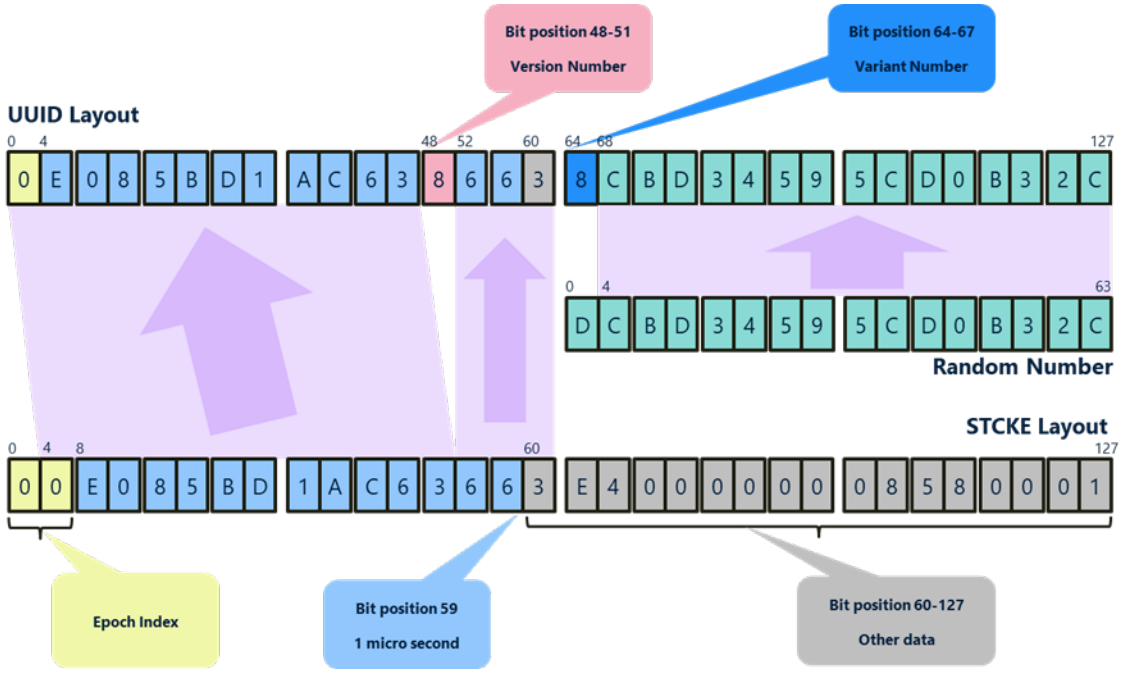
The UUID is constructed using the following information.

- Extended TOD Clock Value

  This value is obtained using the STCKE (Store Clock Extended) instruction and represents a timestamp based on an epoch starting from January 1, 1900.
- Random Value

  The random number is derived using the STCKE value, CPU serial number, and LPAR name, along with randomized XORs and prime number-based multiplications to enhance entropy.
- 4 bits representing the version number
- 4 bits representing the variant number

Example:


Bit position 48-51
Version Number
Bit position 64-67
Variant Number
UUID Layout
0 4 48 52 60 64 68 127
0 E 0 8 5 B D 1 A C 6 3 8 6 6 3 8 C B D 3 4 5 9 5 C D 0 B 3 2 C
0 4 63
D C B D 3 4 5 9 5 C D 0 B 3 2 C
Random Number
STCKE Layout
0 4 8 60 127
0 0 E 0 8 5 B D 1 A C 6 3 6 6 3 E 4 0 0 0 0 0 0 0 8 5 8 0 0 0 1
Epoch Index
Bit position 59
1 micro second
Bit position 60-127
Other data

4 Date and Time System Variables

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- *DAT* - Date System Variables 32
- *TIM* - Time System Variables 33
- Example of Date and Time System Variables 34

Usage

The date and time system variables listed below may be specified in the following places:

- statements:
  - `COMPUTE`
  - `DISPLAY`
  - `MOVE`
  - `PRINT`
  - `WRITE`
- logical condition criteria

The contents of date and time system variables as generated by Natural are *non-modifiable*, which means that in a Natural program you cannot assign another value to any of them.

DAT - Date System Variables

All date system variables contain the current date. The format of the date is different for each date variable, as indicated below.

Date Variable	Format/Length	Date Format*
*DATD	A8	DD.MM.YY
*DAT4D	A10	DD.MM.YYYY
*DATE	A8	DD/MM/YY
*DAT4E	A10	DD/MM/YYYY
*DATG	A15	DD*monthname*YYYY (Gregorian date)
*DATI	A8	YY-MM-DD
*DAT4I	A10	YYYY-MM-DD
*DATJ	A5	YYJJJ (Julian date)
*DAT4J	A7	YYYYJJJ (Julian date)
*DATN	N8	YYYYMMDD
*DATU	A8	MM/DD/YY
*DAT4U	A10	MM/DD/YYYY
*DATV	A11	DD-MON-YYYY
*DATVS	A9	DDMONYYYY
*DATX	D	internal date format

* D = day, J = Julian day, M = month, Y = year, MON = leading three bytes of the month's name as in *DATG

TIM - Time System Variables

At runtime, the content of a time system variable is evaluated anew each time the variable is referenced in a Natural program. The format of the time is different for each time variable, as indicated below.

