

Development Server Configuration

This document describes how to configure the Development Server.

The following topics are covered:

- Environment-dependent Configuration
 - Configuration File
 - Configuration Parameters
 - Server Datasets
-

Environment-dependent Configuration

- OS/390 Batch
- Smarts on VSE/ESA

OS/390 Batch

The Natural Development Server requires the following OS/390 language environment parameter configuration:

Parameter	Definition					
POSIX(ON)	Enables the Natural Development Server to access the POSIX functionality of OS/390. If you start a Natural Development Server server with POSIX(OFF), it terminates immediately with a user abend U4093 and the system message EDC5167. IBM supplies the default OFF.					
TRAP(ON,NOSPIE)	<p>Defines the abend handling of the LE/370 environment:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">ON</td><td>enables the Language Environment condition handler.</td></tr> <tr> <td>NOSPIE</td><td>specifies that Language Environment will handle program interrupts and abends via an ESTAE, that is the Natural abend handler receives control to handle program interrupts and abends.</td></tr> </table> <p>If you do not specify TRAP(ON,NOSPIE), the Natural abend handling does not work properly. IBM supplies the default (ON,SPIE).</p>		ON	enables the Language Environment condition handler.	NOSPIE	specifies that Language Environment will handle program interrupts and abends via an ESTAE, that is the Natural abend handler receives control to handle program interrupts and abends.
ON	enables the Language Environment condition handler.					
NOSPIE	specifies that Language Environment will handle program interrupts and abends via an ESTAE, that is the Natural abend handler receives control to handle program interrupts and abends.					
TERMTHDACT(UADUMP)	Defines the level of information that is produced in case of an abend. The option UADUMP generates a Language Environment CEEDUMP and system dump of the user address space. The CEEDUMP does not contain the Natural relevant storage areas. IBM supplies the default (TRACE).					
ENVAR(TZ=)	<p>The ENVAR option enables you to set UNIX environment variables. The only environment variable applicable for the Natural Development Server is TZ (time zone). This variable allows you to adjust the timestamp within the Natural Development Server's trace file to your local time.</p> <p>Example: ENVAR(TZ=CET-1DST) CET - 1 hour daylight saving time</p>					

You can set the OS/390 language environment parameters:

- With the PARM parameter specified in the EXEC card of the Natural Development Server startup job.
The length of the options is limited by the maximum length of the PARM parameter.
- Assemble an LE/370 runtime option module CEEUOPT and link it to the Natural Development Server load module.

Smarts on VSE/ESA

The Natural Development Server requires following Smarts SYSPRM parameters:

Parameter	Definition
RESIDENTPAGE	The following members must be defined in the Smarts resident area: NATRDEVS, NATSOCK, NATMONI, Natural front end (NCFNUC) and Natural nucleus (if you run using a split nucleus).
SERVER	The following SERVER definitions are required for the Natural Development Server:
	SERVER=(OPERATOR , TLINOPER , TLSPOPER) The Operator Communications Server.
	SERVER=(POSIX , PAENKERN) The POSIX Server.
	SERVER=(NATBPS31 , NCFBPS31 , 1 , 2048 , 2 , 512 , 4 , 1024) The Natural local buffer pool. The module NCFBPS31 is delivered with Natural Version 3.1 for Mainframes.
CDI_DRIVER	CDI_DRIVER=('TCPIP , PAACSOCK , MINQ=10 , MAXQ=20 ') The Smarts TCPIP Socket Driver for Connectivity Systems TCP/IP stack on VSE. MINQ/MAXQ defines the number of TcpIP listener tasks.
THSIZEABOVE	THSIZEABOVE=1024 The storage above 16 MB that is available for each Natural Development Server subtask. This size must be large enough to keep the Natural tread, heap and stack of the Natural Development Server subtasks. If the Natural Development Server initialization fails with "NCF0003 Unable to allocate Natural thread", this parameter must be increased.
ADASVC	ADASVC=nnn The Adabas SVC number of your Adabas installation.