Time Variable	Format/Length	Explanation
*TIMD (*r*)	N7	Can only be used in conjunction with a previous SETTIME statement. Contains the time that has elapsed after the SETTIME statement was executed (in the format HHIISST (*)). (*r*) represents the statement label or source-code line number of the SETTIME statement used as the basis for *TIMD. If *TIMD is used without executing a SETTIME statement first, a value of zero is returned.
*TIME	A10	Contains the time of day in the format HH:II:SS.T (*).
*TIME-OUT	N5	Contains the number of seconds remaining before the current transaction will be timed out (only available with Natural Security). *TIME-OUT is 0 if transaction mode has not been entered. Transaction mode is entered with the execution of a FIND, READ or GET statement that reads a database record for the purpose of updating or deleting the record. *TIME-OUT is reset to 0 when an END TRANSACTION or BACKOUT TRANSACTION statement is executed.
*TIMESTMP	B8	Machine-internal store clock value as provided by the Assembler instruction STCK (Store Clock format). For more information about the meaning of this value, please refer to the IBM documentation. The processing of store clock values is described in *Programming Guide* > *Further Programming Aspects* > *Processing of Store Clock Values*.
*TIMESTMPX	B16	Machine-internal store clock value as provided by the Assembler instruction STCKE (Store Clock Extended format). For more information about the meaning of this value, please refer to the IBM documentation. The processing of extended store clock values is described in *Programming Guide* > *Further Programming Aspects* > *Processing of Store Clock Values*.

Time Variable	Format/Length	Explanation
*TIMN	N7	Contains the time of day in format HHIISST (*).
*TIMX	T	Contains the time of day in internal time format.

* H = hour, I = minute, S = second, T = tenth of a second.

Example of Date and Time System Variables

```
** Example 'DATIVAR': Date and time system variables
************************************************************************
DEFINE DATA LOCAL
1 #DATE (D)
1 #TIME (T)
END-DEFINE
*
WRITE NOTITLE
  'DATE IN FORMAT DD.MM.YYYY  '   *DAT4D /
  'DATE IN FORMAT DD/MM/YYYY  '   *DAT4E /
  'DATE IN FORMAT DD-MON-YYYY '   *DATV  /
  'DATE IN FORMAT DDMONYYYY   '   *DATVS /
  'DATE IN GREGORIAN FORM     '   *DATG  /
  'DATE IN FORMAT YYYY-MM-DD  '   *DAT4I /
  'DATE IN FORMAT YYYYDDD     '   *DAT4J /
  'DATE IN FORMAT YYYYMMDD    '   *DATN (AD=L) /
  'DATE IN FORMAT MM/DD/YYYY  '   *DAT4U /
  'DATE IN INTERNAL FORMAT    '   *DATX (DF=L) ///
  'TIME IN FORMAT HH:II:SS.T  '   *TIME /
  'TIME IN FORMAT HHIISST     '   *TIMN (AD=L) /
  'TIME IN INTERNAL FORMAT    '   *TIMX /
  'TIME IN STORE CLOCK FORMAT '   *TIMESTMP /
  'TIME IN EXT. STCK FORMAT   '   *TIMESTMPX /
*
MOVE *DATX TO #DATE
ADD 14 TO #DATE
WRITE 'CURRENT DATE'              *DATX (DF=L) 3X
      'CURRENT DATE + 14 DAYS   ' #DATE (DF=L)
*
MOVE *TIMX TO #TIME
ADD 100 TO #TIME
WRITE 'CURRENT TIME'              *TIMX 5X
      'CURRENT TIME + 10 SECONDS' #TIME
*
END                                            ↩
```

Output of program `DATIVAR`:

```
DATE IN FORMAT DD.MM.YYYY   02.12.2021
DATE IN FORMAT DD/MM/YYYY   02/12/2021
DATE IN FORMAT DD-MON-YYYY  02-Dec-2021
DATE IN FORMAT DDMONYYYY    02Dec2021
DATE IN GREGORIAN FORM      02December  2021
DATE IN FORMAT YYYY-MM-DD   2021-12-02
DATE IN FORMAT YYYYDDD      2021336
DATE IN FORMAT YYYYMMDD     20211202
DATE IN FORMAT MM/DD/YYYY   12/02/2021
DATE IN INTERNAL FORMAT     2021-12-02


TIME IN FORMAT HH:II:SS.T   14:12:43.2
TIME IN FORMAT HHIISST      1412432
TIME IN INTERNAL FORMAT     14:12:43
TIME IN STORE CLOCK FORMAT  DAB39D476A7E3405
TIME IN EXT. STCK FORMAT    00DAB39D476A7E340500000008150001                    ↩


CURRENT DATE 2021-12-02   CURRENT DATE + 14 DAYS    2021-12-16
CURRENT TIME 14:12:43     CURRENT TIME + 10 SECONDS 14:12:53
```

5 Input/Output-Related System Variables

- *CURS-COL 38
- *CURS-FIELD 38
- *CURS-LINE 39
- *CURSOR 40
- *LINE-COUNT 40
- *LINESIZE 41
- *LOG-LS 41
- *LOG-PS 41
- *PAGE-NUMBER 41
- *PAGESIZE 42
- *PF-KEY 42
- *PF-NAME 43
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- *WINDOW-POS 44
- *WINDOW-PS 44

*CURS-COL

Format/length:	P3
Content modifiable:	Yes (however, a negative value must not be assigned)

This system variable contains the number of the column in which the cursor is currently positioned.