You can set the Smarts SYSPRM parameters in the member RJANPARM.P on the Smarts library, or you create a new sysparm member (e.g. on the Natural Development Server library). You have to concatenate this member with the RJANPARM.P definition in your Smarts startup job.

SYSPRM Example for the Natural Development Server:

```
* ----- ADABAS PARMS -----
ADACALLS=20 CALLS BEFORE ROLL
ADASVC=47 ADABAS SVC NUMBER
* ----- BUFFERPOOL PARMS -----
BUFFERPOOL=(064,030,20,ANY)
BUFFERPOOL=(128,064,64,ANY)
BUFFERPOOL=(256,010,10,ANY)
BUFFERPOOL=(512,032,10,ANY)
BUFFERPOOL=(1K,032,32,ANY)
BUFFERPOOL=(6K,005,02,ANY)
```

```

BUFFERPOOL=(8K,016,16,ANY)
* ----- ROLLING PARM -----
ROLL-BUFFERPOOL=(048K,04,04,DS) ESA DATA SPACE
ROLL-BUFFERPOOL=(064K,04,04,DS) ESA DATA SPACE
ROLL-BUFFERPOOL=(128K,04,04,DS) ESA DATA SPACE
ROLL-BUFFERPOOL=(256K,04,04,DS) ESA DATA SPACE
ROLL-BUFFERPOOL=(800K,02,02,DS) ESA DATA SPACE
*
TASK-GROUP=(DEFAULT,6)
THREAD-GROUP=(DEFAULT,(DEFAULT,252,06,15,28,N))
*
THSIZEABOVE=1024
*
SERVER=(NATBPS31,NCFBPS31,1,2048,2,512,4,1024)
*
CDI_DRIVER=( 'TCPIP,PAACSOCK,MINQ=10,MAXQ=20' )
*
RESIDENTPAGE=NATRDEVS
RESIDENTPAGE=NDVNCF31
RESIDENTPAGE=NATNUC31
RESIDENTPAGE=NATSOCK
RESIDENTPAGE=NATMONI

```

Configuration File

A configuration file is allocated to the DD-name <serverid>C (e.g. NDVS1C) or STGCONFG alternatively. The configuration file is a text file located on a dataset or on an HFS file under OS/390 or on a librarian member under VSE. It contains the server configuration parameters in form of a *keyword=value* syntax.

Configuration Parameters

The following configuration parameters are available:

FRONTEND_OPTIONS | FRONTEND_PARAMETER | INITIAL_USERID | THREAD_NUMBER |
 FRONTEND_NAME | KEEP_TCB | THREAD_SIZE | TRACE_LEVEL | SESSION_PARAMETER |
 DEFAULT_PROFILE | HOST_NAME | PORT_NUMBER

FRONTEND_OPTIONS

This parameter is not applicable under Smarts.

This configuration parameter specifies additional options for the Natural front-end as follows:

01	Do not use the roll server.
02	Clean up roll file at server termination.
04	Write GTF trace.
08	Write ETRACE.
10	Front-End automatic termination.
20	Write console information.

Default value: 01

Example:

```
FRONTEND_OPTIONS=07 switches on options 01, 02 and 04.
```

FRONTEND_PARAMETER

This parameter is not applicable under Smarts.

This optional configuration parameter specifies additional Natural Front-End parameters as specified in the Startup Parameter Area. You can define multiple parameters. Each parameter is specified by a pair of 8-character strings, of which the first contains the parameter keyword and the second the parameter value. For further information, see the Natural Operations for Mainframe documentation, Natural in Batch Mode.

Default value: none

Example:

```
FRONTEND_PARAMETER = "MSGCLASSX"
```

This setting determines that the default output class for CMPPRINT is "X".

INITIAL_USERID

At server initialization the NDV server creates a temporary Natural session to obtain the properties of the installed Natural environment. This configuration parameter specifies the user ID to be used for this Natural session. The specified value must not exceed 8 characters, any longer value is truncated.

Default value: STARGATE

Example:

```
INITIAL_USERID=NDVINITU
```

THREAD_NUMBER

This parameter is not applicable under Smarts.

This configuration parameter specifies the number of physical storage threads to be allocated by the Natural front-end, that is, the number of sessions which can be executed in parallel.

Note:

This number does not limit the number of sessions within the server, but the number of sessions which can be in execution status concurrently. The number of sessions is limited by the size of the Natural swap medium.

Default value: 3

Example:

```
THREAD_NUMBER=5
```

FRONTEND_NAME

This configuration parameter specifies the name of the Natural front-end to start a Natural session. The front-end resides on a PDS member.

Default value: none

Example:

```
FRONTEND_NAME=NAT315SV
```

KEEP_TCB

This parameter is not applicable under Smarts.

By default, the remote Natural session of a mapped environment terminates its TCB whenever you switch the focus within Natural Studio to a different mapped environment. If you toggle the focus back, the remote session is dispatched using a different TCB. The maximum number of active TCBs is equal to the number of connected clients.

The configuration parameter KEEP_TCB specifies whether the remote Natural session should use the same TCB during its entire lifetime. This is required if you want to access DB2. And it could be required if you access 3GL programs which are need to be executed under the same TCB for successive calls.

Default value: NO

Example:

```
KEEP_TCB=YES
```

THREAD_SIZE

This parameter is not applicable under Smarts.

This configuration parameter specifies the size (in KB) of each physical storage thread which contains the Natural session data at execution time.

Default value: 500

Example:

```
THREAD_SIZE=800
```

TRACE_LEVEL

See Trace Level details in the section Natural Development Server on Mainframe.

Default value: 0

Example:

```
TRACE_LEVEL=0x00000011
```

This setting switches on Bits 31 and 27.

DEFAULT_PROFILE

This optional configuration parameter defines a default profile. Specifying a parameter string in the **Map Environment** window of Natural Studio overwrites this default profile.

Default value: none

Example:

```
DEFAULT_PROFILE = RDEVS,10,930
```

If no parameters are defined in the **Map Environment** window, the session is started with the parameter PROFILE=(RDEVS10,930).

SESSION_PARAMETER

This optional configuration parameter defines session parameters that precede the parameter string either specified in the **Map Environment** window or defined by default from DEFAULT_PROFILE.

Default value: none

Example:

```
SESSION_PARAMETER = FNAT=(10,930)
```

Every session on this development server is started with the session parameter FNAT=(10,930) appended by the user-specified parameters or the definitions in DEFAULT_PROFILE.

HOST_NAME

This optional configuration parameter is necessary only if the server host supports multiple TCP/IP stacks.

If HOST_NAME is specified, the server listens on the particular stack specified by HOST_NAME, otherwise the server listens on all stacks.

Default value: none

Example:

```
HOST_NAME = node1
```

or

```
HOST_NAME = 157.189.160.55
```

PORt_NUMBER

This configuration parameter defines the TCP/IP port number under which the server can be connected.

Default value: none

Example:

```
PORt_NUMBER = 3140
```

Configuration file example:

```
# This is a comment
SESSION_PARAMETER= profile=(stgqa,10,930) fuser=(10,32)
DEFAULT_PROFILE = DEFPROF
THREAD_NUMBER = 2
THREAD_SIZE=700
FRONTEND_NAME = NATOS31L      # and another comment
PORT_NUMBER=4711
```

Server Datasets

The Development Server requires the following datasets:

STGCONFIG	Defines the server configuration file.
STGTRACE	The server trace output.
STGSTDO	The stdo dataset.
STGSTDE	The stde error output.

Alternately, you can qualify each dataset name by the server ID. This is necessary if you would like to start different Natural Development Servers under a single Smarts address space.

NDVS1C	Defines the server configuration file for server NDVS1.
NDVS1T	The server trace output for server NDVS1.
NDVS1O	The stdo dataset for server NDVS1.
NDVS1E	The stde error output for server NDVS1.