The cursor position is defined within the currently active window, regardless of its physical placement on the screen, starting with position 1/1 from the upper left corner of a logical page.

If the value of `*CURS-COL` is negative, this indicates that the cursor is outside the active window. If `*CURS-COL` is negative, `*CURS-LINE` will also contain a negative value. In this case, the absolute values of both system variables indicate the position of the cursor on the physical screen.

Note: The message line, function-key lines and infoline/statistics line are not counted as data lines on the screen.

See also *Dialog Design*, *Column-Sensitive Processing* in the *Programming Guide*.

*CURS-FIELD

Format/length:	I4
Content modifiable:	No

This system variable returns an identification of the field in which the cursor is currently positioned. The value returned is an internal representation of the field address.

`*CURS-FIELD` cannot be used by itself, but only in conjunction with the `POS` function. You may use them to check if the cursor is currently positioned in a specific field and have processing performed depending on that condition. See the `POS` function for details.

If the cursor is not in a field or if no `REINPUT` is possible, `*CURS-FIELD` contains 0.

In Natural for Ajax applications, `*CURS-FIELD` identifies the operand that represents the value of the control that has the input focus. You may use `*CURS-FIELD` in conjunction with the `POS` function to check for the control that has the input focus and perform processing depending on that condition.

Note: `*CURS-FIELD` cannot distinguish between two different variables that start at the same storage position (`REDEFINE` variables) since the internal field address returned by `*CURS-FIELD` is the same for both.

The value of `*CURS-FIELD` serves only as internal identification of the field and cannot be used for arithmetic operations. If `*CURS-FIELD` identifies an occurrence of an X-array (an array for which at least one bound in at least one dimension is specified as extensible), the value of `*CURS-FIELD` may change after the number of occurrences for a dimension of the array has been changed using the `EXPAND`, `RESIZE` or `REDUCE` statements.

See also *Dialog Design*, *Field-Sensitive Processing* in the *Programming Guide*.

*CURS-LINE

Format/length:	P3
Content modifiable:	Yes (however, a negative value or 0 must not be assigned)

This system variable contains the number of the line in which the cursor is currently positioned.

The cursor position is defined within the current active window, regardless of its physical placement on the screen, starting with position 1/1 from the upper left corner of a *logical* page.

Note: The message line, function-key lines and infoline/statistics line are not counted as data lines on the screen.

`*CURS-LINE` may also contain one of the following values:

Value	Cursor Position
0	On the top or bottom horizontal frame line of a window.
-1	On the Natural message line.
-2	On the Natural infoline/statistics line.
-3	On the upper function-key (number) line.
-4	On the lower function-key (name) line.

If the value of `*CURS-COL` is negative, which indicates that the cursor is outside the active window, `*CURS-LINE` will also contain a negative value. In this case, the *absolute* values of both system variables indicate the position of the cursor on the *physical* screen.

See also *Dialog Design*, *Line-Sensitive Processing* in the *Programming Guide*.

*CURSOR

Format/length:	N6
Content modifiable:	No

This system variable contains the position of the cursor on the input screen at the time the ENTER key or a function key is pressed.

Note: Instead of `*CURSOR`, it is recommended that the system variables `*CURS-LINE` and `*CURS-COL` be used. `*CURSOR` only continues to be available for compatibility with previous Natural versions.

*LINE-COUNT

Format/length:	P5
Content modifiable:	No

This system variable contains the line number of the current line within the current page.

This variable is used by Natural to determine the line number for the next line of the report.

The value of `*LINE-COUNT` is incremented by `1` for each line to be output. The value is updated during the execution of a `WRITE`, `SKIP`, `DISPLAY`, `PRINT` or `INPUT` statement and contains the number of the last line on the page that has been output.

An `EJECT` or `NEWPAGE` statement causes `*LINE-COUNT` to be reset to `1` (except in the case of `NEWPAGE WITH TITLE`, where the value of `*LINE-COUNT` depends on the number of lines output as title).

The maximum line number permitted is 250.

If multiple reports are being produced by the program, `(rep)` notation after `*LINE-COUNT` is used to specify the report identification for which the current line number is being requested.

*LINESIZE

Format/length:	N7
Content modifiable:	No

This system variable contains the physical line size of the I/O device from which Natural was invoked (if the TP system is able to provide such).

*LOG-LS

Format/length:	N3
Content modifiable:	No

This system variable contains the line size of the logical page that is output with the primary report.

`*LOG-LS` is only applicable to the primary report, not to any additional report.

*LOG-PS

Format/length:	N3
Content modifiable:	No

This system variable contains the page size of the logical page that is output with the primary report.

`*LOG-PS` is only applicable to the primary report, not to any additional report.

*PAGE-NUMBER

Format/length:	P5
Content modifiable:	Yes

This system variable contains the current value for page number of an output report.

If multiple reports are being produced by the program, `(rep)` notation after `*PAGE-NUMBER` is used to specify the report identification for which the current page number is being requested.

This variable is defined by Natural at the time formatting for the report is started. Therefore, the parameter has no meaning until the first FORMAT, WRITE, or DISPLAY statement for any given report has been issued. This variable may be modified by a Natural program.

This variable is used by Natural to determine the page number for the next page of the report. The value is always incremented by 1 for the next page initiated by WRITE, DISPLAY, SKIP or NEWPAGE statements. EJECT does not cause *PAGE-NUMBER to be incremented.

*PAGESIZE

Format/length:	N7
Content modifiable:	No

This system variable contains the physical page size of the I/O device from which Natural was invoked (if the TP subsystem is able to provide such).

*PF-KEY

Format/length:	A4
Content modifiable:	No

This system variable contains the identification of the key which was pressed last.

*PF-KEY can contain one of the following values:

Value	Description
PA1 to PA3	Program Attention keys 1 to 3.
PF1 to PF48	Program Function keys 1 to 48.
ENTR	ENTER key.
CLR	CLEAR key.
PEN	Light pen.
PGDN	PAGE DOWN key.
PGUP	PAGE UP key.

*PF-KEY only contains the identification of a key if that key is currently sensitive; otherwise *PF-KEY will contain ENTR.

Notes:

1. When a page break occurs, `*PF-KEY` changes to `ENTR`. This applies to all environments (terminal or non-terminal).
2. When you compare the content of `*PF-KEY` with a range of values, remember that `*PF-KEY` contains an alphanumeric value.

See also:

- `SET KEY` statement (for effects on the contents of `*PF-KEY`)
- *Processing Based on Function-Keys* in the *Programming Guide*
- *%K and %KP - Simulate PF- and PA-Key* (terminal commands which set `*PF-KEY`) in the *Terminal Commands* documentation

*PF-NAME

Format/length:	A10
Content modifiable:	No

This system variable contains the name of the function key that was pressed last, that is, the name as assigned to the key with the `NAMED` clause of the `SET KEY` statement.

This allows you to perform processing depending on a specific function name, not a specific key. For example, if you wish to allow users to invoke help by pressing either PF1 or PF13, you assign the name `HELP` to the keys PF1 and PF13 and make the invoking of help dependent on `*PF-NAME='HELP'`: the help will then be invoked no matter whether the user presses PF1 or PF13 to invoke it.

See also *Dialog Design, Processing Based on Function-Key Names* in the *Programming Guide*.

*WINDOW-LS

Format/length:	N3
Content modifiable:	No

This system variable contains the line size of the logical window (without frame). See also the `DEFINE WINDOW` statement.

*WINDOW-POS

Format/length:	N6
Content modifiable:	No

This system variable contains the position which corresponds to the upper left corner of the window. See also the `DEFINE WINDOW` statement.

The position is counted in characters across multiple lines, beginning with `0` (upper left corner).

*WINDOW-PS

Format/length:	N3
Content modifiable:	No

This system variable contains the page size of the logical window (without frame). See also the `DEFINE WINDOW` statement.

6 JSON-Related System Variables

- *PARSE-LEVEL (r) for JSON 46
- *PARSE-INDEX (r) for JSON 46
- *PARSE-TYPE (r) for JSON 47

This document covers the following topics:

The system variables, which are available when using the `PARSE JSON` statement, are only valid in the context of the current loop.

*PARSE-LEVEL (r) for JSON

Format/length:	I4
Content modifiable:	No

This system variable contains the level of currently nested elements.

`(r)` notation after `*PARSE-LEVEL` is used to indicate the statement label or source-code line number of the `PARSE JSON` statement. If `(r)` is not specified, `*PARSE-LEVEL` represents the level where the parser in the currently active processing loop is working at.

*PARSE-INDEX (r) for JSON

Format/length:	I4
Content modifiable:	No

This system variable contains the index of currently nested elements.

`(r)` notation after `*PARSE-LEVEL` is used to indicate the statement label or source-code line number of the `PARSE JSON` statement. If `(r)` is not specified, `*PARSE-INDEX` represents the index of the array element where the parser in the currently active processing loop is working at.

Note: System variable `*PARSE-INDEX` is only applicable to array elements and is specific to the `PARSE JSON` statement.

*PARSE-TYPE (r) for JSON

Format/length:	A1
Content modifiable:	No

This Natural system variable is automatically created for each `PARSE JSON` statement issued.

This system variable contains the type of the delivered data.

`(r)` notation after `*PARSE-TYPE` is used to indicate the statement label or source-code line number of the `PARSE JSON` statement. If `(r)` is not specified, `*PARSE-TYPE` represents the type of the delivered data in the currently active processing loop.

Possible values for ASCII-based systems are:

<	Start of an Object Data-Structure
>	End of an Object Data-Structure
(	Start of an Array Data-Structure
)	End of an Array Data-Structure
A	String type Data-Element
I	Numeric type Data-Element
N	Null type Data-Element
L	Boolean type Data-Element
K	Key (or) Data-Name

7 Natural Environment-Related System Variables

- *BROWSER-IO 50
- *DEVICE 50
- *GROUP 51
- *HARDCOPY 51
- *INIT-USER 52
- *LANGUAGE 53
- *NATVERS 56
- *NET-USER 57
- *PARM-USER 57
- *PATCH-LEVEL 57
- *PID 57
- *SCREEN-IO 58
- *SERVER-TYPE 58
- *UI 59
- *USER 59
- *USER-NAME 59

*BROWSER-IO

Format/length:	A8
Content modifiable:	No

This system variable indicates that the application is running in a web browser. An application can run in a web browser either via the Natural Web I/O Interface or by using Natural for Ajax. An application that is running with the Natural Web I/O Interface can use maps. An application that is running with Natural for Ajax can use both maps and rich GUI pages (using the `PROCESS PAGE` statement).

This system variable may contain one of the following values:

Value	Description
(empty)	The application is not running in a web browser.
WEB	The application is running with the Natural Web I/O Interface. It cannot use the `PROCESS PAGE` statement.
RICHGUI	The application is running with Natural for Ajax. It can use the `PROCESS PAGE` statement.

*DEVICE

Format/length:	A8
Content modifiable:	No

This system variable contains the device type/mode from which Natural has been invoked. It may contain one of the following values:

Value	Description
BATCH	Batch mode.
COLOR	3279 compatibility. 3278 screen device (device with extended attribute support).
VIDEO	3270 screen device, PC screen device, VT or X terminal or any type of Linux terminal.
TTY	Teletype or other start/stop device.
PC	Usage of Natural Connection has been activated (by profile parameter `PC=ON` or terminal command `%+`).
BTX	BTX device.
SPOOL	3270 printer device.

Value	Description
ASYNCH	Asynchronous session.
BROWSER	Web I/O screen device (server environment).

Note: In a server environment, `*DEVICE` contains the value `BROWSER`. This holds even if the server is running in a batch environment. The reason is that the device which makes the output is the browser.

*GROUP

Format/length:	A8
Content modifiable:	No

This system variable is applicable under Natural Security only. It contains the ID via which a user is logged on to a protected library, that is, the ID via which the user is linked to the library. This may be either the ID of the group via which the user is linked or the user's own ID (if he or she is linked directly).

`*GROUP` will be blank under the following conditions:

- in the case of a logon to an unprotected library (where no link is used),
- if Natural Security is not active.

*HARDCOPY

Format/length:	A8
Content modifiable:	Yes

This system variable contains the name of the hardcopy device which will be used when the terminal command `%H` is used.

*INIT-USER

Format/length:	A8
Content modifiable:	No

This system variable contains the user ID of the user.

In Online Mode:

Com-plete	The value of `*INIT-USER` is the Com-plete logon user ID.
CICS	The value of `*INIT-USER` is determined by the `USERID` parameter of the macro `NTCICSP`, where the first subparameter applies to CICS terminal sessions, the second subparameter applies to non-terminal sessions (for example, asynchronous sessions or sessions launched through DPL), and the third subparameter applies to DTP sessions. A specification of `ANY` for a `USERID` subparameter means that any non-blank value returned by `EXEC CICS ASSIGN USERID (..)` is considered to be valid for the relevant session type (terminal, non-terminal or DTP). A specification of `ON` for a `USERID` subparameter means that a non-blank value is considered to be valid if it is different from the CICS default user ID and, for terminal sessions only, if the user has signed on in CICS. A specification of `OFF` for a `USERID` subparameter means that the CICS user ID value is ignored. When a CICS user ID is invalid or ignored, the edited (unpacked) CICS task number is taken for non-terminal sessions, such as asynchronous sessions or sessions launched through DPL. For terminal sessions, the 3-byte CICS operator ID is taken when it is non-blank; otherwise, the CICS terminal ID is taken. For DTP sessions, the pseudo terminal ID is taken.
IMS TM	The value of `*INIT-USER` is the IMS TM sign-on user ID.
TSO	The value of `*INIT-USER` is the TSO logon user ID.

In Batch-Mode:

`*INIT-USER` contains the name of the job or the user ID under which the Natural session is running.

z/OS	The value of `*INIT-USER` is determined by the keyword subparameter `USERID` of profile parameter `OSP` or macro `NTOSP`.
Natural for IMS TM: **BMP** **DLIBATCH**	The value of `*INIT-USER` is determined by the `USERID` keyword subparameter of the `NTIMSPE` macro. If `USERID=ON`, the value will be taken from the security access control block (ACEE) of the security package (for example, RACF or ACF2) being used. If `USERID=OFF`, the value of `*INIT-USER` is determined by the name of the job under which the Natural session is running. If no security package is used, the value will be taken from the `USER` parameter in the job card. If no `USER` parameter is specified, the value will be same as with `USERID=OFF`.

*LANGUAGE

Format/length:	I1
Content modifiable:	Yes

This system variable contains the language indicator (language code). This language indicator is used for edit masks of date fields, Natural error messages and user error messages as used in the statements `INPUT` and `REINPUT`.

A one-character code is assigned to each language code; this one-character code is used to replace all ampersand characters (&) in names of language-specific objects (for example, maps, dialogs, helproutines, subprograms). For details on the use of the ampersand character in Natural object names, see the descriptions of the statements `CALLNAT` (*operand1*), `FETCH` (*operand1*), `INCLUDE` (*copycode-name*) and `INPUT` (`USING MAP`) and the session parameter `HE` (*operand1*).

You can specify up to 60 different language codes. The codes are listed below.

The system variable `*LANGUAGE` is set by the Natural profile parameter `ULANG` which determines the language to be used for date edit masks, system messages, user messages, help texts, help routines and multi-lingual maps.

The compiler always uses only the current value of `*LANGUAGE` to determine the map name. During runtime, Natural tries to read the map with the current `*LANGUAGE` setting first. If not found, then it tries to find the map with the default language.

For details on how to use language codes, see also *Multilingual User Interfaces* in the *Programming Guide*.

Language Code Assignments

The following languages are assigned to the individual language codes (the right-hand column shows the corresponding one-character codes to be used in names of language-specific objects).

- Left-to-Right Single-Byte Languages with Latin Lower Case
- Left-to-Right Single-Byte Languages without Latin Lower Case
- Bi-directional Single-Byte Languages without Latin Lower Case
- User-Assigned Languages
- Multiple-Byte Languages

- Double-Byte Languages

Left-to-Right Single-Byte Languages with Latin Lower Case

Code	Language	Character Code in Language-Specific Object Names
1	English	1
2	German	2
3	French	3
4	Spanish	4
5	Italian	5
6	Dutch	6
7	Turkish	7
8	Danish	8
9	Norwegian	9
10	Albanian	A
11	Portuguese	B
12	Chinese Latin (Taiwan)	C
13	Czech	D
14	Slovak	E
15	Finnish	F
16	Hungarian	G
17	Icelandic	H
18	Korean	I
19	Polish	J
20	Romanian	K
21	Swedish	L
22	Croatian	M
23	Catalan	N
24	Basque	O
25	Afrikaans	P

Left-to-Right Single-Byte Languages without Latin Lower Case

Code	Language	Character Code in Language-Specific Object Names
26	Bulgarian	Q
27	Greek	R
28	Japanese (Katakana)	S
29	Russian	T
30	Serbian	U

Bi-directional Single-Byte Languages without Latin Lower Case

Code	Language	Character Code in Language-Specific Object Names
31	Arabic	V
32	Farsi (Iran)	W
33	Hebrew	X
34	Urdu (Pakistan)	Y
35	(reserved for future use)	Z
36	(reserved for future use)	a
37	(reserved for future use)	b
38	(reserved for future use)	c
39	(reserved for future use)	d
40	(reserved for future use)	e

User-Assigned Languages

Code	Language	Character Code in Language-Specific Object Names
41	(free for you to assign a language)	f
42	(free for you to assign a language)	g
43	(free for you to assign a language)	h
44	(free for you to assign a language)	i
45	(free for you to assign a language)	j
46	(free for you to assign a language)	k
47	(free for you to assign a language)	l
48	(free for you to assign a language)	m
49	(free for you to assign a language)	n
50	(free for you to assign a language)	o

Multiple-Byte Languages

Code	Language	Character Code in Language-Specific Object Names
51	Hindi	p
52	Malayan	q
53	Thai	r
54	(reserved for future use)	s
55	(reserved for future use)	t
56	(reserved for future use)	u

Double-Byte Languages

Code	Language	Character Code in Language-Specific Object Names
57	Chinese (People's Republic of China)	v
58	Chinese (Republic of China)	w
59	Japanese (Kanji)	x
60	Korean	y

*NATVERS

Format/length:	A8
Content modifiable:	No

This system variable contains the Natural version (excluding the cumulative fix information), for example: 04.02.01.

The cumulative fix information is contained in the system variable `*PATCH-LEVEL`.

For further information, see *Version* in the *Glossary*.

*NET-USER

Format/length:	A253
Content modifiable:	No

The value of `*NET-USER` is identical to the one of `*USER`.

*PARM-USER

Format/length:	A253
Content modifiable:	No

This system variable contains the name of the parameter module currently in use (if `PARM=`*`name`* has not been specified as a dynamic parameter, `*PARM-USER` contains blanks).

*PATCH-LEVEL

Format/length:	A8
Content modifiable:	No

This system variable contains the current cumulative fix number. See also the system variable `*NATVERS` and *Version* in the *Glossary*.

*PID

Format/length:	A32
Content modifiable:	No

This system variable contains a unique session ID.

*SCREEN-IO

Format/length:	L
Content modifiable:	No

This system variable indicates whether a screen I/O is possible or not.

It can contain one of the following values:

TRUE	Screen I/O is possible.
FALSE	Screen I/O is not possible.

In an interactive Natural session, `*SCREEN-IO` is initialized with `TRUE`. In a Natural batch session, `*SCREEN-IO` is initialized with `FALSE` (except for a Natural Development Server).

If Natural was started as a Db2 Stored Procedures server (`*SERVER-TYPE=DB2-SP`) or as RPC server (`*SERVER-TYPE=RPC`) `*SCREEN-IO` is set to `FALSE`.

When `*SCREEN-IO` is set to `FALSE` and a statement which requires user interaction is executed, Natural issues error NAT0723.

*SERVER-TYPE

Format/length:	A32
Content modifiable:	No

This system variable indicates the server type Natural has been started as.

It can contain one of the following values:

DB2-SP	Natural Db2 Stored Procedures server
DEVELOP	Natural development server
RPC	Natural RPC server
WEBIO	Natural Web I/O Interface server

If Natural is not started as a server, `*SERVER-TYPE` is set to blanks.

Note: `*SERVER-TYPE` refers to Natural as a whole, *not* to the Natural program currently being executed (which may run as a client program or as a server program within a server Natural).

*UI

Format/length:	A16
Content modifiable:	No

This system variable indicates the type of user interface being used:

CHARACTER	Character-oriented user interface.
GUI	Graphical user interface.

*USER

Format/length:	A8
Content modifiable:	No

This system variable contains the user ID as taken from the Natural Security logon.

If the profile parameter `AUTO=ON` (Automatic Logon) is set or if Natural Security is not active, the value of `*USER` is identical to that of `*INIT-USER`.

*USER-NAME

Format/length:	A32
Content modifiable:	No

If Natural Security is installed, this variable contains the name of the user who is currently logged on to Natural.

If Natural Security is not active, the default is `SYSTEM`.

8 System Environment-Related System Variables

- *CODEPAGE 62
- *HARDWARE 62
- *HOSTNAME 62
- *INIT-ID 63
- *INIT-PROGRAM 63
- *LOCALE 64
- *MACHINE-CLASS 64
- *OPSYS 64
- *OS 65
- *OSVERS 65
- *TP 66
- *TPSYS 66
- *TPVERS 67
- *WINMGR 67
- *WINMGRVERS 67

*CODEPAGE

Format/length:	A64
Content modifiable:	No

This system variable returns the IANA name of the default code page which is internally used by Natural for conversions to and from Unicode and which is set by the Natural profile parameter `CP`.

Note: `*CODEPAGE` is also the default if a code page is not specified in a `MOVE ENCODED` statement.

Example:

```
IBM01141
```

To display the content of the system variable `*CODEPAGE`, you can use the system command `CPINFO` or the utility `SYSCP`.

*HARDWARE

Format/length:	A16
Content modifiable:	No

This system variable contains the name of the hardware platform on which Natural is running. This value is supplied by the operating system.

*HOSTNAME

Format/length:	A64
Content modifiable:	No

The name of the machine Natural runs on.

*INIT-ID

Format/length:	A8
Content modifiable:	No

`*INIT-ID` contains the terminal ID (defined according to the conventions of the TP system) of the terminal from which Natural was invoked.

In batch mode, `*INIT-ID` contains the step name of the Natural job.

In an asynchronous Natural session under Com-plete, `*INIT-ID` contains the terminal ID of the task that has started the asynchronous session.

In an asynchronous session under CICS, `*INIT-ID` contains the CICS task number of the asynchronous task.

In a server environment, for example, Natural Development Server or Web I/O Interface Server, `*INIT-ID` contains the current session number, which is incremented by one for each new session that is invoked on the server.

*INIT-PROGRAM

Format/length:	A8
Content modifiable:	No

This system variable contains the name of the program (transaction) that is currently executing as Natural.

In batch mode under z/OS, `*INIT-PROGRAM` contains the name of the job under which the Natural session is running.

Under TSO, `*INIT-PROGRAM` contains the name of the TSO command under which Natural runs. If no command was issued, for example, because the task was started via `CALL`, the module name of the Natural front-end is used instead.

In a Natural Development Server environment using Com-plete or Com-plete/SMARTS, `*INIT-PROGRAM` is set according to the Com-plete/SMARTS startup option `INSTALLATION`. The default content is `********`.

*LOCALE

Format/length:	A8
Content modifiable:	No

This system variable contains the language and country of the current locale, which specifies the Unicode collation sequence.

Example:

```
en_US
```

To display the content of the system variable `*LOCALE`, you can use the system command `CPINFO` or the utility `SYSCP`.

*MACHINE-CLASS

Format/length:	A16
Content modifiable:	No

This system variable contains the name of the machine class on which Natural is running.

It can contain one of the following values:

MAINFRAME
PC
UNIX

*OPSYS

Format/length:	A8
Content modifiable:	No

This system variable contains the Natural name of the operating system that is being used.

It can contain one of the following values:

ATT_OSX	MVS/ESA	WNT-X86
AVIION	NCR 3000	
BULL/BOS	OS	
DEC-OSF/	RS_6000	
DPS300	SCO	
DRS 6000	SINIX_52	
FUJI M73	SINIX_54	
HP_HPUX	SUN_SOLA	
MSDOS	SUN_SUNO	
LINUX	WNT-X86	

Note: Instead of `*OPSYS`, it is recommended that the system variables `*MACHINE-CLASS`, `*HARDWARE` and `*OS` be used, as they allow a more precise distinction of the environment in which Natural is running.

*OS

Format/length:	A32
Content modifiable:	No

This system variable contains the name of the operating system under which Natural is running. This value is supplied by the operating system and may be subject to change.

*OSVERS

Format/length:	A16
Content modifiable:	No

This system variable contains the version number of the operating system under which Natural is running. This value is supplied by the operating system and may be subject to change.

*TP

Format/length:	A8
Content modifiable:	No

It contains the name of the TP subsystem under which Natural is running. This value is supplied by the operating system and may be subject to change.

*TPSYS

Format/length:	A8
Content modifiable:	No

This system variable contains the Natural name of the TP monitor or environment that is being used.

It can contain one of the following values:

`AIM/DC`
`CICS`
`COMPLETE`
`IMS TM`
`OS/400`
`SERVSTUB` (Natural Development Server)
`TSO`
`TSS`

On z/OS, `*TPSYS` will be blank in batch mode.

On Windows and Linux platforms, `*TPSYS` will be `NONE`.

*TPVERS

Format/length:	A8
Content modifiable:	No

It contains the version of the TP subsystem under which Natural is running. This value is supplied by the operating system and may be subject to change.

If no TP monitor is used, `*TPVERS` will be blank.

*WINMGR

Format/length:	A16
Content modifiable:	No

If a graphical user interface is used, this system variable contains the name of the window manager being used (for example, MOTIF or PM).

If a character-oriented user interface is used, `*WINMGR` will be blank.

The type of user interface is indicated by the value of the system variable `*UI`.

*WINMGRVERS

Format/length:	A16
Content modifiable:	No

If a graphical user interface is used, this system variable contains the version number of the window manager being used.

If a character-oriented user interface is used, `*WINMGRVERS` will be blank.

The type of user interface is indicated by the value of the system variable `*UI`.

9 XML-Related System Variables

- *PARSE-COL (r) for XML 70
- *PARSE-LEVEL (r) for XML 70
- *PARSE-NAMESPACE-URI (r) for XML 70
- *PARSE-ROW (r) for XML 71
- *PARSE-TYPE (r) for XML 71

These system variables, which are available when using the `PARSE XML` statement, are only valid in the current loop context.

*PARSE-COL (r) for XML

Format/length:	I4
Content modifiable:	No

This system variable contains the column where the parser is currently working at.

On z/OS, it always points to the start of the current markup element.

`(r)` notation after `*PARSE-COL` is used to indicate the statement label or source-code line number of the `PARSE XML` statement. If `(r)` is not specified, `*PARSE-COL` represents the column where the parser in the currently active processing loop is working at.

*PARSE-LEVEL (r) for XML

Format/length:	I4
Content modifiable:	No

This system variable contains the level of currently nested elements.

`(r)` notation after `*PARSE-LEVEL` is used to indicate the statement label or source-code line number of the `PARSE XML` statement. If `(r)` is not specified, `*PARSE-LEVEL` represents the level where the parser in the currently active processing loop is working at.

*PARSE-NAMESPACE-URI (r) for XML

Format/length:	A (dynamic)
Content modifiable:	No

This system variable contains the namespace URI of the current element/attribute, if the element/attributes belong to a namespace. If the `NAME` (*operand3*) value of the `PARSE XML` statement is empty, then there is also no namespace and `*LENGTH`(`*PARSE-NAMESPACE-URI`) is set to 0.

`(r)` notation after `*PARSE-NAMESPACE-URI` is used to indicate the statement label or source-code line number of the `PARSE XML` statement. If `(r)` is not specified, `*PARSE-NAMESPACE-URI` represents the namespace URI of the current element/attribute in the currently active processing loop.

*PARSE-ROW (r) for XML

Format/length:	I4
Content modifiable:	No

This system variable contains the row where the parser is currently working at.

`(r)` notation after `*PARSE-ROW` is used to indicate the statement label or source-code line number of the `PARSE XML` statement. If `(r)` is not specified, `*PARSE-ROW` represents the row where the parser in the currently active processing loop is working at.

*PARSE-TYPE (r) for XML

Format/length:	A1
Content modifiable:	No

This Natural system variable is automatically created for each `PARSE XML` statement issued.

This system variable contains the type of the delivered data.

`(r)` notation after `*PARSE-TYPE` is used to indicate the statement label or source-code line number of the `PARSE XML` statement. If `(r)` is not specified, `*PARSE-TYPE` represents the type of the delivered data in the currently active processing loop.

Possible values for ASCII-based systems are:

?	Processing instruction (but not first `<?XML ... ?>`).
!	Comment.
C	CDATA section.
T	Starting tag.
@	Attribute (on z/OS: § or @, depending on session code page and terminal emulation).
/	Closing tag.
$	Parsed data.

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